# Minerva Plug and Abandonment Environment Plan

## Document No: 00MC-BHP-N00-0001

| Revision Record | | | | | | |
|---|---|---|---|---|---|---|
| ***Rev*** | ***Date*** | ***Description*** | ***Prepared by*** | ***Checked by*** | ***Reviewed by*** | ***Approved by*** |
| 3 | 13/12/2024 | Issued to NOPSEMA for Reassessment | Woodside | Decommissioning Projects | Environment Manager | Asset Manager |

| Revision History | | |
|---|---|---|
| ***Revision*** | ***Date*** | ***Description*** |
| 0 | 30/06/2022 | Issued to NOPSEMA for assessment |
| 1 | 26/06/2024 | Issued to NOPSEMA for reassessment |
| 2 | 25/10/2024 | Issued to NOPSEMA for reassessment |
| 3 | 13/12/2024 | Issued to NOPSEMA for reassessment |

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# Terms and Acronyms

| Term | Description |
|---|---|
| " | Inch |
| µ | Micron |
| AEP | Australian Energy Producers (formerly APPEA – Australian Petroleum Production and Exploration Association) |
| AFMA | Australian Fisheries Management Authority |
| AHO | Australian Hydrographic Office |
| AHTS | Anchor Handling Tug Supply Vessel |
| AIS | Automatic Identification System |
| ALARP | As Low As Reasonably Practicable |
| AMOSC | Australian Maritime Oil Spill Centre |
| AMOSPlan | Australian Industry Cooperative Spill Response Arrangements |
| AMP | Australian Marine Park |
| AMSA | Australian Maritime Safety Authority |
| ANZECC | Australian and New Zealand Environment and Conservation Council |
| API | American Petroleum Institute |
| AS | Australian Standard |
| ASTM | American Society for Testing and Materials |
| Bass Strait CZSF | Bass Strait Central Zone Scallop Fishery |
| bbl/d | Barrels per day |
| BHP | BHP Petroleum (Victoria) Pty Ltd |
| BIA | Biologically Important Area |
| BOP | Blowout Preventer |
| BWM | Ballast Water Management |
| BWMC | Ballast Water Management Certificate |
| BWMP | Ballast Water Management Plan |
| BWTS | Ballast Water Treatment System |
| CAMBA | Agreement between the Government of Australia and the Government of the People's Republic of China for the protection of Migratory Birds and their Environment. (China Australia Migratory Birds Agreement) |

| Term | Description |
|---|---|
| CEFAS | Centre for Environmental Fisheries & Aquaculture Science |
| CHARM | Chemical hazard and risk management |
| CIMT | Corporate Incident Management Team |
| Cth | Commonwealth |
| CTS | Commonwealth Trawl Sector |
| DAWE | Department of Agriculture, Water and the Environment |
| DAWR | Department of Agriculture, Water and Resources |
| DCCEEW | Commonwealth Department of Climate Change, Energy, Environment and Water |
| DEECA | Department of Energy, Environment, and Climate Action (Victoria) |
| DELWP | Department of Environment, Land, Water and Planning |
| DEWHA | Department of the Environment, Water, Heritage and the Arts |
| DJSIR | Department of Jobs, Skills, Industry and Regions (Victoria) |
| DNP | Director of National Parks |
| DoD | Department of Defence |
| DoEE | Department of Environment and Energy |
| DP | Dynamic Positioning |
| DPIPWE | Department of Primary Industries, Parks, Water and Environment (Tasmania) |
| DSEWPAC | Department of Sustainability, Environment, Water, Population and Communities |
| DTP | Department of Transport and Planning (Victoria) |
| EM | Emergency Management |
| EMBA | Environment That May Be Affected |
| EMT | Emergency Management Team |
| ENVID | Environment Hazard Identification |
| EP | Environment Plan |

| Term | Description |
|---|---|
| EP Act | *Environmental Protection Act 2017* (Victoria) |
| EPA | Environmental Protection Authority (Victoria) |
| EPBC Act | *Environment Protection and Biodiversity Conservation Act 1999* (Cwth) |
| EPO | Environmental Performance Outcome |
| EPS | Environmental Performance Standard |
| ERP | Emergency Response Plan |
| ESD | Ecologically Sustainable Development |
| GHG | Greenhouse Gas |
| GWS | Woodside Global Wells and Seismic Business Group |
| HF | High Frequency |
| HSE | Health, Safety and Environment |
| HSEC | Health, Safety, Environment and Community |
| HXT | Horizontal Xmas Tree |
| HYCOM | Hybrid Coordinate Ocean Model |
| IAP | Incident Action Plan |
| IAPP | International Air Pollution Prevention |
| IBRA | Interim Biogeographic Regionalisation for Australia |
| IMCRA | Integrated Marine and Coastal Regionalisation of Australia |
| IMO | International Maritime Organisation |
| IMR | Inspection, Maintenance and Repair |
| IMS | Introduced Marine Species |
| IMT | Incident Management Team |
| IOGP | International Oil & Gas Producers |
| IOPP | International Oil Pollution Prevention |
| IPCC | Intergovernmental Panel on Climate Change |
| IPIECA | International Petroleum Industry Environmental Conservation Association |
| ISPP | International Sewage Prevention Pollution |
| ITC | Internal Tree Cap |
| ITOPF | International Tank Owners Federation |

| Term | Description |
|---|---|
| IUCN | International Union for Conservation of Nature |
| JAMBA | Agreement between the Government of Japan and the Government of Australia for the Protection of Migratory Birds and Birds in Danger of Extinction and their Environment. (Japan Australia Migratory Birds Agreement) |
| JRCC | AMSA's Joint Rescue Coordination Centre |
| JSCC | Joint Strategic Coordination Committee |
| KEF | Key Ecological Feature |
| km | Kilometre |
| kn | Knot |
| L | Litre |
| LF | Low Frequency |
| LOWC | Loss Of Well Control |
| m | Metre |
| m/s | Metres Per Second |
| $m^3$ | Cubic Metre |
| MARPOL | The Convention for the Prevention of Pollution from Ships |
| MC | Measurement Criteria |
| MDO | Marine Diesel Oil |
| MENSAR | Victorian State Maritime Emergencies (non-search and rescue) Subplan Edition 2 |
| MFO | Marine Fauna Observer |
| mm | Millimetre |
| MMbbl | Million Barrels |
| MNES | Matters of National Environmental Significance |
| MODU | Mobile Offshore Drilling Unit |
| MoU | Memorandum of Understanding |
| MP | Marine Park |
| MSL | Monopole Source Levels |
| NatPlan | National Plan for Maritime Environmental Emergencies |
| NM | Nautical mile |
| NMFS | National Marine Fisheries Service |

| Term | Description |
|---|---|
| NOAA | National Oceanic and Atmospheric Administration |
| NOPSEMA | National Offshore Petroleum Safety and Environmental Management Authority |
| NORM | Naturally Occurring Radioactive Material |
| NOx | Nitrogen Oxides |
| NSW | New South Wales |
| NTM | Notice To Mariners |
| OCNS | Offshore Chemical Notification Scheme |
| ODS | Ozone-depleting Substance |
| OIM | Offshore Installation Manager |
| OIW | Oil in Water |
| OPEP | Oil Pollution Emergency Plan |
| OPGGS Act | *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) |
| OSPAR | Oslo and Paris Convention (for the Protection of the Marine Environment of the North-East Atlantic) |
| OSRL | Oil Spill Response Limited |
| OSV | Offshore Support Vessel |
| P&A | Plug and Abandonment |
| PLONOR | Poses Little or No Risk to the Environment |
| PMS | Preventative Maintenance System |
| PMST | Protected Matters Search Tool |
| POB | Persons On Board |
| POLREP | Pollution Report |
| ppb | Parts per billion |
| ppm | Parts per million |
| ppt | Parts per thousand |
| PSZ | Petroleum Safety Zone |
| PTS | Permanent Threshold Shift |
| Rmax | Represents the total horizontal distance (km) to the marine mammal threshold of 120 dB re 1 µPa sound pressure level (SPL). |
| ROV | Remotely Operated Vehicle |
| RSEZ | Rig Safety Exclusion Zone |

| Term | Description |
|---|---|
| SA | South Australia |
| SCERP | Source Control Emergency Response Plan |
| SCS | Source Control Section |
| SEL | Sound Exposure Level |
| SEMP | Victorian State Emergency Management Plan |
| SEMR | South East Marine Region |
| SESSF | Southern and Eastern Scalefish and Shark Fishery |
| SIMA | Spill Impact Mitigation Assessment |
| SINTEF | The Foundation for Scientific Research at the Norwegian Institute of Technology |
| SITREP | Situation Report |
| SIV | Seafood Industry Victoria |
| SMP | Scientific Monitoring Plan |
| SMPEP | Shipboard Marine Pollution Emergency Plan |
| SOLAS | International Convention for the Safety of Life at Sea |
| SOPEP | Shipboard Oil Pollution Emergency Plan |
| SPL | Sound Pressure Level |
| SSIV | Subsea Safety Isolation Valve |
| STP | Standard Temperature & Pressure |
| Te | Tonne |
| TEC | Threatened Ecological Community |
| TH | Tubing Hanger |
| TRP | Tactical Response Plan |
| TSSC | Threatened Species Scientific Committee |
| TTS | Temporary Threshold Shift |
| UKOOA | UK Offshore Operators Association |
| VEAWP | Victorian Emergency Animal Welfare Plan |
| VFA | Victorian Fisheries Authority |
| VHF | Very high frequency |
| Vic | Victoria |
| WCC | Woodside Communications Centre |

| Term | Description |
|---|---|
| WCD | Worst case Discharge |
| WOMP | Well Operations Management Plan |
| Woodside | Woodside Energy (Victoria) Pty Ltd |
| XT | Xmas tree |

# 1. Introduction

## 1.1. Overview of Proposed Activity

Woodside Energy (Victoria) Pty Ltd (Woodside) as titleholder under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Commonwealth) (referred to as the Environment Regulations), proposes to undertake the following petroleum activity within offshore petroleum production licence VIC/L22:

- vessel-based cleaning, inspection, and preparation of wells prior to Mobile Offshore Drilling Unit (MODU) based plug and abandonment activities
- permanent plug and abandonment of:
  - Minerva-1 exploration well
  - Minerva-2A appraisal well (unless accepted that this well has been previously plugged to an acceptable standard)
  - Minerva-3 production well
  - Minerva-4 production well
- disconnection and removal of well infrastructure (Xmas trees, wellheads, and guidebases).

These activities will hereafter collectively be referred to as the petroleum activity that forms the scope of this Environment Plan (EP). A detailed description of the petroleum activity is provided in Section 3.

This EP has been prepared to meet the requirements of the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Commonwealth) (OPGGS Act) and the Environment Regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

## 1.2. Purpose of this Environment Plan

In accordance with the objectives of the Environment Regulations, the purpose of this EP is to demonstrate that:

- the potential environmental impacts and risks from planned (routine and non-routine) activities and unplanned events (including emergency situations) associated with the petroleum activity are identified and described.
- appropriate management controls are implemented to reduce impacts and risks to a level that is 'as low as reasonably practicable' (ALARP) and acceptable.
- the petroleum activity is carried out in a manner consistent with the principles of ecologically sustainable development (as defined in Section 3A of the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth) (EPBC Act)).

The EP describes the process used by Woodside to identify and evaluate potential environmental impacts and risks arising from the petroleum activity, and defines Environmental Performance Outcomes (EPOs), Performance Standards (PSs) and Measurement Criteria (MCs) to be applied to manage the impacts and risks to ALARP and acceptable levels. This EP includes an implementation strategy, defined in Section 9 for monitoring, auditing, and managing the petroleum activity to be performed by Woodside and its contractors. This EP documents and considers consultation with relevant authorities, persons, and organisations.

A separate Minerva Decommissioning and Field Management EP, accepted by NOPSEMA on 14 October 2024, has been developed which permits:

- removal of equipment VIC/L22 and VIC/PL33 beyond the scope of this EP
- ongoing inspection, maintenance, and repair of all equipment prior to removal
- environmental monitoring in support of General Direction 831 and a future application to surrender VIC/L22 and VIC/PL3

This EP, along with the Minerva Decommissioning and Field Management EP, is intended to meet Woodside's decommissioning obligations under the OPGGS Act. These EPs will also meet the requirements General Direction 831 (Section 2.1.1.1).

## 1.3. Scope of this Environment Plan

A description of the petroleum activity relating to this EP is provided in Section 3. The spatial boundary of the petroleum activity has been defined as the Operational Area, which is further described in Section 3.3.

The petroleum activity described in this EP is part of the decommissioning activities that are being carried out on the Minerva subsea infrastructure in VIC/L22 and VIC/PL33. Woodside intends to complete removal of the Minerva subsea equipment beyond the scope of this EP in Commonwealth waters and Victoria coastal waters as a single campaign, contingent upon receiving all required environmental approvals.

A summary of the holistic decommissioning planning and execution for the property within VIC/L22 and VIC/PL33, including an indicative schedule, is provided in Section 3.5.

This EP is not intended to be the final decommissioning EP for Woodside's property in VIC/L22 and VIC/PL33. This EP does not address Section 270 of the OPGGS Act and title surrender requirements; these requirements are considered in the Minerva Decommissioning and Field Management EP.

The scope of this EP does not include the movement of the project vessels outside of the Operational Area. These activities will be performed in accordance with relevant maritime requirements.

## 1.4. Woodside / BHP Petroleum Merger

BHP Petroleum and Woodside announced their intention to merge in 2021, which became effective on 1 June 2022. Prior to 1 June 2022, BHP Petroleum and Woodside were separate companies, thus planning activities for this decommissioning EP were originally conducted by BHP Petroleum. The merger consisted of a change of control of BHP Petroleum International Pty Ltd (holding company for BHP global petroleum business) via a share sale to Woodside Petroleum Ltd. All BHP Petroleum entities holding Australian Petroleum titles, including BHP Petroleum (Victoria) Pty Ltd, transferred to Woodside parent company control with this change in ownership.

All BHP Petroleum policies, standards, processes, and procedures were included in the merger agreement and remain valid. Harmonisation of processes between BHP Petroleum and Woodside commenced planning upon the completion of the merger and will be conducted in a staged manner. The BHP Petroleum HSE Management system (herein referred to as the Woodside (PetDW) HSE Management System) will continue to be used by 'heritage' BHP operations until potential changes have been assessed. References to BHP, BHP Petroleum and Woodside are interchangeable throughout this document.

The titleholder name change from BHP Petroleum (Victoria) Pty Ltd to Woodside Energy (Victoria) Pty Ltd was registered on 29 July 2022.

## 1.5. Overview of HSE Management System

All Woodside controlled activities associated with the petroleum activity will be conducted in accordance with:

- Woodside "Our Values" (Appendix A) and Environment and Biodiversity Policy (Appendix B)
- Woodside Wells and Seismic Delivery Management System
- Woodside (PetDW) Management System
- Woodside (PetDW) Health, Safety and Environment (HSE) Standard
- this EP.

All Woodside sites must maintain up-to-date practices that adhere to the requirements contained in the Woodside (PetDW) HSE Management System and Standard. Activity-specific environmental management measures specific to the petroleum activity are implemented through this EP.

Whilst HSE Management Systems apply to the manner in which Woodside execute their responsibilities under this EP, operational control of the MODU remains the responsibility of the MODU Contractor and shall be managed in accordance with Contractor Management Systems as detailed within the NOPSEMA accepted Safety Case for the facility.

## 1.6. Environment Plan Summary

An EP summary has been prepared from material provided in this EP. Table 1-1 summarises the items as required by regulation 35(7) of the Environment Regulations.

**Table 1-1 EP Summary**

| EP Summary Material Requirement | Relevant Section of EP |
|---|---|
| The location of the activity | Section 3 |
| A description of the receiving environment | Section 4<br>Appendix D |
| A description of the activity | Section 3 |
| Details of the environmental impacts and risks | Section 7<br>Section 8<br>Oil Pollution Emergency Plan (OPEP) (Appendix E) |
| The control measures for the activity | Section 7<br>Section 8 |
| The arrangements for ongoing monitoring of the titleholder's environmental performance | Section 9<br>OPEP (Appendix E) |
| Response arrangements in the oil pollution emergency plan | OPEP (Appendix E) |
| Details of consultation already undertaken and plans for ongoing consultation | Section 5<br>Section 9.11<br>Appendix F |
| Details of the titleholder's nominated liaison person for the activity | Section 1.8 |

## 1.7. Structure of the Environment Plan

This EP has been structured to reflect the requirements of the Environmental Regulations as outlined in Table 1-2.

**Table 1-2: EP content requirements from the Environment Regulations and relevant sections of the EP**

| Criteria for Acceptance | Content Requirements / Relevant Regulations | Elements | Section of EP |
|---|---|---|---|
| Regulation 34(a):<br>*is appropriate for the nature and scale of the activity* | Regulation 21:<br>*Environmental Assessment* | The principle of 'nature and scale' applies throughout the EP | Section 3<br>Section 4 |
| | Regulation 22:<br>*Implementation strategy for environment plan* | | Section 4<br>Section 6<br>Section 7 |
| | Regulation 24:<br>*Other information in the environment plan* | | Section 8<br>Section 9 |

| Criteria for Acceptance | Content Requirements / Relevant Regulations | Elements | Section of EP |
|---|---|---|---|
| Regulation 34(b):<br>*demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable*<br><br>Regulation 34(c):<br>*demonstrates that the environmental impacts and risks of the activity will be of an acceptable level* | Regulation 21(1)–21(7):<br>*21(1) Description of the activity*<br>*21(2) and (3) Description of the environment*<br>*21(4) Requirements*<br>*21(5) and (6) Evaluation of environmental impacts and risks*<br>*21(7) Environmental performance outcomes and standards*<br>Regulation 24(a)–24(b):<br>*A statement of the titleholder's corporate environmental policy*<br>*A report on all consultations between the titleholder and any relevant person.* | ▪ Set the context (activity and existing environment)<br>▪ Define 'acceptable' (the requirements, the corporate policy, relevant persons)<br>▪ Detail the impacts and risks<br>▪ Evaluate the nature and scale<br>▪ Detail the control measures – ALARP and acceptable | Section 1<br>Section 2<br>Section 3<br>Section 4<br>Section 5<br>Section 6<br>Section 7<br>Section 8<br>Section 9 |
| Regulation 34(d):<br>*provides for appropriate environmental performance outcomes, environmental performance standards and measurement criteria* | Regulation 21(7):<br>*Environmental performance outcomes and standards* | Environmental Performance Outcomes (EPOs)<br>Environmental Performance Standards (EPSs)<br>Measurement Criteria (MC) | Section 7<br>Section 8 |
| Regulation 34(e):<br>*includes an appropriate implementation strategy and monitoring, recording and reporting arrangements* | Regulation 22:<br>*Implementation strategy for the environment plan* | Implementation strategy, including:<br>▪ systems, practices, and procedures<br>▪ performance monitoring<br>▪ OPEP and scientific monitoring<br>▪ ongoing consultation | Section 9 |
| Regulation 34(f):<br>*does not involve the activity or part of the activity, other than arrangements for environmental monitoring or for responding to an emergency, being undertaken in any part of a declared World Heritage property within the meaning of the EPBC Act* | Regulation 21(1)–21(3):<br>*21(1) Description of the activity*<br>*21(2) Description of the environment*<br>*21(3) Without limiting regulation 21(2)(b), particular relevant values and sensitivities may include any of the following:*<br>*a) the world heritage values of a declared World Heritage property within the meaning of the EPBC Act*<br>*b) the national heritage values of a National Heritage place within the meaning of that Act* | No activity, or part of the activity, undertaken in any part of a declared World Heritage property. | Section 3<br>Section 4<br>Section 7<br>Section 8 |

| Criteria for Acceptance | Content Requirements / Relevant Regulations | Elements | Section of EP |
|---|---|---|---|
| | *c) the ecological character of a declared Ramsar wetland within the meaning of that Act*<br>*d) the presence of a listed threatened species or listed threatened ecological community within the meaning of that Act*<br>*e) the presence of a listed migratory species within the meaning of that Act*<br>*f) any values and sensitivities that exist in, or in relation to, part or all of:*<br>i) *a Commonwealth marine area within the meaning of that Act; or*<br>ii) *Commonwealth land within the meaning of that Act.* | | |
| Regulation 34(g):<br>*(i) the titleholder has carried out the consultations required by Section 25*<br>(ii) *the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate* | Regulation 25:<br>*Consultation with relevant authorities, persons and organisations, etc.*<br>Regulation 24(b):<br>*A report on all consultations between the titleholder and any relevant person.* | Consultation in preparation of the EP. | Section 5 |
| Regulation 34(h):<br>*complies with the Act and the regulations* | Regulation 23:<br>*Details of the titleholder and nominated liaison*<br>Regulation 24(c):<br>*Details of all reportable incidents in relation to the proposed activity.* | All contents of the EP must comply with the OPGGS Act and the Environmental Regulations. | Section 1.8<br>Section 9.10.2.4 |

## 1.8. Titleholder Details

The nominated titleholder for this activity is Woodside Energy (Victoria) Pty Ltd, on behalf of the Joint Venture Partners:

- Woodside Energy (Victoria) Pty Ltd
- Cooper Energy (MF) Pty Ltd.

Woodside has a record of efficient and safe production. Woodside strives for excellence in safety and environmental performance and continues to strengthen relationships with customers, partners co-venturers,

governments, and communities with the aim of being a partner of choice. Further information about Woodside can be found at http://www.woodside.com.

In accordance with regulation 23(1) of the Environment Regulations, details of the titleholder are provided in Table 1-3. In accordance with regulation 23(2) of the Environment Regulations, details of the titleholder's nominated liaison person are provided in Table 1-4.

In the event of any change in the titleholder, titleholder parent company, a change in the titleholder's nominated liaison person or a change in the contact details for either the titleholder or the liaison person, Woodside will notify the regulator in writing in accordance with regulation 23(3) of the Environment Regulations.

**Table 1-3: Titleholder details**

| | |
|---|---|
| **Business Name** | Woodside Energy (Victoria) Pty Ltd |
| **Business Address** | 11 Mount Street, Perth, Western Australia 6000 |
| **Telephone Number** | 1800 442 977 |
| **Email Address** | feedback@woodside.com |
| **ACN** | 006 466 486 |

**Table 1-4: Titleholder nominated liaison person**

| | |
|---|---|
| **Name** | Pip Milne |
| **Position** | Australian Projects Decommissioning Lead |
| **Business address** | 11 Mount Street, Perth, Western Australia 6000 |
| **Telephone number** | 1 800 442 977 |
| **Email address** | feedback@woodside.com |

# 2. Legislative Framework

## 2.1. Commonwealth Legislation

Environmental aspects of petroleum activities in Australian Commonwealth waters are subject to two main statutes, the OPGGS Act and the EPBC Act. Each of these, as applicable to the proposed petroleum activity, are described in the following sections. There are also additional applicable Commonwealth legislation, International Agreements and Conventions and other applicable standards, guidelines, and codes that may apply to the petroleum activity. These are listed in Appendix C of this EP.

### 2.1.1. Offshore Petroleum and Greenhouse Gas Storage Act 2006

The OPGGS Act provides the regulatory framework for all offshore exploration and production activities in Commonwealth waters (those areas beyond three nautical miles from the Territorial Sea baseline and with the Commonwealth Petroleum Jurisdiction Boundary). The Environment Regulations have been made under the OPGGS Act to ensure '...that any petroleum activity or greenhouse gas activity carried out in an offshore area is:

- carried out in a manner consistent with the principles of ecologically sustainable development set out in section 3A of the EPBC Act
- carried out in a manner by which the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable
- carried out in a manner by which the environmental impacts and risks of the activity will be of an acceptable level'.

This EP meets the requirements of the Environment Regulations by providing an environment plan that:

- is appropriate for the nature and scale of the activity
- demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable (ALARP)
- demonstrates that the environmental impacts and risks of the activity will be of an acceptable level
- provides for appropriate environmental performance outcomes, environmental performance standards and measurement criteria
- includes an appropriate implementation strategy and monitoring, recording, and reporting arrangements
- does not involve the activity or part of the activity, other than arrangements for environmental monitoring or for responding to an emergency, being undertaken in any part of a declared World Heritage property with the meaning of the EPBC Act; and
- demonstrates that:
  - an appropriate level of consultation, as required by Division 3 of the Environment Regulations, has been carried out
  - the measures (if any) adopted, or proposed to be adopted, because of consultations are appropriate
  - complies with the OPGGS Act and the Environment Regulations.

Obligations in relation to the maintenance and removal of equipment and property brought onto title are provided for under section 572(3) of the OPGGS Act. Under section 572(3) of the OPGGS Act, a titleholder must remove from the title area all structures that are, and all equipment and other property that is neither used nor to be used in connection with the operations. Under section 572(7), property removal requirements are subject to any other provision of the OPGGS Act, the Environment Regulations, directions given by NOPSEMA or the responsible Commonwealth Minister, and any other law. Section 572(3) requires the removal of property when it is no longer used, unless NOPSEMA has accepted alternative arrangements. The *Guideline: Offshore Petroleum Decommissioning* (Department of Industry, Science and Resources, 2022) provides information on the circumstances where alternative arrangements may be accepted.

Section 572(3) of the OPGGS Act must be read with section 270(3) of the OPGGS Act, under which, all property brought into the surrender area must be removed to the satisfaction of NOPSEMA, or arrangements that are satisfactory to NOPSEMA must be made relating to the property, before the title may be surrendered.

All Minerva subsea and well infrastructure within VIC/L22 and VIC/PL33 will be removed no later than 30 June 2025, in accordance with General Direction 831 (see Section 2.1.1.1) and section 572(3) of the OPGGS Act, unless NOPSEMA agrees and is satisfied that an alternative decommissioning approach meets all relevant requirements.

### 2.1.1.1. General Direction 831

On 30 August 2021, NOPSEMA issued General Direction 831 under section 574 of the OPGGS Act related to decommissioning of the property within VIC/L22 and VIC/PL33. Table 2-1 outlines Woodside's intention for addressing each of the directions provided in General Direction 831.

An inventory of Woodside's property in VIC/L22 within the scope of this EP is provided in Section 3.6. All property within these titles is planned to be completely removed in accordance with section 572(3) of the OPGGS Act no later than 30 June 2025.

This EP covers the plug and abandonment of wells in VIC/L22. Other Minerva decommissioning EPs include:

- Minerva Decommissioning and Field Management Environment Plan (1401801084 Rev 3) accepted by NOPSEMA on 14 October 2024, which relates to removal of Minerva subsea infrastructure in VIC/L22 and VIC/PL33.
- Minerva Decommissioning and Field Management Environment Plan (Victoria) (1401801116 Rev 3) currently under assessment with Department of Energy, Environment, and Climate Action (DEECA), which relates to the decommissioning of the Minerva pipeline in Victorian coastal waters.

**Table 2-1: NOPSEMA General Direction 831 requirements and relevant sections of this EP**

| Direction | Relevant Sections of EP |
|---|---|
| **Direction 1**<br>Plug or close off, to the satisfaction of NOPSEMA, all wells made in the title areas by any person engaged or concerned in those operations authorised by each title as soon as practicable and no later than 30 June 2025. | Section 3 of this EP provides the proposed methodology, scope of work and execution strategy for permanent plug and abandonment of wells in VIC/L22. An inventory of Woodside's well infrastructure in VIC/L22 within the scope of this EP is included in Table 3-6. It is intended that this activity will be completed no later than 30 June 2025. |
| **Direction 2**<br>Remove, or cause to be removed, to the satisfaction of NOPSEMA, from the title areas all property brought into those areas by any person engaged or concerned in the operations authorised by each title as soon as practicable and no later than 30 June 2025. | The petroleum activity covered by this EP provides for the removal of well infrastructure associated with the wells that are being plugged and abandoned. The Minerva Decommissioning and Field Management EP covers the removal of the Minerva subsea infrastructure in VIC/L22 and VIC/PL33 no later than 30 June 2025. |
| **Direction 3**<br>Until such time as direction 1 and 2 are satisfied, maintained all property on the titles to NOPSEMA's satisfaction, to ensure removal of the property is not precluded. | The Minerva Decommissioning and Field Management EP provides for the ongoing maintenance of property (including wells) within petroleum title VIC/L22 and pipeline licence VIC/PL33 to allow for full removal of property.<br><br>Minerva field infrastructure was last inspected in March 2021 and is in good condition, with no significant corrosion or damage identified. As such, no maintenance activities are presently envisaged to be required prior to infrastructure being removed. The Minerva Decommissioning and Field Management EP provides for inspection, maintenance, and repair (IMR) activities should they be required. |

| Direction | Relevant Sections of EP |
|---|---|
| **Direction 4**<br>Provide to the satisfaction of NOPSEMA, for the conservation and protection of the natural resources in the tile areas within 12 months after property referred to in direction 2 is removed. | Woodside applies the same definition for the term "natural resources"[1] as is used in policy *Section 270 Consent to surrender title- NOPSEMA advice* (NOPSEMA, 2022).<br>Under the Minerva Decommissioning and Field Management EP, Woodside will undertake final environmental surveys. Data collated from ROV surveys and sediment, infauna, and water sampling to inform what, if anything, needs to be done to provide for the conservation and protection of natural resources in VIC/L22 and VIC/PL33. |
| **Direction 5**<br>Make good, to the satisfaction of NOPSEMA, any damage to the seabed or subsoil in the tile areas caused by any person engaged or concerned in those operations authorised by the titles within 12 months after property referred to in direction 2 is removed. | Under the Minerva Decommissioning and Field Management EP, Woodside will undertake final environmental surveys. Data collated from seabed clearance surveys, ROV images and sediment sampling to inform what, if anything, needs to be done to make good any damage to the seabed or subsoil in VIC/L22 and VIC/PL33. |
| **Direction 6**<br>a) Submit to NOPSEMA on an annual basis, until all directions have been met, a progress report detailing planning towards and progress with undertaking the actions required by directions 1, 2, 3, 4 and 5<br>b) The report submitted under Direction 6(a) must be to the satisfaction of NOPSEMA and submitted to NOPSEMA no later than 31 December each year<br>c) Publish the report on the registered holders' website within 14 days of obtaining NOPSEMA satisfaction under Direction 6(b) | The Minerva Decommissioning and Field Management EP is intended to be the final decommissioning EP for the Minerva field and therefore provides Woodside's external reporting obligations required under Direction 6. Further detail is provided in Section 9.10.2.4. |

### 2.1.2. Environment Protection and Biodiversity Conservation Act 1999 (Cth)

The EPBC Act protects and manages nationally and internationally important flora, fauna, ecological communities, and heritage places in Australia. Many of these are defined in the EPBC Act as Matters of National Environmental Significance (MNES). Activities that have, will have, or are likely to have, a significant impact on MNES must be referred for assessment under the EPBC Act.

The Minerva field in Commonwealth waters, as well as the pipeline and gas plant in Victoria, was assessed as a joint Commonwealth Environmental Impact Statement and Victorian Environment Effects Statement (EES). The assessment pre-dated the EPBC Act. The joint assessment was made under the *Environmental Protection (Impact of Proposals) Act 1974* (Cth) and the *Environment Effects Act 1978* (Vic) respectively.

NOPSEMA, through the Streamlining Offshore Petroleum Environmental Approvals Program, implements these requirements with respect to offshore petroleum activities in Commonwealth waters. The Streamlining Offshore Petroleum Environmental Approvals Program is applicable to all offshore petroleum activities authorised under the OPGGS Act and requires petroleum activities to be conducted in accordance with an accepted EP, consistent with the principles of Ecologically Sustainable Development (ESD). The definition of 'environment' in the Streamlining Offshore Petroleum Environmental Approvals Program is consistent with that used in the EPBC Act and encompass all matters protected under Part 3 of the EPBC Act.

[1] The Section 270 NOPSEMA advice – Consent to surrender title (NOPSEMA, 2022) applies the same meaning to "natural resources" as in Article 77 of the United Nations Convention on the Law of the Sea 1982, which states "*The natural resources referred to in this Part consist of the mineral and other non-living resources of the seabed and subsoil together with living organisms belonging to sedentary species, that is to say, organisms which, at the harvestable stage, either are immobile on or under the seabed are unable to move except in constant physical contact with the seabed or the subsoil*"

Under section 268 of the EPBC Act: 'A Commonwealth agency must not take any action that contravenes a recovery plan or a threat abatement plan.'

In respect to offshore petroleum activities in Commonwealth waters, the above is implemented by NOPSEMA. Commitments relating to listed threatened species and ecological communities under the Act are included in the Program Report:

- NOPSEMA will not accept an EP that proposes activities which will result in unacceptable impacts to a listed threatened species or ecological community.
- NOPSEMA will not accept an EP that is inconsistent with a recovery plan or threat abatement plan for a listed threatened species or ecological community.
- NOPSEMA will have regard to any approved conservation advice relating to a threatened species or ecological community before accepting an EP.

Species recovery and threat abatement management plans relevant to this EP are outlined in Section 4.4.3 and considered where relevant in the assessment of environmental impacts and risks in Sections 7 and 8.

#### 2.1.2.1. EPBC Act Referral for Minerva Decommissioning in Victorian Coastal Waters

Woodside intends to undertake removal of the Minerva pipeline in Victorian coastal waters as part of the equipment removal campaign for the activities described in the Minerva Decommissioning and Field Management EP. The activities in Victorian coastal waters are beyond the scope of this EP.

Woodside has submitted an EP to DEECA on 5 April 2024 for the Minerva pipeline removal activities in Victorian coastal waters under the Offshore Petroleum and Greenhouse Gas Storage Regulations 2021 (Vic) (Section 2.2). Unlike EPs in Commonwealth waters, no arrangements are in place for DEECA to assess matters protected under the EPBC Act as part of their EP assessment.

Woodside identified that there may be impacts to MNES (underwater noise impacts on pygmy blue and southern right whales). Woodside does not consider these impacts will be significant based on the controls Woodside will implement. However, Woodside has taken a precautionary approach and referred the removal of the Minerva pipeline in Victorian coastal waters to the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEEW) for assessment as an action under the EPBC Act. The referral was submitted to DCCEEW on 17 May 2024. A decision on the Decommissioning of the Minerva pipeline in Victorian State Waters, Victoria (EPBC Referral 2024/09879) was made by DCCEEW on 26 August 2024, that the proposed action is not a controlled action provided it is taken in a manner as set out in Annexure A of the EPBC referral decision.

### 2.1.3. Hazardous Waste (Regulation of Exports and Imports)

The *Hazardous Waste (Regulation of Export and Imports) Act 1989* regulates the export and import of controlled wastes in and an out of Australia by applying to the Minister of the Environment for a permit. Woodside will manage the disposal of the recovered well infrastructure in accordance with applicable legislation and as outlined in Section 7.9.

### 2.1.4. Underwater Cultural Heritage Act 2018

The *Underwater Cultural Heritage Act 2018* (Cth) is intended to protect Australia's underwater cultural heritage features and applies to the operational area. These features include a range of items, such as historic shipwrecks, sunken aircraft, and other underwater cultural heritage sites (including Aboriginal and Torres Strait Islander sites).

*Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters (Commonwealth of Australia, 2024)* provides advice on how titleholders can meet their obligations to protect underwater cultural heritage features.

## 2.2. State Legislation

The pipeline in Victorian coastal waters is outside of the scope of this EP and will be managed in accordance with EPs accepted by DEECA.

The management and disposal of recovered equipment may result in indirect impacts beyond Commonwealth waters. Management and disposal of recovered equipment will be done in accordance with the waste management arrangements described in Sections 7.9. Relevant requirements in Victoria will be complied with when managing and disposing of recovered equipment.

In the unlikely event of a hydrocarbon release from a tank rupture from a vessel collision or loss of well containment, there is the potential for the release to impact Victorian waters and shorelines. This risk has been assessed in this EP.

Relevant Victorian legislation in listed in Appendix C.

## 2.3. International Conventions and Agreements

Australia is a signatory to numerous international conventions and agreements. These, and legislation giving effect to the conventions and agreements, are considered in the management of environmental impacts and risks where applicable. Relevant international conventions and agreements are described in Appendix C, along with the legislation that gives effect to these conventions and agreements. International conventions and agreements are considered where relevant in the assessment of environmental impacts and risks in Sections 7 and 8.

# 3. Description of Activity

## 3.1. Overview

This section has been prepared in accordance with regulation 21(1) of the Environment Regulations, and describes the petroleum activity to be performed under this EP.

Woodside proposes to undertake plug and abandonment for four Minerva subsea wells (Minerva-1, Minerva-2A, Minerva-3, and Minerva-4, referred to collectively as the Minerva wells) within production licence VIC/L22, and removal of well infrastructure. The Minerva wells will be permanently plugged and abandoned using a moored semi-submersible mobile offshore drilling unit (MODU). The activities are within Commonwealth waters, approximately 8 km south, south-west of Port Campbell, Victoria.

The Minerva-1 exploration and Minerva-2A appraisal wells were drilled in VIC/L22 in 1993. Both wells were suspended, with wellheads in place. The Minerva-2 well was plugged and abandoned after encountering technical difficulties approximately 465 m below the seabed without encountering indications of hydrocarbons, well short of the planned depth of approximately 2,200 m. The Minerva-2 wellhead and guide base were removed. Minerva-2 is not considered further in this EP.

The Minerva-3 and Minerva-4 production wells were drilled in VIC/L22 in late 2002. The offshore and onshore pipeline was laid in 2003. The construction of the onshore gas plant to receive hydrocarbons produced by Minerva-3 and Minerva-4 was completed in December 2004, and the facilities were commissioned and commenced production in January 2005. Production of the field ceased in September 2019 and the Minerva-3 and Minerva-4 production wells were suspended. A vessel-based campaign was conducted in Q1 2021 to disconnect flowlines from wells and install additional barrier plugs in the wells.

Woodside proposes to undertake the following activities under this EP, referred to as the petroleum activity:

- Vessel-based cleaning, inspection, and preparation of wells prior to MODU-based plug and abandonment activities.
- Permanent plug and abandonment of the Minerva Field wells using a moored semi-submersible MODU.
- Disconnection and removal of well infrastructure following the plug and abandonment activity, this includes:
  - Minerva-1, Minerva-3 and Minerva-4 wellheads and guide-bases, along with the Minerva-3 and Minerva-4 Xmas trees.
  - Removal of the wellhead and guide base from Minerva-2A may occur under the Minerva Decommissioning and Field Management EP, but this is contingent upon Minerva-2A being accepted by NOPSEMA as plugged and abandoned. If Minerva-2A is not accepted as plugged and abandoned by NOPSEMA, the Minerva-2A wellhead will be removed under this Minerva Plug and Abandonment EP.

Removal of the Minerva subsea infrastructure and ongoing field management is addressed in the Minerva Decommissioning and Field Management EP.

A full list of infrastructure within the scope of this EP is provided in Table 3-6.

## 3.2. Location

The Operational Area (defined in Section 3.3) is located approximately 8 km south-southwest of the township of Port Campbell, Victoria, Australia. The Operational Area lies entirely offshore in VIC/L22, in approximately 50–60 m of water (Figure 3-1).

The relative distances of several town and cities from the Operational Area are provided in Table 3-1. The coordinates and water depth of the Minerva wells is presented in Table 3-2.

**Table 3-1: Location of activity**

| Value / Sensitivity | Distance from the Operational Area (km) |
|---|---|
| Port Campbell | 8 |
| Warrnambool | 53 |
| Apollo Bay | 60 |
| Geelong | 135 |

**Table 3-2: Minerva well locations and water depths**

| Infrastructure | Latitude[1] | Longitude[1] | Water Depth (m LAT) |
|---|---|---|---|
| ***Minerva Well Infrastructure*** | | | |
| Minerva-1 Exploration Well | 38° 42' 06.885" S | 142° 57' 17.278" E | 56 |
| Minerva-2A Exploration Well | 38° 42' 59.190" S | 142° 57' 25.742" E | 58 |
| Minerva 3 Production Well | 38° 42’ 22.718” S | 142° 57’ 32.997” E | 57 |
| Minerva 4 Production Well | 38° 43’ 07.368” S | 142° 57’ 44.023” E | 59 |

[1] *GDA94 coordinate reference system*

## 3.3. Operational Area

The Operational Area defines the spatial boundary of the petroleum activity and is shown in Figure 3-1. The Operational Area is defined as a 2,000 m buffer around each of the Minerva wells. The Operational Area is sufficient to include all planned activities described in this EP. All planned activities will take place within the Operational Area. Planned activities outside the Operational Area, such as mobilisation of vessels and the MODU to the Operational Area, are not considered to be a petroleum activity.

The Minerva-3 and Minerva-4 wells are surrounded by a 500 m Petroleum Safety Zone (PSZ) intended to prevent interactions between other users of the sea and the well infrastructure. Unauthorised access within PSZs by third parties is an offence. The PSZs are marked on nautical charts.

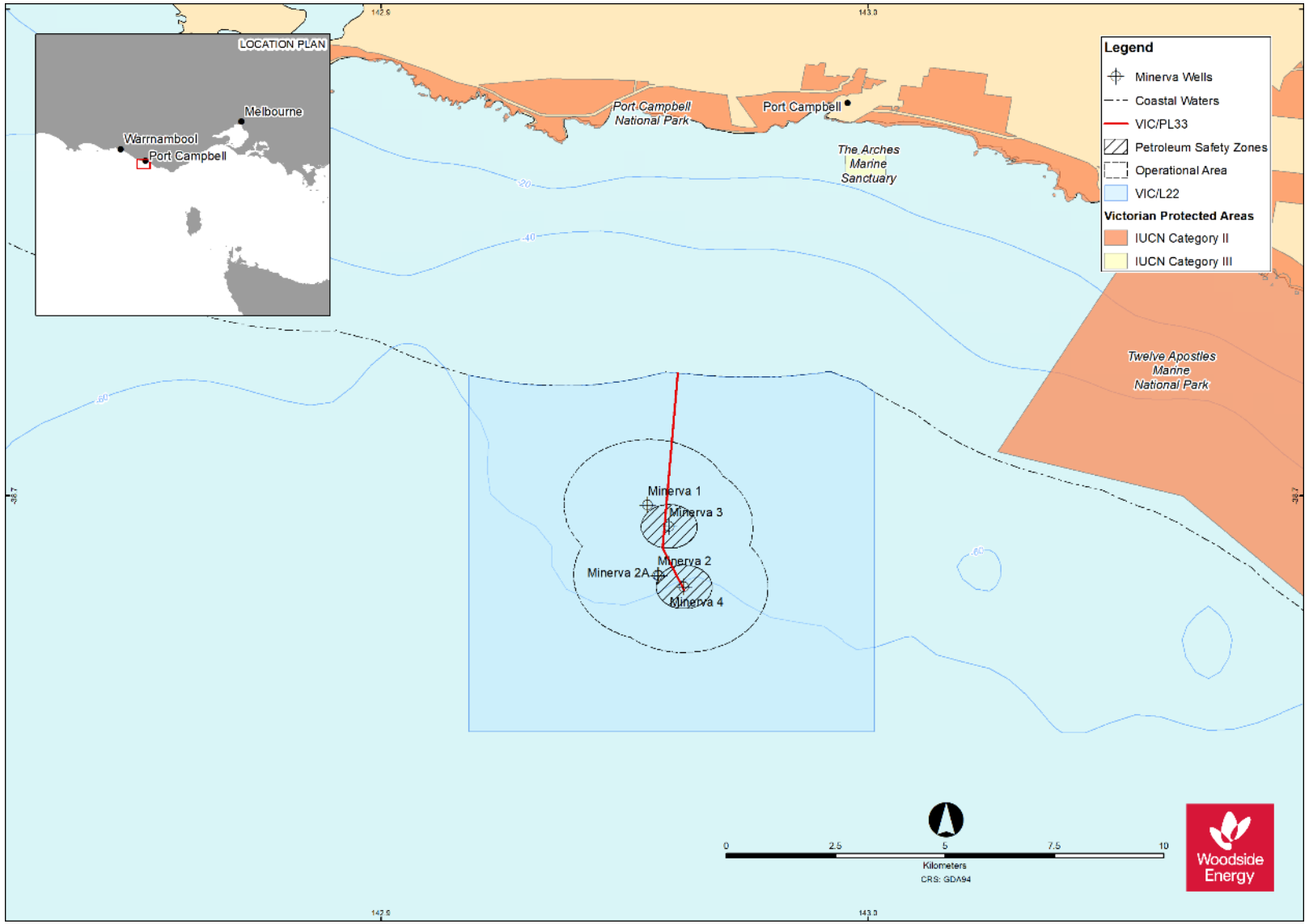


Figure 3-1: Location of the Activity

## 3.4. Timing and Duration

Plug and abandonment of the Minerva wells is planned to commence following acceptance of this EP. In accordance with General Direction 831, the petroleum activity is planned to be completed no later than 30 June 2025.

While this EP provides for the activity to be undertaken within this window of opportunity, the total duration of the plug and abandonment activities is approximately 44–160 days.

Preparatory operations including pre-lay moorings, cleaning of wellheads, and status check of valves, are anticipated to be undertaken approximately one month prior to the commencement of MODU-based plug and abandonment activities.

The timing and duration of these activities is subject to change due to project schedule requirements, MODU/vessel availability, unforeseen circumstances, and weather. During operations, activities will be 24 hours per day, seven days per week.

Further details of the proposed timing and duration for the petroleum activity is outlined in Table 3-3.

**Table 3-3: Indicative timing of petroleum activity**

| Activity | Duration | Approximate Timing | Indicative Vessel(s) |
|---|---|---|---|
| Preparatory operations including mooring pre-lay, BOP tether installation, cleaning of wellheads and status check of valves | 1 to 7 days per well | Conducted one month prior to P&A activities.<br>Any time from EP acceptance; current planning Q1 2025. | Up to three Anchor Handling Tug Supply Vessels (AHTS) |
| Permanent plug and abandonment (4 wells) | 8 to 21 days per well | Any time from EP acceptance; current planning Q1-Q2 2025. | Moored MODU supported by three AHTS |
| Disconnection and removal of well infrastructure (Xmas trees and wellheads) | 1 to 5 days per well | Any time from EP acceptance; current planning Q1-Q2 2025. | MODU |
| Recovery of pre-laid moorings and BOP tether system | 1 to 7 days per well | Within one month following MODU demobilisation<br>Any time from EP acceptance; current planning Q1-Q2 2025. | Up to three Anchor Handling Tug Supply Vessels (AHTS) |
| Total Duration | 44 to 160 days | | |

### 3.4.1. Simultaneous Operations

There are no currently planned simultaneous operations (SIMOPS) between the petroleum activities described in this EP and other petroleum activities either by Woodside or other titleholders. However, if necessary (e.g., due to MODU availability), the activities described in the Minerva Decommissioning and Field Management EP may occur concurrently with the activities described in this EP. If required, SIMOPS will be managed by Woodside and its contractors. A 500 m exclusion zone will be implemented around the MODU, within which SIMOPS would only occur following a risk assessment and implementation of controls as detailed in the SIMOPS plan.

Woodside is aware of the petroleum activity described in the Offshore Gas Victoria Geophysical and Geotechnical Seabed Survey EP by Beach Energy (Operations) Limited (Beach), which may overlap VIC/L22. The agreement between Woodside and Beach permitting Beach to undertake their petroleum activity in VIC/L22 prohibits Beach from undertaking the geophysical and geotechnical seabed survey in VIC/L22 during removal of the Minerva subsea infrastructure or plugging of the Minerva wells.

## 3.5. Holistic Minerva Decommissioning and Timing

### 3.5.1. Decommissioning Planning

The activities to decommission the Minerva field in Commonwealth waters are covered by two separate EPs. The scope of each of these EPs is detailed in Table 3-4 and an indicative schedule is provided as Figure 3-2.

Decommissioning planning for the Minerva field is substantially progressed and Woodside has secured a vessel for infrastructure removal activities. A rig has been secured for the plug and abandonment activities through a rig consortium with other titleholders in the region.

The Minerva Decommissioning and Field Management EP is planned to be the final EP for the decommissioning of the Minerva field and anticipated to remain in force until such time:

- all decommissioning activities are completed;
- the requirements of General Direction 831 are met;
- Section 270 of the OPGGS Act requirements are satisfied so that the relevant petroleum titles can be surrendered.

**Table 3-4: Summary of EPs related to the decommissioning of Minerva field in Commonwealth waters**

| EP | Scope | EP Initiation | EP Termination |
|---|---|---|---|
| Minerva Plug and Abandonment EP (this EP) | Undertake plug and abandonment activities in VIC/L22 and removal of the Minerva well infrastructure. | From acceptance of EP by NOPSEMA.<br>Plug and abandonment activities are planned to be carried out during Q2 2025. | The EP will end when Woodside notifies NOPSEMA that the petroleum activity described in the EP is completed in accordance with regulation 46 of the Environment Regulations. |
| Minerva Decommissioning and Field Management EP | Removal of Minerva subsea infrastructure within Commonwealth waters and field management activities. | From acceptance of EP by NOPSEMA.<br>The subsea infrastructure removal window is between September 2024 and April 2025 inclusive. The subsea infrastructure removal activity will not be undertaken outside this window.<br>Removal activities are currently planned to commence between December 2024 – January 2025. | The EP will end when Woodside notifies NOPSEMA that the petroleum activity described in the EP is completed in accordance with regulation 46 of the Environment Regulations. |

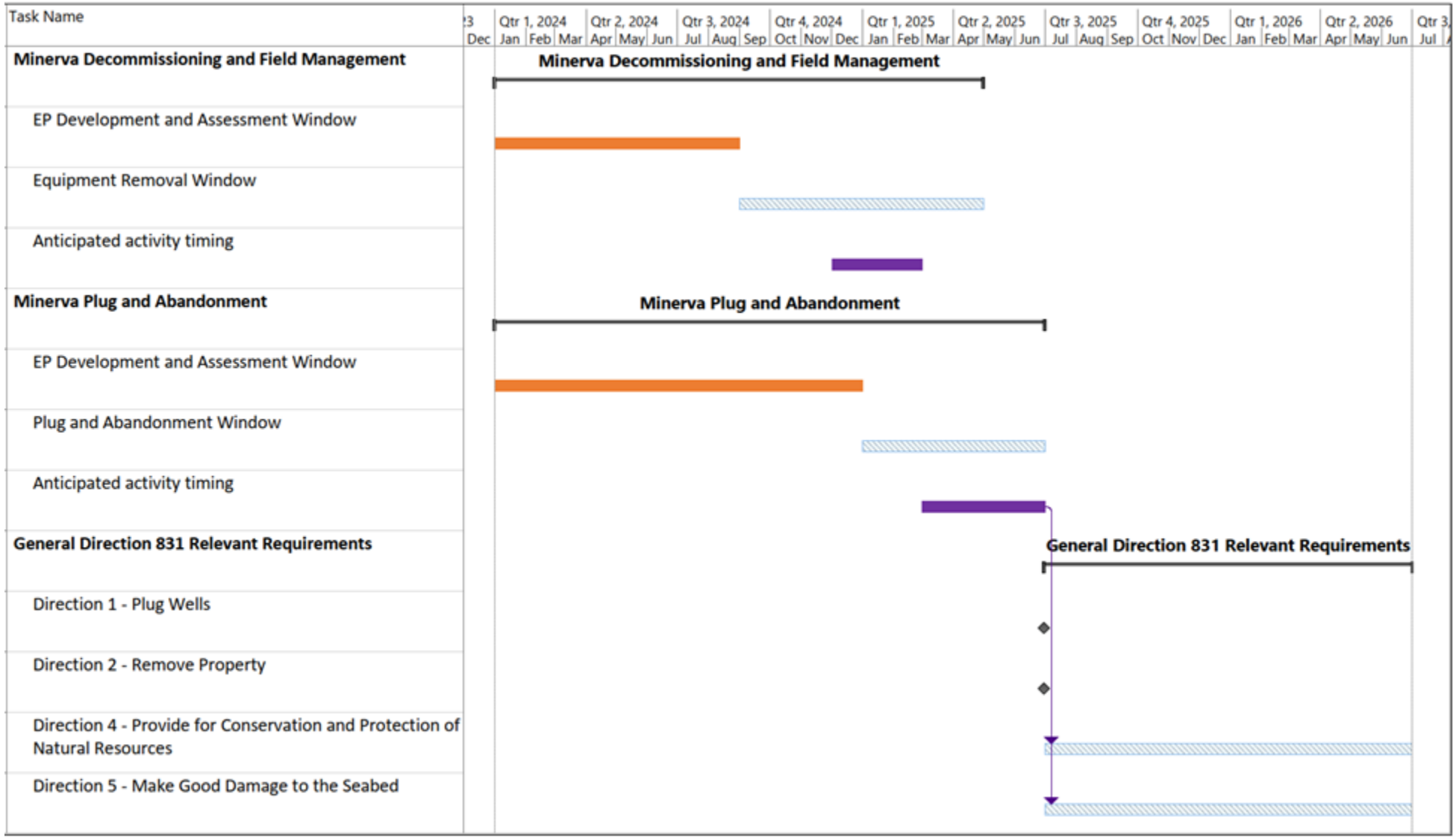


Figure 3-2: Indicative schedule for decommissioning environmental approvals and related activities for the Minerva field

### 3.5.2. Surveys or Studies Undertaken to Support the Decommissioning Program

An offshore campaign was undertaken in March 2021 during which field observations and studies were conducted to collect data to inform decommissioning planning for the Minerva field infrastructure (BHP, 2021). These included:

- general visual and cathodic protection (CP) inspections
- environmental sampling
- contaminants studies.

Additional information on these studies is available in the Minerva Decommissioning and Field Management EP.

## 3.6. Current State of Equipment in the Minerva Field

Suspension of the pipeline occurred at the end of operational field life in September 2019. The pipeline was depressurised, cleaned, and flushed of hydrocarbons and the returns tested to confirm that the pipeline was hydrocarbon free. The final fill of the 10” pipeline and 2” chemical injection lines was completed with potable, filtered water typically treated to 500 ppm of Hydrosure, which is a corrosion inhibitor / biocide / oxygen scavenger blend. The main production line was also purged and packed with nitrogen from onshore as a final step to provide a nitrogen gas blanket at the surface isolation blind for future intervention work. The nitrogen blanket is entirely in the onshore section of the pipeline and will not be released by the petroleum activity (either directly or indirectly).

The Minerva-3 and Minerva-4 production wells were bull-headed and well barriers closed and tested to isolate the pipeline from the wells. Flushing fluids were disposed of downhole in the Minerva-3 production well during cleaning of the production system.

Chemical injection lines were depressurised and flushed. Hydraulic lines were depressurised and disconnected at the onshore gas plant to prevent inadvertent operation of the subsea valves. Electrical controls were also switched off.

After initial cessation activities, a short offshore campaign was completed in March 2021 to isolate the Minerva subsea pipeline system from the subsea trees and verify the flushed condition of the pipeline. The subsea pipeline system was isolated from the wells by cutting and removing short sections of the rigid jumper spools close to the subsea trees and installing plugs on either side of the cut sections. A total of six rigid lines were cut, including two of the 8” production spools and four of the 2” chemical injection spools. The short sections of rigid spool were cut using diamond wire saw and recovered to the vessel for further testing.

### 3.6.1. Current Status of Minerva Wells

The Minerva wells are all currently suspended in a state of preservation and managed under an approved Well Operations Management Plan (WOMP). The production wells (Minerva-4 and Minerva-4) were shut in following cessation of production in October 2019 via closure of the Xmas tree valves, which were tested and verified. The production wells are isolated from the Minerva pipeline.

General Direction 831 refers to several wells The status of each well is summarised in Table 3-5 based on reports available from the National Offshore Petroleum Information Management System (NOPIMS). The wells have effective barriers in place preventing the release of hydrocarbons from the wells. A description of the equipment within the Minerva field within the scope of this EP is provided in Table 3-6.

The exploration wells (Minerva-1 and Minerva-2A) were suspended with temporary deep set cement plugs. A wellhead and corrosion cap are in place on both wells.

The Minerva WOMP and the Minerva Field Subsea Operations Offshore Pipeline ROV inspection frequency Plan (00MN-N28-6647) sets out requirements for ongoing inspection of Minerva infrastructure. Routine inspections (no greater than 5 yearly) are conducted on the Minerva well infrastructure, with the most recent inspection conducted in March 2021 in conjunction with the subsea flowline disconnection activity.

For the production wells (Minerva-3 and Minerva-4), wellheads and Xmas trees were visually inspected with CP readings and NORMS readings taken. For the production well infrastructure, no significant anomalies were detected during this survey and infrastructure was found to be in good overall condition with no evidence of corrosion, leaks, or damage. The well infrastructure was found to have 100% coverage of marine growth in light thickness.

For the two exploration wells (Minerva-1 and Minerva-2A), visual inspections including CP measurements were taken over the wellhead and attached guidebases. Generally, the infrastructure was in good overall condition with no evidence of leaks or corrosion and 100% coverage of marine growth in light thickness. Both wellheads were identified as not being cathodically protected. For Minerva-1, a post in the north-east corner has fallen over and has appeared to have sheared at the interface with the guidepost.

**Table 3-5: Description of Minerva well status**

| Well | Date Spudded | Drilling Fluid | Well Status | Tubing Contents | Annulus Contents | Well Infrastructure |
|---|---|---|---|---|---|---|
| Exploration Well Minerva-1 | 8 March 1993 | Well was drilled with water based mud (inhibited KCl). | Suspended on 17/04/93.<br>Three cement plugs in place:<br>▪ 1,800 m to 1,670 m (130 m)<br>▪ 1,068 m to 1,018 m (50 m)<br>▪ 160 m to 110 m (50 m) | Inhibited brine | Water based mud (inhibited KCl) | Wellhead, permanent guidebase and corrosion cap |
| Minerva-2[2] | 18 September 1993 | Well was drilled with water based mud (inhibited KCl). | Abandoned on 21/09/93. Fish lost down hole and cemented in place. Casing cut below the seabed.<br>Two cement plugs in place:<br>▪ 551 m to 290 m (261 m)<br>▪ 134 m to 184 m (50 m) | Cement, seawater. | Not applicable. | None remaining. |
| Exploration Well Minerva-2A | 22 Sept 1993 | Well was drilled with water based mud (inhibited KCl). | Suspended on 17/10/93.<br>Four cement plugs in place:<br>▪ 1,975 m to 1,784 m (191 m)<br>▪ 1,775 m to 1,686 m (89 m)<br>▪ 1,575 m to 1,490 m (85 m), including 13.375” bridge plug 1,484 m with 9 m cement on top<br>▪ 171 m to 122 m (49 m) | Water based mud (inhibited KCl) | Water based mud (inhibited KCl) | Wellhead, permanent guidebase and corrosion cap |
| Production Well Minerva-3 | 25 Nov 2002 | Well was drilled with water based mud (KCl-Polymer). | Suspended in October 2019 via XT valve closure.<br>Hydraulic lines disconnected onshore (inhibiting valve movements). | Potable treated water with 500 ppm Hydrosure and residual wellbore hydrocarbons (gas/fluids). | Water based mud (KCl-Polymer) | Wellhead, horizontal Xmas tree and permanent guidebase |
| Production Well Minerva-4 | 19 Dec 2002 | Well was drilled with water based mud (KCl-Polymer). | Suspended in October 2019 via XT valve closure.<br>Hydraulic lines disconnected onshore (inhibiting valve movements). | Residual wellbore hydrocarbons (gas/fluids). | Water based mud (KCl-Polymer) | Wellhead, horizontal Xmas tree and permanent guidebase |

**Table 3-6: Inventory of equipment within the scope of this EP**

| Infrastructure | Quantity | Approximate Dimensions | Weight | Primary Materials | Current Status and Condition[1] | Removal under this EP? |
|---|---|---|---|---|---|---|
| Subsea trees:<br>▪ Minerva-3<br>▪ Minerva-4 | 2 | Height: 4 m<br>Width: 3-4 m<br>Length: 3-4 m | ~32 Te | Primarily steel<br>Small amounts of synthetic materials (e.g., O-ring seals, gaskets etc.) | Current Status: Hydraulic valves and surface-controlled subsurface safety valve closed-in and pressure tested in 2019. Flowlines have been disconnected and outlets plugged.<br>Burial: Unburied.<br>Condition: Good overall condition, no evidence of corrosion. 100% coverage of marine growth but light thickness. | Yes |
| Wellheads:<br>▪ Minerva-1<br>▪ Minerva-2A<br>▪ Minerva-3<br>▪ Minerva-4 | 4 | Height: ~3-4 m<br>Diameter: ~19” | ~10 Te | Steel | Current Status: Remains on seabed as installed.<br>Burial: Installed partially below the seabed.<br>Condition: Good overall condition, no evidence of corrosion. 100% coverage of marine growth but light thickness. | Minerva-2A to be removed under the Minerva Decommissioning and Field Management EP if NOPSEMA accept Minerva-2A as plugged and abandoned. If not, it will be removed under this Minerva Plug and Abandonment EP.<br>All other wellheads removal under this EP. |
| Permanent Guide Bases (PGB)<br>▪ Minerva-1<br>▪ Minerva-2A<br>▪ Minerva-3<br>▪ Minerva-4 | 4 | Height: ~2.5 m<br>Width: ~2 m<br>Length: ~2 m | ~ 10 Te | Steel | Current Status: Remains on seabed as installed.<br>Burial: Unburied<br>Condition: Good overall condition, no evidence of corrosion. 100% coverage of marine growth but light thickness. Damage to one of the guideposts on Minerva-1 was identified. | Minerva-2A to be removed under the Minerva Decommissioning and Field Management EP if NOPSEMA accept Minerva-2A as plugged and abandoned. If not, it will be removed under this Minerva Plug and Abandonment EP.<br>All other PGBs removed under this EP. |

[2] Minerva-2 well was abandoned during drilling of the pilot hole and hydrocarbon zone was never penetrated. No fluids remain in the wellbore and no wellhead was installed at the seabed. No abandonment activities are required for this well.

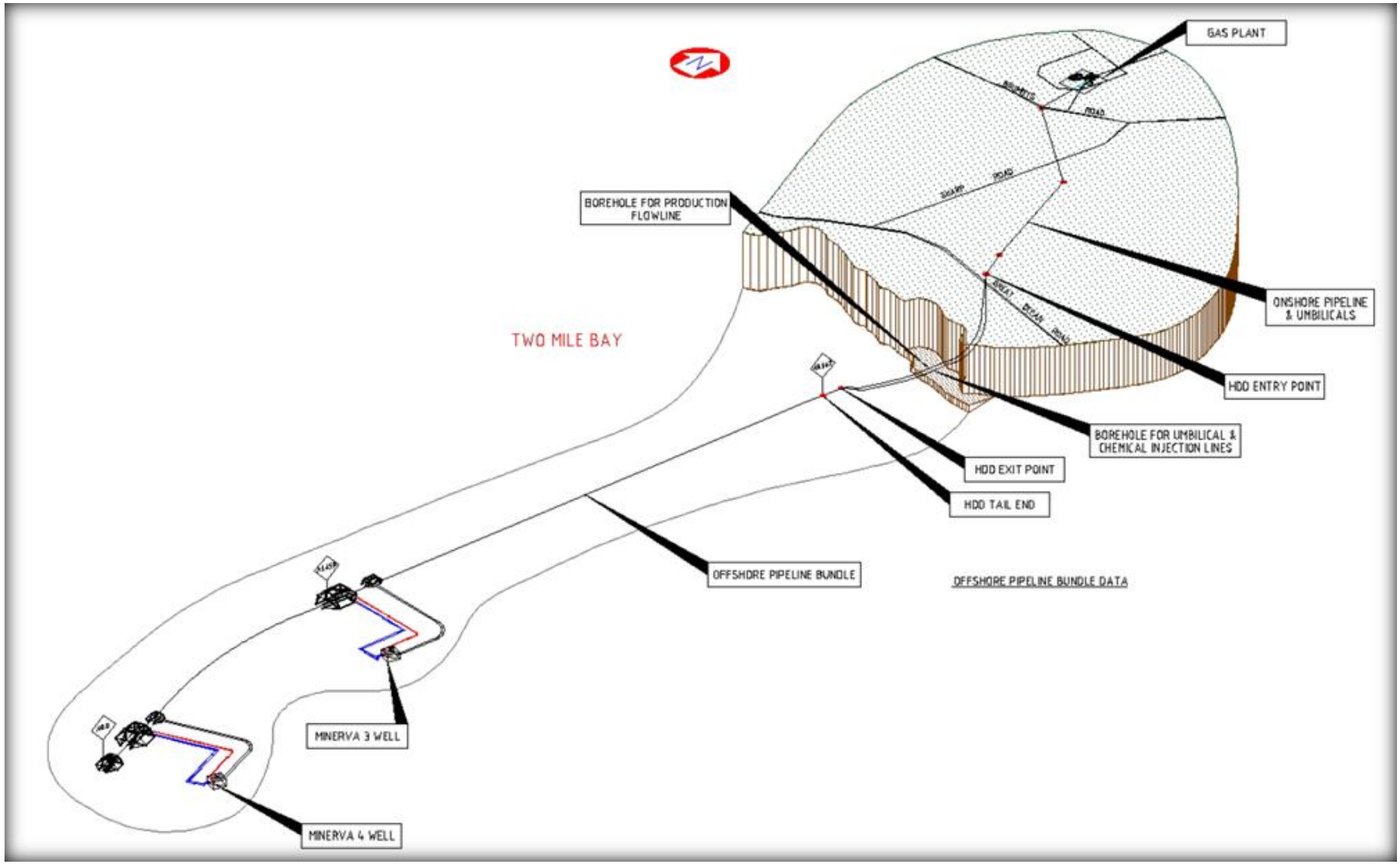


**Figure 3-3: Minerva field layout**

## 3.7. General MODU Details and Operations

The proposed plug and abandonment activity will be undertaken by a moored semi-submersible mobile offshore drilling unit (MODU) with dynamic positioning (DP) assistance. Due to both the water depth and sea-state neither a jack-up or dynamically positioned (DP) drill rig would be suitable to undertake the plug and abandonment activity.

Woodside has undertaken a detailed rig selection process. The Transocean Equinox has been screened for operations in water depths covered by this EP. Transocean was provided metocean data and water depths as part of the rig tendering process and have subsequently demonstrated, in conjunction with their mooring contractor, that the Equinox MODU is capable of being safely moored in the range of water depths associated with the four Minerva wells (55 – 60 m).

Independent mooring analysis has been completed demonstrating the MODU can be moored in water depths of 55 - 60 meters following recommended practices and standards of ISO19901-7 and/or API RP2SK. This analysis used conservative metocean and soil assumptions to confirm suitability.

Site specific mooring analysis and riser analysis will be conducted for each location prior to arrival of the MODU. Well specific operating guidelines will be provided by Transocean based on these studies in conjunction with other Transocean rig specific documents. This will also be covered in the MODU Safety Case Revision.

The Transocean Equinox has been used to inform relevant aspects of the environmental impact and risk assessment (Sections 7 and 8) of this EP.

### 3.7.1. MODU Dimensions and Capacities

The general MODU details and layout described in this section has been based upon the design specification of the Transocean Equinox MODU, which is planned to undertake the plug and abandonment activities. Indicative MODU dimensions are provided in Table 3-7. Indicative storage capacities are provided in Table 3-8.

**Table 3-7: Indicative MODU dimensions (Transocean Equinox)**

| Indicative MODU Dimensions | |
|---|---|
| Length | 116 m |
| Width | 97 m |
| Height | 85 m |
| Drilling Draft | 23.15 m |
| Drilling Displacement | 40,000 Te |
| Transit Draft | 9.45 m |
| Transit Displacement | 30,000 Te |
| Accommodation | 130 - 140 POB |

**Table 3-8: Indicative MODU capacities**

| Indicative MODU Capacities | |
|---|---|
| Ballast water | 25,000 $m^3$ |
| Diesel oil | 2,600 $m^3$ |
| Heli fuel | N/A – no offshore refuelling planned for Minerva P&A activity |
| Potable water | 681 $m^3$ |
| Drill water | 1,508 $m^3$ |
| Brine | 680 $m^3$ |
| Base oil | N/A – no base oil use planned for Minerva P&A activity |
| Liquid mud | 1,445 $m^3$ |
| Barite / bentonite | 340 $m^3$ |
| Sack storage | 177 $m^3$ |

### 3.7.2. Mooring and Positioning Equipment

Whilst the contracted MODU has a DP thruster system capability to maintain station keeping as required, the MODU will be tethered via a mooring system anchored to the seafloor during drilling operations. The DP system will engage when the MODU has moved beyond safe limits during drilling operations, but is not routinely active under normal operations. The thruster system will also be used to move the MODU between sites in the Operational Area.

The MODU mooring systems consist of between eight to twelve anchors ranging from 15 t to 30 t with an individual footprint of 30 $m^2$ to 60 $m^2$, although the final design of the mooring system will be dependent on the outcome of a detailed mooring analysis (Rig Move and Positioning Plan) undertaken prior to the commencement of the activity. The mooring anchors may be pre-installed where practicable.

Each of the mooring lines will be tethered to drum winches aboard the MODU enabling the tensioning of individual moorings to compensate for MODU movement during the activity.

### 3.7.3. Blowout Preventer

The MODU will have a subsea blowout preventer (BOP), enabling attachment to the wellhead or Production Tree as required and providing primary well control barrier during plug and abandonment activities. The BOP will comply with API Std 53 and relevant Woodside Standards.

### 3.7.4. Power Generation

Power generation aboard the MODU is generally facilitated by eight diesel engines, with a single or multiple backup generator providing alternate power as required. The average diesel fuel usage during operations for a typical semi-submersible MODU is in the order of 15,000 L per day.

### 3.7.5. Water Generation

The MODU will have capacity to generate potable water via reverse osmosis during operations.

### 3.7.6. Drainage Systems

Potentially contaminated bilge and chemical drainage will be directed through a closed-circuit drainage system routed through an oil water separator for treatment prior to discharge. Uncontaminated stormwater is directed through an open drainage system directly overboard.

### 3.7.7. Sewage Treatment

The MODU has a sewage treatment plant (STP) for the treatment of black and grey water during drilling operations.

### 3.7.8. Solids Control Equipment

The MODU will have industry-standard solids control equipment. The plug and abandonment activity will use the shale shakers.

### 3.7.9. Fluids Handling Package

The MODU will have a fluids handling package, enabling the recovery, treatment, and storage of residual reservoir hydrocarbons aboard the MODU and the cold venting from a safe location overboard of residual gas.

### 3.7.10. Navigation Equipment

During both transit to site and drilling operations, the MODU will display navigational lighting and external lighting, as required for safe operations. Lighting levels will be determined primarily by operational safety and navigational requirements.

Navigation, bridge, and communication equipment will be compliant with appropriate marine navigation and vessel safety requirements. The MODU is also be fitted with an Automatic Identification System (AIS).

## 3.8. Vessel Operations

The vessels that may be used to perform the petroleum activity include anchor handling tug supply vessels (AHTS). For plug and abandonment preparatory activities, AHTS vessels will conduct mooring pre-lay, and potentially marine growth removal and cleaning of well infrastructure. During the plug and abandonment activity, the MODU will be supported by three AHTS vessels. The vessels will primarily be used to transport equipment, materials, and fuel between the MODU and port. A “work-class” ROV capability will also be used.

During the petroleum activity, vessels will be transiting to and from the Operational Area multiple times per week, with at least one vessel stationed close to the MODU to service the MODU as required and act as a guard vessel to prevent unauthorised interacts between the MODU and other marine users. Typical AHTS vessel specifications are provided in Table 3-9.

**Table 3-9: Indicative Support Vessel capacities**

| Indicative Anchor Handling Tug Supply Vessel (AHTS) – Siem Sapphire / VS 491 | |
|---|---|
| Draft (mean) | 7.9 m |
| Length | 91 m |
| Berths | ~ 60 personnel |
| Gross Tonnage | ~ 7473 tonnes |
| Station Keeping | DP2 |
| Fuel type | Marine Diesel Oil |
| Total fuel volume | 1223.8 $m^3$ |
| Volume of largest fuel tank ($m^3$) | 194.9 $m^3$ |

A temporary 500 m Rig Safety Exclusion Zone (RSEZ) around the MODU will be established for the duration of the P&A activity, and interactions between the support vessels and the MODU within this zone will be under the direction of the MODU. Vessels use dynamic positioning (DP) to maintain position near the well centre. DP uses satellite navigation and radio transponders in conjunction with thrusters to maintain the position.

Each vessel will be subject to Woodside’s Marine Assurance Process. All required audits and inspections will assess compliance with the laws of the international shipping industry, which includes safety and environmental management requirements, and maritime legislation including International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1987 (MARPOL) and other International Maritime Organisation (IMO) standards.

Each vessel will display navigational lighting and external lighting, as required for safe operations. Lighting levels will be determined primarily by operational safety and navigational requirements under relevant legislation, specifically the *Navigation Act 2012*. Vessels will be lit as required to maintain operational safety on a 24-hour basis.

Operational discharge streams from project vessels include:

- deck drainage
- putrescible waste and sewage/grey water
- oily water
- cooling water
- desalination plant effluent (brine) and backwash water discharge
- ballast water.

## 3.9. MODU Operations

### 3.9.1. MODU Positioning and Mooring

Prior to the MODU arriving in the permit area a 'Rig Move and Positioning Plan' will be prepared. This plan details the configuration of the anchors necessary to keep the MODU securely on location. The final mooring configuration and design will be dependent on the outcome of this assessment.

Each anchor or pre-laid mooring would be attached to MODU by chain and fibre rope mooring lines and extent out from the MODU by up to 2 km. The tension of each mooring would be continually monitored aboard the MODU and adjusted according to the parameters determined within the detailed mooring analysis, thereby reducing the potential for anchor drag along the seabed.

Anchors may be pre-laid on the sea floor with AHTS vessels prior to the mobilisation of the MODU to the Operational Area. Pre-lay operations may occur up to 1 month prior to the MODU being mobilised to the Operational Area.

The number of AHTS vessels required to support mooring activities depends on the selected MODU. It is expected that up to three AHTS vessels may be required to facilitate mooring activities, though it is likely only two will be actively engaged in the activity at a time. The process of connecting all mooring lines to the MODU will take approximately two days for each well, with tensioning to enable appropriate embedment taking approximately 15 minutes per anchor. Disconnection of mooring lines from the MODU is also expected to take approximately two days per well.

Temporary transponders may be installed on the seabed to inform MODU positioning. All transponders will be recovered from the seabed prior to the end of the petroleum activity.

### 3.9.2. MODU Refuelling and Bulk Transfer

The MODU will be refuelled via the project vessels. MODU refuelling will likely occur 2-3 times per week for the duration of the proposed activity.

The transfer of fuel and bulk chemicals will be by hose and pumped from project vessels in accordance with conditions for preventing spills to the marine environment.

### 3.9.3. Helicopter Crew Change

During the petroleum activity, crew changes will be performed using helicopters with transit occurring as required (approximately three to five times per week). Helicopter operations within the Operational Area are limited to helicopter take-off and landing on the helideck.

### 3.9.4. Remotely Operated Vehicles

ROVs will be used throughout the petroleum activity, typically for:

- visual inspections and observations

- placement of ROV tool baskets on the seabed
- anchor installation and tensioning
- BOP tether deployment (if required)
- marine growth cleaning on infrastructure
- sediment relocation (if required)
- tooling and infrastructure cutting
- retrieval of dropped objects (if required)
- post-activity seabed survey.

The ROV is equipped with lights and can be fitted with various tools, pumps, and camera systems to capture and record live (via video feed) and still (photographic) imagery.

## 3.10. Well Plug and Abandonment

The permanent plugging activities for the Minerva wells, including designing and installing permanent well barriers, will be completed in accordance with an accepted WOMP as required under the OPGGS (Resource Management and Administration) Regulations 2011 (Cth).

The following description represents the base case for the proposed well plug and abandonment methodology with final design to be confirmed prior to undertaking the activity.

### 3.10.1. Preparatory Operations

Approximately one month prior to mobilisation of the MODU, a vessel-based campaign is proposed to conduct initial well cleaning operations and inspect and prepare the wells to facilitate an efficient and informed approach to rig-based plug and abandonment activities. The following activities may be required as part of preparatory operations for plug and abandonment activities. Pre-lay mooring activities as described in Section 3.9.1 will also be conducted as part of these preparatory operations.

#### 3.10.1.1. Marine Growth Removal

Excess marine growth may need to be removed from well infrastructure using an ROV before performing plug and abandonment activities. Marine growth removal may also be required for the MODU throughout the campaign. Marine growth may be removed using a brush or high-pressure water jet and acid (applied with high-pressure hose). The application of acid would be minimal, and cleaning mostly conducted by brush.

#### 3.10.1.2. Sediment Relocation

If required, a water jet or ROV-mounted suction pump may be used to move small amounts of sediment in the immediate vicinity of the well infrastructure (i.e., within the existing footprint). This could be done to allow inspection/intervention works to be performed if sediment is built up around the well infrastructure and impedes ability to access the wells for plug and abandonment activities.

#### 3.10.1.3. BOP Tether System Installation

A BOP tether system may be required to limit BOP movement to manage wellhead fatigue during permanent plug and abandonment activities. A typical BOP tether system uses about four to eight clump weights, weighing about 25–47 tonnes each, although final number and weight of the clump weights may differ depending on seabed and current conditions. These clump weights are deployed to the seabed about 20 to 40 m away from the wellhead, usually from an AHTS. An ROV will then connect tethers between the clump weights and the BOP, which are subsequently tensioned to limit BOP movement.

### 3.10.2. Production Well Plug and Abandonment Activities

The nominal program for the Minerva production wells (Minerva-3 and Minerva-4) plug and abandonment program comprises the following steps:

- Move MODU onto location and connect mooring system.

- Deploy ROV and perform calcium washes
- Validate well barriers
- Remove debris/corrosion cap and confirm well condition
- Install, latch and pressure and function test BOP to Subsea Xmas Tree – this involves the discharge of water-soluble biodegradable ROV / BOP control fluids
- Establish control of well from MODU through intervention workover control system (IWOCS) deployed from MODU
- Recover internal Xmas tree cap on drill pipe
- Conduct flushing operations above tubing hanger barrier plug
- Run and test landing string, subsea tree test and surface flow tree via ROV valve manipulation with associated control fluid discharges
- Punch tube above production packer and flush tubing and annulus via the bullheading of brine / inhibited seawater / high viscosity gels. Flushing fluid is either pumped downhole (bullheaded) or circulated back to the MODU for treatment and filtration prior to discharge. At this stage there is potential for a small volume of residual gas in the tubing and annulus to be returned to MODU and vented/flared to atmosphere
- Install mechanical tubing plug in tailpipe of upper completion
- Punch or cut and recover tubing above production packer
- Install combination (primary and secondary) permanent abandonment cement barrier above production packer using production tubing as conduit, or via drill pipe after recovery of tubing
- Recover BOP
- Release Xmas tree and confirm free from remaining infrastructure and recover to surface.
- Disconnect from mooring system and move off.

### 3.10.3. Exploration and Appraisal Well Plug and Abandonment Activities

The nominal program for the Minerva exploration (Minerva-1) and appraisal (Minerva-2A) plug and abandonment program comprises the following steps:

- Move MODU onto location and connect mooring system.
- Deploy ROV and perform calcium washes
- Remove debris cap and confirm well condition
- Install, latch, and pressure and function test BOP to wellhead
- Drill out upper cement suspension plug(s)
- Install secondary permanent abandonment cement plug above existing primary cement plug
- Recover BOP
- Disconnect from mooring system and move off.

### 3.10.4. BOP Installation and Function Testing

A BOP is installed prior to re-entering the wells as a secondary well control device, in addition to the primary barrier of the fluid column exerting hydrostatic pressure, preventing the uncontrolled flow of reservoir fluids to surface.

The following tests are performed after the subsea BOP stack is initially installed on each well, in line with requirements details in the WOMP:

- A BOP function-test (including ROV test for closure of rams), and wellhead connector pressure-test
- A full pressure-test no later than 21 days from previous BOP pressure test

- After the initial test, and for the duration of the activity, all BOP components (excluding hydraulic connectors and shear rams) shall be function tested every seven days and pressure tested at intervals not exceeding 21 days
- Function testing is undertaken by activating the hydraulic control system aboard the MODU to confirm functionality of the BOP systems, whilst a pressure test is undertaken to verify seals on the BOP stack.

Greater detail on the performance standards for the BOP system, inclusive of design, functionality, and preventative maintenance, is provided in the WOMP.

### 3.10.5. Well Kill and Cleanout

Well kill operations will need to be conducted for the two Minerva production wells. Once the BOP has been installed and well has been connected to IWOCS system, the well will be killed by perforating the production tubing and pumping weighted well kill fluid into the wellbore. This is to control the pressure from the formation and to bullhead residual well fluids in the production tubing and A-annulus into the reservoir. The well kill fluid will be a weighted water-based brine, with an additive that reduces reservoir permeability post well kill. Loss control material may also be used to reduce losses post well kill. Monoethylene glycol (MEG) may also be added to the brine if required to inhibit hydrate formation.

If unable to kill the well by bullheading into the formation or where additional circulation may be required, a deep-set mechanical suspension barrier will be installed to isolate the reservoir and the well pressure will be bled off at the MODU via a dedicated fluid and gas handling bleed off package. Subsequent operations such as “lubricate and bleed” will be used to kill the well and the dedicated bleed off package will be used to direct fluids for separation and disposal/discharge, as described in Section 3.10.10. During well kill operations, the volumes returned to the MODU will depend on how much can be bullheaded into the formation successfully. Flushing operations conducted at cessation of operations provide confidence of ability to adequately bullhead wellbore fluids from the wellbore into the reservoir thereby minimising any residual wellbore fluid returns to the MODU.

Fluids returned to the MODU during well kill operations will pass through a fluid handling bleed off package. The bleed off package is designed to take fluids through a choke and into a liquid knock out vessel or a surge tank (pressure rated). The knock-out vessel includes a separator which allows for gas and liquids to be separated. The gas, dependant on pressures and volumes, will be flared via the burner boom or cold vented from a safe location overboard. Liquids from the knock-out vessel or surge tank can be pumped to the burner head and burned via air atomisation or be diverted to a water treatment package. Fluids able to be treated via the water filtration package to less than 30 ppm oil in water content will be discharged overboard. Where 30 ppm is not achievable, fluids will be toted into tanks for onshore disposal.

Following well kill, wells will be cleaned by displacing the tubing and casing annulus spaces to clean out brine. Well clean out brine may contain fluid pills/spacers (high viscosity pills or surfactants) to improve displacement efficiency, depending on the residual fluids remaining the tubing and annular spaces. Fluid returns will include displacement fluid and residual wellbore fluids contained in the tubing and annular spaces.

### 3.10.6. Tubular Recovery

Once the formation pressure is controlled, production tubing and/or packer will be cut and recovered to the MODU. Tubulars recovered to the surface will be assessed for contamination (e.g., NORM and mercury). In the case contamination is identified, the tubing will be managed as per Woodside procedures appropriate for the contamination type.

Recovered tubing will be disposed of onshore. The tubing may require special management and treatment during the surface handling, transport, and disposal process, depending on the level of contamination. All waste will be handled and disposed of in accordance with relevant requirements.

### 3.10.7. Cementing Operations

Installation of the permanent barriers involves downhole casing and annulus cement integrity being verified via wireline logging if required. If required to remediate poor or insufficient annulus cement, casing may be

perforated, and cement circulated behind the casing, or the casing may be cut or milled (refer to Section 3.10.12.1). Following this, permanent abandonment cement plugs will be installed and verified.

Cementing operations are undertaken to ensure permanent well integrity during well abandonment. Cement will be pumped into the wellbore at specified depths to act as permanent barriers. These cement plugs are intended to isolate potential flow zones within the formation and will eliminate the possibility of potential hydrocarbon exposure to the marine environment. The characteristics of the cement barrier (e.g., cement specification, barrier length etc.) will be verified in accordance with the accepted WOMP.

Cementing fluids will generally consist of Portland cement with additives (such as inorganic salts, lignins, bentonite, barite, silicates, defoamers and surfactants). Cement is transported as dry bulk to the MODU by the project vessels and is mixed with water and chemicals in the cementing unit onboard the MODU to form wet cement slurry immediately prior to use. The cement slurry is then injected down to the well using high pressure pumps. Cementing fluids are not routinely discharged to the marine environment, however, volumes maybe discharged to the environment:

- when testing cementing unit aboard the MODU (approx. 1–2 $m^3$)
- when abandoning the motherbore of the well (approx. 10 $m^3$)
- when disposing of excess slurry due to a failed cement job (approx. 55 $m^3$ based upon 9-5/8” casing)

#### 3.10.7.1. Cement Unit Test

Upon arrival at the Operational Area, the MODU is typically required to perform a cement unit test to test the functionality of the cement unit and the MODU bulk cement delivery system before performing an actual cement job. Proper functioning of the cement system is important for ensuring well integrity.

A cement unit test involves mixing a cement slurry at surface, and once functionality of the cement unit and delivery system has been confirmed, the slurry is discharged through the usual cement unit discharge line or through drill pipe below sea level. The slurry is usually a mix of cement and water; however, may contain stabilisers or chemical additives in low concentrations.

#### 3.10.7.2. Drilled Cement

The Minerva exploration wells (Minerva-1 and Minerva-2A) have shallow cement plugs that may need to be drilled out to complete the permanent plugging activities. Drilled cement generated from these activities is expected to range from very fine to very coarse (less than 1 cm) cuttings. Cement plugs will be drilled out using a water-based drill fluid (high viscosity sweep and brine, treated as necessary). The drilling fluids will be selected in accordance with Woodside’s chemical assessment process described in Section 3.12.

The cement plug(s) will be drilled out with a marine riser that enables the drilled cement and drilling fluid to be circulated back to the MODU, where the drilled cement will be separated from the drilling fluids by the solids control equipment, including shale shakers and subsequently discharged to the marine environment.

In addition, in the unlikely event that a cement plug installed during plug and abandonment activities does not meet the design requirements set out in the Minerva WOMP, the plug may have to be drilled out, using the same method described above and a subsequent plug installed. The cement cuttings generated from this process would be circulated back to the MODU and discharged to the marine environment.

### 3.10.8. Wireline and Slickline Operations

Wireline or slickline activities may occur for permanent plugging activities including gamma ray and casing collar locator logging for depth correlation, ultrasonic imaging, and cement bond logging to verify presence of cement and running of other tools in hole such as surface-controlled subsea safety valve hold-open sleeves, drifts, plugs, punch perforators/cutters etc., plug removal and installation. Wireline and slickline work will be performed within the riser through the subsea test tree or BOP with appropriate isolation barriers in place. If wireline work is required to occur where there is a risk of barrier failure, the operation will be performed with full pressure control equipment at the surface.

## 3.10.9. Dry Bulk Management

Bulk dry products including cement, barite and bentonite is transported to the drill rig via supply vessels and pneumatically transferred to dry bulk storage tanks using compressed air. During the transfer process, the holding tanks are vented to atmosphere to release pressure build up, resulting in small amounts of dry powder being discharged from venting pipes located under the MODU.

Bulk product inventory is managed to minimise excess quantities remaining at the end of the campaign, whilst ensuring adequate stock is available for well integrity and safe operations.

For this activity, it is planned that unused excess dry bulk product at the end of the campaign will be retained on the MODU for use during subsequent activities by the next operator utilising the rig.

Woodside requires that mercury and cadmium concentration in stock barite be below 1 mg/kg and 3 mg/kg, respectively. Documentation of heavy metal analysis is planned to be undertaken for all individual batches of barite and used to verify compliance with these concentrations.

## 3.10.10. Well Flaring / Venting

During well kill and permanent plugging activities, the preference is to bullhead fluids into the reservoir, however it may be necessary to either cold vent or flare residual gas or liquids via the fluids handling package aboard the MODU.

Fluids will pass through the bleed off choke to a liquid knock out vessel or a surge tank (pressure rated). Dependant on pressures and volumes gas will be flared via the burner boom or cold vented via the knock out/surge tanks to a safe location overboard. All liquid hydrocarbons will be burned via the oil burner or toted into tanks (emulsions) for onshore disposal. All well kill fluids and produced water either condensed or formation water shall be treated via the water filtration package to less than 30 ppm oil in water content and discharged overboard or toted into tanks for onshore disposal.

All flaring would occur at low flow rates and limited volumes given the activity is to permanent plug the well (e.g., in comparison to well unloading operations).

Small volume of gas may be released subsea during Xmas tree cap removal or valve functioning in preparation for P&A activities.

## 3.10.11. Mud Pits

Mud pits (tanks) on the MODU provide capacity to mix, maintain, and store fluids required for drilling and permanent well plugging activities. The mud pits form part of the fluid circulation system. The mud pits and associated equipment/infrastructure will be cleaned out at the completion of operations.

Mud pit wash residue is operationally discharged with less than 1% by volume of oil. Mud pit residue over 1% by volume of oil will be sent to shore for disposal.

## 3.10.12. Contingent Activities

### 3.10.12.1. Casing Cutting or Milling

If the cement on the outside of the casing does not meet well barrier requirements, casing may need to be removed either by cutting and pulling or milling. These operations are done through the marine riser with milling debris (i.e., steel swarf, cement, formation) returned to the MODU and will only be performed if needed.

Milling operations involve removing steel casing, and potentially annulus cement and formation, to provide access to intervals whereby cement plugs can be installed. The methods used include milling tools that create chips or ribbons of steel (swarf), chips of cement and chips of formation. Milling is typically performed at a controlled rate (1 to 1.5 m/hr), to enable steel swarf to be removed effectively from the milling site to minimise the risk of ‘birds nesting’ of steel swarf, which may block fluid returns and jam equipment. Milling tools may become worn during milling operations and could require tripping for new/redressing about every 30 to 50 m. As a result, the rate of milling is slower than normal drilling operations.

As the steel swarf within the milling fluids is hard and sharp, the fluids from the well will be passed through specific swarf handling equipment, which generally include magnets that liberate steel from the fluid before

being processed through the conventional solids control equipment on the MODU such as shale shakers. The milling fluids, including up to an additional 2 $m^3$ of swarf, 3 $m^3$ of drilled cement and 3.5 $m^3$ of formation rock, will be discharged overboard per 100 m interval if milling is required. As a result of restricted milling speeds, the rate of swarf and cement will be generated over several days (the rate is expected to be about 50 m per 18 hours).

#### 3.10.12.2. Marine Riser Clean Out

Woodside and industry experience has shown that horizontal Xmas tree systems can be susceptible to rust and other build up in the marine risers and BOP. This can lead to multiple deployments of subsea test trees or other large diameter pulling tools, as this type of debris, albeit small volumes, can prevent successful land out of tools. To mitigate potential debris issues, the following activities may be performed as required:

- Ensure riser is clean prior to initial deployment for the P&A of the first well
- Running of riser brushes while the riser and BOP are suspended (open water)
- Implementing a BOP flushing sequence prior to landing the BOP on the Xmas tree
- Once the BOP and riser are landed out, cleaning tools are available to clean the interface surfaces where debris build-up might take place
- In the event of significant debris issues, the marine riser may be recovered to the deck and inspected. Equipment will be available on the MODU to enable cleaning of the riser joints before being redeployed. Cleaning will be done over a bunded area, with fluids returned to tanks on the MODU.

Should debris continue to be a problem after brushing and circulation to the mud pits, then the riser may be disconnected from the Xmas tree and an ROV used to flush the remaining debris from around the top of the Xmas tree cap.

#### 3.10.12.3. Emergency Disconnect Sequence

An Emergency Disconnect Sequence (EDS) may be implemented if the intervention vessel/MODU is required to rapidly disengage from the well. The EDS closes the BOP (i.e., shutting in the well) and disconnects the riser to break the conduit between the BOP and MODU. Common examples of when this system may be initiated include when the MODU moves outside of its operating circle (e.g., failure of one or more of the moorings) or moves to avoid a vessel collision (e.g., third-party vessel on collision course with the MODU). The EDS aims to leave the well in a secure condition but will result in the loss of the fluids in the riser after disconnection.

#### 3.10.12.4. Temporary Well Suspension

During permanent plugging activities, a well may need to be temporarily suspended (e.g., in the case of adverse weather or unexpected well outcomes requiring additional time to plan the next operation). Suspension involves establishing suitable barriers, removing the riser, and disconnecting the MODU from the well. The BOP may be left in place to act as a barrier or removed if sufficient barriers are present in the well itself. On return to a well after suspension, the MODU reconnects to the well via the riser and well plugging activities resume.

### 3.10.13. Post MODU Activities

After the departure of the MODU, a support vessel with ROV capability will complete demobilisation activities, which may include:

- recovery of pre laid anchors and mooring chain
- recovery of BOP tether system and associated weights
- recovery of any marine debris or equipment as required if not recovered by the MODU
- as left visual inspections of the seabed.

## 3.11. Removal of Well Infrastructure

Minerva wells infrastructure above the mudline will be removed after plugging of the wells is completed. Removal of wellheads from Minerva-1, Minerva-3 and Minerva-4 and recovery of the Xmas trees from Minerva-3 and Minerva-4 is within the scope of this EP. Removal of the Minerva 2A wellhead and guide base will be undertaken under the Minerva Decommissioning and Field Management EP if NOPSEMA accepts Woodside's assertion that the Minerva-2A well is plugged and abandoned. If NOPSEMA does not accept Minerva-2A is plugged and abandoned, the Minerva-2A wellhead will be removed under this EP.

Removal of the Minerva-2A wellhead may result in communication between the environment and fluids in the annulus between the 20" inch casing and the 13.375" inch casing. This fluid is water-based inhibited drilling fluid with a specific gravity of 1.16 (substantially denser than seawater, which has a specific gravity of approximately 1.026). Given the substantial difference in specific gravity between the annulus fluids and seawater, little mixing will occur. Minerva-2A was drilled using water-based drilling fluids.

The Minerva wellheads are planned to be cut below the seabed using either mechanical or abrasive water jet cutting methods . Either of these methods will be used to make an internal cut within the wellheads below the mudline to release the wellheads from the seabed. Options for removing and recovering the wellheads are described in Table 3-10. Once the wellheads are cut, the well infrastructure will be recovered to the MODU or vessel and transported to shore for disposal.

The cutting and recovery of well infrastructure may occur directly after plug and abandonment activities either using the MODU or project vessels in field at the time. While use of the MODU is a feasible option for removal of well infrastructure, there are technical, safety, cost and schedule benefits from utilising a subsea support vessel.

**Table 3-10 Wellhead Cutting Methods**

| Method | Description | MODU / Vessel Type |
|---|---|---|
| Mechanical internal cutting | Method uses mechanical cutting tool that are inserted into the inner well casing and rotated. Cut will be completed below the mudline.<br>Where possible, cut is made at sufficient depth below the mudline (more than 3 m) in accordance with international well standard practice, such as Oil and Gas UK Well Decommissioning Guidelines (Oil and Gas UK, 2018). | MODU or AHTS with ROV capability. |
| Abrasive water jet cutting | Method uses a system of high-pressure water entrained with grit and flocculant pumped via an umbilical from a vessel to a subsea cutting tool that is inserted into the inner well casing. Cut will be completed below the mudline.<br>Where possible, cut is made at sufficient depth below the mudline (more than 3 m) in accordance with international well standard practice, such as Oil and Gas UK Well Decommissioning Guidelines (Oil and Gas UK, 2018). | AHTS with ROV capability. |

## 3.12. Chemical Selection and Assessment

The chemicals that may be used operationally for the petroleum activity described in this EP include:

- Chemicals for plug and abandonment activities including weighted brines, water-based fluids, lost circulation material, high viscosity pills, $H_2S$ scavenger, MEG, cement, cement spacers and other chemical and cement additives as required.
- Chemicals for preparatory activities for P&A including marine growth removal chemicals such as acids
- Chemicals used for cutting of subsea infrastructure such as flocculants and lubricants.

Chemicals will be stored on-board the MODU as required within dedicated holding tanks for liquid chemicals / chemical mixtures and the sack room for dry chemicals. Hazardous chemicals are stored within bunds or in secure areas to prevent accidental overboard discharges. All chemicals that may be operational released or discharged to the marine environment from either planned activities or unplanned events are accompanied with relevant Safety Data Sheets.

### 3.12.1. Chemical Assessment

All chemicals that may be operationally released or discharged to the marine environment for the petroleum activity described in this EP will be evaluated using a defined framework and set of tools, to ensure the potential impacts are acceptable, ALARP and meet Woodside's expectation for environmental performance.

This excludes legacy chemicals including residual water-based drilling fluids and brines that are currently present in the wellbore, which have been assessed for discharged in Section 7. All previously approved P&A and drilling chemicals are included on the Woodside Drilling and Completions Chemical Assessment Register, which is reviewed as per the Chemical Selection and Assessment Environment Guideline.

The chemical assessment process follows the principles outlined in the Offshore Chemical Notification Scheme (OCNS), which manages chemical use and discharge in the United Kingdom and the Netherlands. It applies the requirements of the Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention). The OSPAR Convention is widely accepted as best practice for chemical management.

All chemical substances listed on the OCNS ranked list of registered products have an assigned ranking based on toxicity and other relevant parameters, such as biodegradation and bioaccumulation, in accordance with one of the two schemes (as shown in Figure 3-4).

- Hazard Quotient (HQ) Colour Band: Gold, Silver, White, Blue, Orange and Purple (listed in order of increasing environmental hazard), or
- OCNS Grouping: E, D, C, B or A (listed in order of increasing environmental hazard). Used for inorganic substances, hydraulic fluids and pipeline chemicals only.

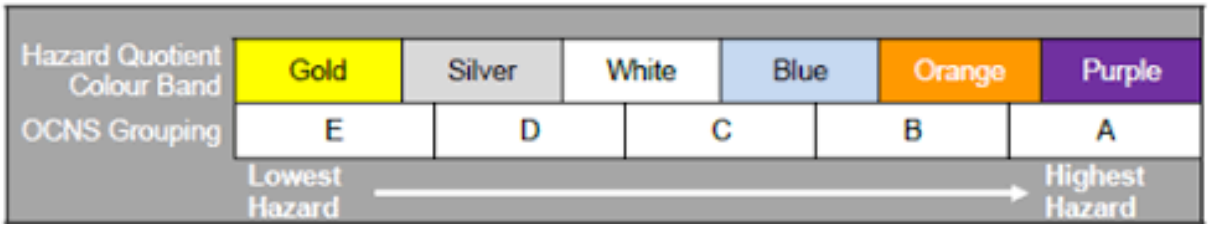


**Figure 3-4 OCNS Ranking Scheme**

Chemicals fall into the following assessment types:

- No further assessment: Chemicals with a HQ band of Gold or Silver or an OCNS ranking of E or D with no substitution or product warnings do not require further assessment. Such chemicals do not represent a significant impact on the environment under standard use scenarios and are, therefore, considered ALARP and acceptable.
- Further assessment/ALARP justification required: The following types of chemicals require further assessment to understand the environmental impacts of discharge into the marine environment:

- Chemicals with no OCNS ranking
- Chemicals with a HQ band of White, Blue, Orange, Purple or OCNS ranking of A, B or C
- Chemicals with an OCNS product or substitution warning.

## 3.12.2. Further Assessment/ALARP Justification

This includes assessing the ecotoxicity, biodegradation and bioaccumulation of the chemicals in the marine environment in accordance with the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) Hazard assessment and the Department of Mines and Petroleum (DMP) *Chemical Assessment Guide: Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline* (Department of Mines and Petroleum (DMP), 2013).

### 3.12.2.1. Ecotoxicity

Chemical ecotoxicity is assessed using the criteria used by CEFAS to group chemicals based on ecotoxicity results (Table 3-11). If a chemical has an aquatic or sediment toxicity within the criteria for the OCNS grouping of D or E, this is considered acceptable in terms of ecotoxicity.

**Table 3-11: CEFAS OCNS grouping based on ecotoxicity results**

| Initial Grouping | A | B | C | D | E |
|---|---|---|---|---|---|
| Results for aquatic-toxicity data (ppm) | <1 | >1-10 | >10-100 | >100-1,000 | >1,000 |
| Results for sediment toxicity data (ppm) | <10 | >10-100 | >100-1,000 | >1,000-10,000 | >10,000 |

*Note: Aquatic toxicity refers to the Skeletonema constatum EC50, Acartia tonsa LC50 and Scophthalmus maximus (juvenile turbot) LC50 toxicity tests; sediment toxicity refers to Corophium volutator LC50 test.*

### 3.12.2.2. Biodegradation

The biodegradation of chemicals is assessed using the CEFAS biodegradation criteria, which align with the categorisation outlined in the *Chemical Assessment Guide: Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline* (DMP, 2013).

CEFAS categorises biodegradation into the following groups:

- Readily biodegradable: results of more than 60% biodegradation in 28 days to an OSPAR harmonised offshore chemical notification format (HOCNF) accepted ready biodegradation protocol
- Inherently biodegradable: results more than 20% and less than 60% to an OSPAR HOCNF accepted ready biodegradation protocol or result of more than 20% by OSPAR accepted inherent biodegradation study
- Not biodegradable: results from OSPAR HOCNF accepted biodegradation protocol or inherent biodegradation protocol are less than 20%, or half-life values derived from aquatic simulation test indicate persistence.

Chemicals with more than 60% biodegradation in 28 days to an OSPAR HOCNF accepted ready biodegradation protocol are considered acceptable in terms of biodegradation.

### 3.12.2.3. Bioaccumulation

The bioaccumulation of chemicals is assessed using the CEFAS bioaccumulation criteria, which align with the categorisation outlined in the DMP Chemical Assessment Guide: Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline.

The following guidance is used by CEFAS:

- Non-bioaccumulative: LogPow < 3, or BCF ≤ 100 and molecular weight is ≥ 700
- Bioaccumulative: LogPow ≥ 3 or BC > 100 and molecular weight is < 700.

Chemicals that meet the non-bioaccumulative criteria are considered acceptable.

If a product has no specific ecotoxicity, biodegradation or bioaccumulation data available, options to be considered are as follows:

- Environmental data for analogous products can be referred to where chemical ingredients and composition are largely identical.
- Environmental data may be referenced for each separate chemical ingredient (if known) within the product.

#### 3.12.2.4. Alternatives

If no environmental data is available for a chemical or if the environmental data does not meet the acceptability criteria outlined above, potential alternatives for the chemical will be investigated, with preference for options with a HQ band of Gold or Silver, or OCNS ranking of Group E or D with no substitution or product warnings.

If no more environmentally suitable alternatives are available, further risk reduction measures (e.g., controls related to use and discharge) will be considered for the specific context and implemented where relevant so that the risk is ALARP and acceptable.

#### 3.12.2.5. Decision

Once the further assessment/ALARP justification has been completed, concurrence is required from the relevant environment advisor that the environmental risk as a result of chemical use is ALARP and acceptable.

## 3.13. Waste Management

Non-hazardous waste materials will be stored onboard the MODU and project vessels in suitable containers (segregated from hazardous materials) for transport to shore for disposal/recycling in accordance with applicable legislative requirements.

All hazardous waste generated will be documented and tracked, segregated from other waste streams and stored in suitable containers. Recyclable hazardous wastes, such as oils and batteries, will be stored separately from non-recyclable materials. All waste will be disposed of onshore at a licensed facility.

All waste streams will be classified and managed in accordance with applicable legislative requirements, or in accordance with international guidance where applicable, for example:

- *Commonwealth Hazardous Waste (Regulation of Exports and Imports) Act 1989*, which implements the Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the Basel Convention)
- Environment Protection Regulations 2021(VIC)
- International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL Convention)
- International Finance Corporation: EHS Guidelines – Environmental Waste Management

The recovery well infrastructure will be managed through Woodside's contracting strategy which will include an infrastructure disposal strategy where waste management solutions will be assessed against principles of the waste management hierarchy described in Section 7.9.

Options for plastics include identifying potential recycling, upcycling, waste to energy opportunities. Pathways are subject to inspection and sampling of the material once received at the onshore laydown site. Where it is deemed no other feasible alternative exists, material requiring landfill will be disposed of at an appropriate licenced facility after sampling is conducted to determine contaminant levels where appropriate. Further details are provided in Section 7.9.

# 4. Description of Environment

In accordance with regulations 21(2) and 21(3) of the Environment Regulations, this section describes the existing environment that may be affected (EMBA) by the activity (planned and unplanned, as described in Sections 7 and 8), including details of the particular relevant values and sensitivities of the environment, which were used for the risk assessment.

The description of the environment applies to two spatial areas:

- the Operational Area – the area where planned activities will occur (defined in Section 3.3)
- the EMBA – the environment that may be affected by the petroleum activity is based on the worst case extent of hydrocarbon spill scenario and is shown in Figure 4-1.

The information contained in this section has been used to inform the evaluation and assessment of the environmental impacts and risks presented in Sections 7 and 8 of this EP. The level of detail is appropriate to the nature and scale of the impacts and risks to the particular values and sensitivities. A detailed and comprehensive description of the environment in the Operational Area and EMBA is provided in Appendix D.

## 4.1. Determination of the Environment that May Be Affected

The EMBA is the largest spatial extent in which the petroleum activity could have a consequence on the surrounding environment. For this EP, the EMBA is the potential spatial extent of surface, shoreline, and in-water hydrocarbons at concentrations above ecological impact thresholds in the event of the worst-case credible spill scenario from a combined loss of well control, and vessel collision (Section 8.1). The ecological impact thresholds used to delineate the EMBA are defined in Table 4-1. The worst-case credible spill scenario for this EP is a subsea release of condensate from a loss of well control (LOWC) from the Minerva-4 well and a marine diesel oil (MDO) surface spill at the Minerva-1 well arising from a vessel-to-vessel or vessel to MODU collision (Section 8.3).

Woodside recognises that hydrocarbons may be visible beyond the EMBA at lower concentrations than the ecological impact thresholds defined in Table 4-1. These visible hydrocarbons are not expected to cause ecological impacts. In respect of this, an additional socio-cultural EMBA is defined as the potential spatial extent within which social-cultural impacts may occur from changes to the visual amenity of the marine environment. Receptors relevant to the socio-cultural EMBA include Commonwealth and State marine protected areas (MPAs), areas of cultural heritage value, areas of tourism and recreation, and commercial and traditional fisheries. For this EP, the socio-cultural EMBA for surface hydrocarbons encompasses an area wider than the boundaries of the EMBA for ecological impacts The EMBA and socio-economic EMBA are shown in Figure 4-1 and described in Table 4-1.

The EMBA presented does not represent the predicted coverage of any one hydrocarbon spill or a depiction of a slick or plume at any particular point in time. Rather, the areas are a composite of a large number of theoretical paths, integrated over the full duration of the simulations under various metocean conditions.

**Table 4-1: Hydrocarbon spill thresholds used to define EMBA, socio-cultural EMBA and planning area for scientific monitoring**

| Hydrocarbon Type | EMBA[1] | Socio-cultural EMBA[1] | Planning Area for Scientific Monitoring |
|---|---|---|---|
| Surface | 10 g/m$^2$<br>This represents the minimum oil thickness (0.01 mm) at which ecological impacts (e.g., to birds and marine mammals) are expected to occur. | 1 g/m$^2$<br>This represents a wider area where a visible sheen may be present on the surface and, therefore, the concentration at which socio-cultural impacts to the visual amenity of the marine environment may occur. However, it is below concentrations at which ecological impacts are expected to occur.<br>This low exposure value also establishes the planning area for scientific monitoring (NOPSEMA, 2019). | |
| Dissolved | 50 ppb | | 10 ppb |

| Hydrocarbon Type | EMBA[1] | Socio-cultural EMBA[1] | Planning Area for Scientific Monitoring |
|---|---|---|---|
| | This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA, 2019). As dissolved hydrocarbons are within the water column and not visible, impacts to socio-cultural receptors are associated with ecological impacts. Therefore, dissolved hydrocarbons at this threshold also represent the level at which socio-cultural impacts may occur. | | This low exposure value establishes the planning area for scientific monitoring (based on potential for exceedance of water quality triggers) (NOPSEMA, 2019). |
| Entrained | 100 ppb<br>This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA, 2019). As entrained hydrocarbons are within the water column and not visible, impacts to socio-cultural receptors are associated with ecological impacts. Therefore, entrained hydrocarbons at this threshold also represent the level at which socio-cultural impacts may occur. | | |
| Shoreline | 100 g/m$^2$<br>This represents the threshold that could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat. | 10 g/m$^2$<br>This represents the volume where hydrocarbons may be visible on the shoreline but is below concentrations at which ecological impacts are expected to occur. | N/A |

[1] Further details, including the source of the thresholds used to define the EMBA in this table, are provided in Section 8.1.3.

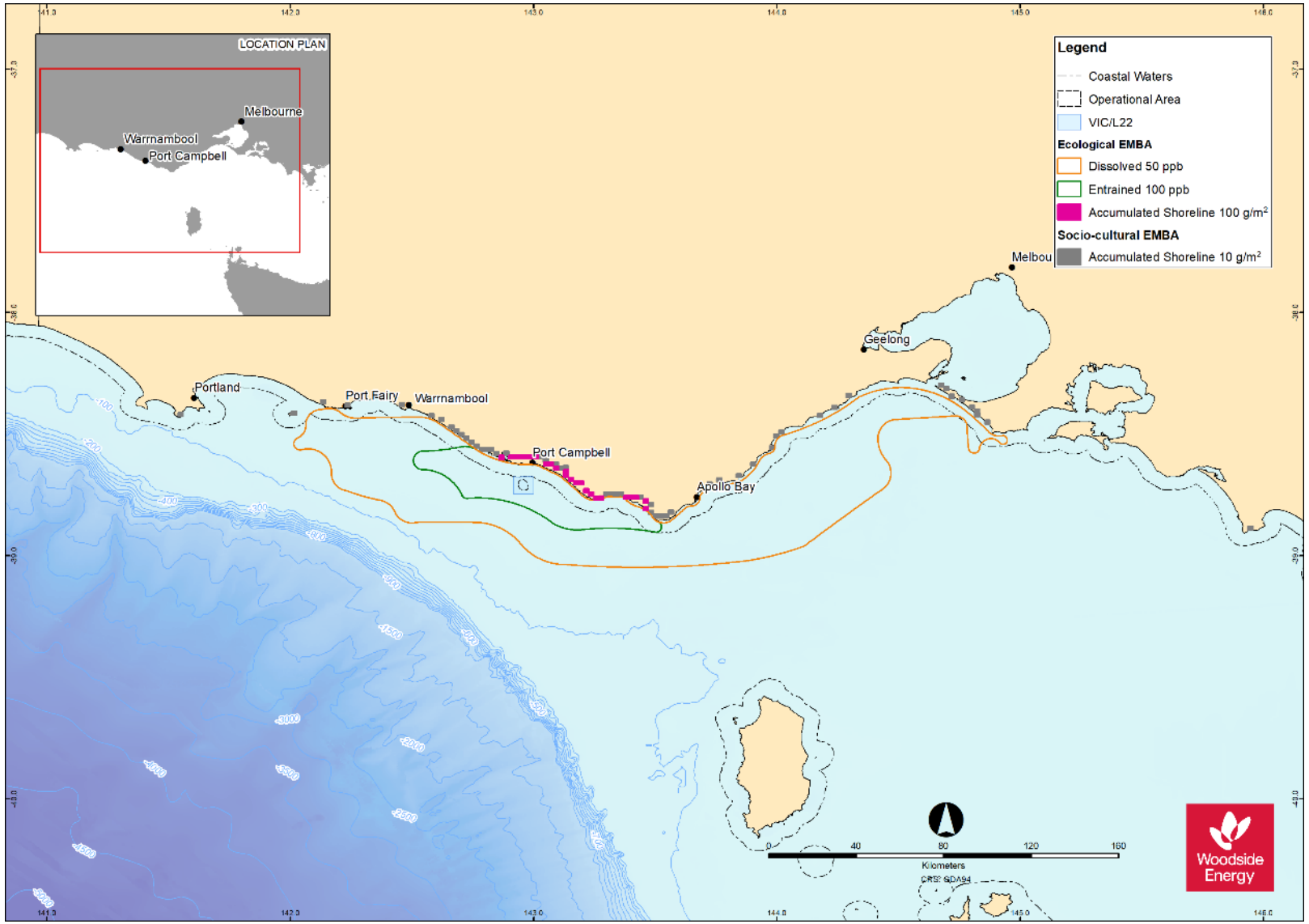


Figure 4-1: Environment that may be affected by the petroleum activity

## 4.2. Overview

Regulation 21(2) of Environment Regulations states that “the environment plan must:

- 21(2)(a) Describe the existing environment that may be affected by the activity; and
- 21(2)(b) Include details of the particular relevant values and sensitivities (if any) of that environment”.

Regulation 21(3) of the Environment Regulations states that “Without limiting paragraph 21(2)(b), particular relevant values and sensitivities may include any of the following:

- 21(3)(f) Any values and sensitivities that exist in, or in relation to, part or all of:
  - a Commonwealth marine area within the meaning of that Act; or
  - Commonwealth land within the meaning of that Act”.

This section summarises environmental values and sensitivities, including physical, biological, socio-economic and cultural features in the marine and coastal environment that are relevant to the Operational Area and the EMBAs. Searches for matters of national environmental significance (MNES) and other matters protected by the EPBC Act were undertaken for the Operational Area and the EMBAs using the Protected Matters Search Tool (PMST).

A summary of the information derived from the PMST, Bioregional Plans and the identified fauna Recovery Plans of relevance to the Operational Area and EMBAs is provided in this section. A comprehensive description of the environmental values and sensitivities relevant to the Minerva Field and associated EMBAs is provided in the Description of Environment for the Minerva Field (Appendix D), inclusive of copies of the PMST Reports.

### 4.2.1. Bioregions

The Operational Area is in Commonwealth waters of the South East Marine Region. The ecological EMBA overlaps the following Integrated Marine and Coastal Regionalisation of Australia (IMCRA) Provincial Bioregions (Figure 4-2):

- Western Bass Strait Shelf Transition (overlaps the Operational Area)
- Bass Strait Shelf Province (58 km from the Operational Area)

Appendix D summarises the characteristics of these marine bioregions.

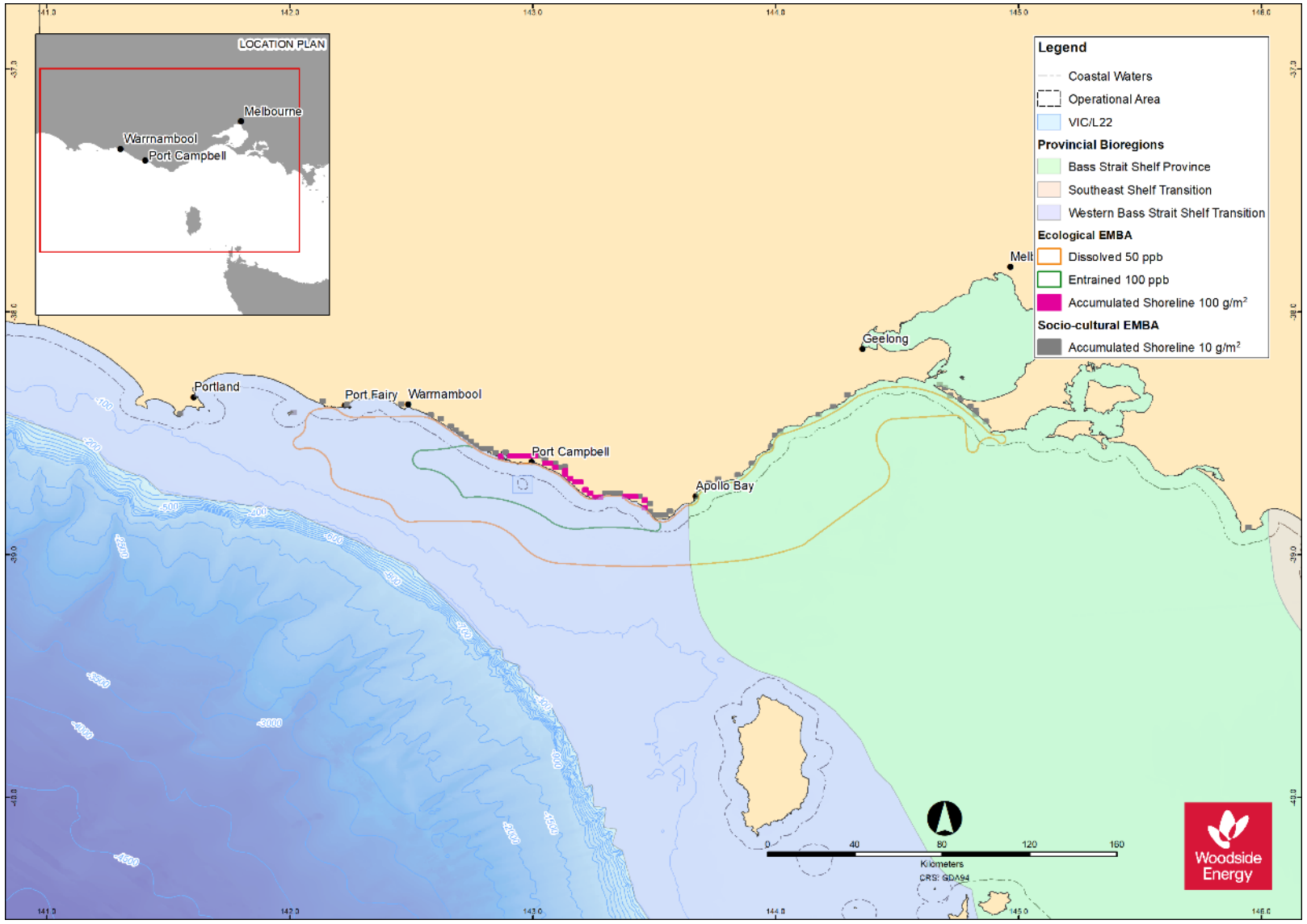


Figure 4-2: IMCRA Provincial Bioregions overlapping the Operational Area and EMBAs

## 4.3. Physical Environment

### 4.3.1. Bathymetry

Bathymetry in the Operational Area is generally flat (Figure 4-3). The seabed in the Operational Area is characterised by unconsolidated sandy sediments, with the seabed gently sloping from the coastal waters boundary to the southernmost part of the Operational Area.

### 4.3.2. Sediment Quality

Advisian carried out sediment sampling in VIC/L22 around wellheads, the pipeline, and at several reference sites (Figure 4-5).

Sediments were characterised by sand-sized fractions (62.5 µm–2 mm), with little finer or coarser sediments at most sites sampled (Figure 4-4).

Concentrations of metals in sediments were generally consistent across all sites sampled by Advisian (Figure 4-6). None of the metals exceeded the default guideline values for toxicants in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (Commonwealth of Australia, 2018). Several metals were below the limit of detection at many (or all) sites, such as cadmium, cobalt, copper, lead, and mercury (Figure 4-6). Concentrations of hydrocarbons (total petroleum hydrocarbons, total recoverable hydrocarbons, aromatic hydrocarbons, and polycyclic aromatic hydrocarbons) were below laboratory limits of detection in all samples. Radioactivity of sediments was measured for a suite of radionuclides, which were generally consistent across all sites (Figure 4-7); several were below the laboratory limits of detection and are not shown in Figure 4-7.

### 4.3.3. Water Quality

Sampling by Advisian (2021) in late summer showed a thermocline between approximately 30 m and 50 m water depth (Figure 4-8), which may be the result of solar heating and reduced wind-driven mixing, as the preceding months have relatively long day lengths, maximum temperatures, and low winds, compared to the rest of the year. Turbidity was low in the upper part of the water column and increased near the seabed.

Water quality sampling by Advisian (2021) showed no evidence of contamination. Samples at sites near Minerva subsea infrastructure were consistent with samples at reference sites, with no evidence of elevated levels of potential contaminants. Hydrocarbons (TPH, TRH, PAH and BTEXN) were below laboratory limits of reporting in all samples. Nutrients were consistent across all sites sampled.

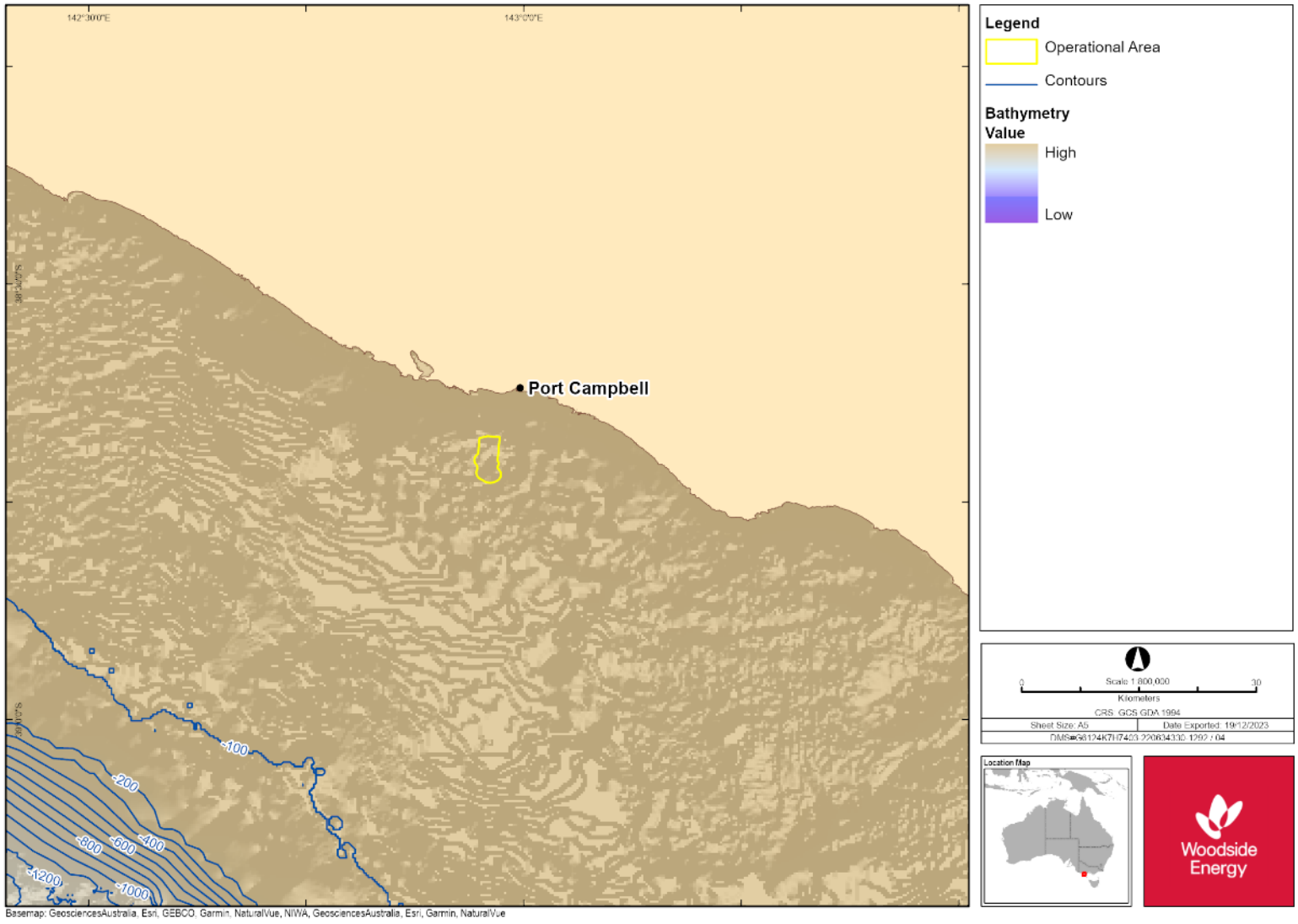


**Figure 4-3: Bathymetry and seabed features in the Operational Area**

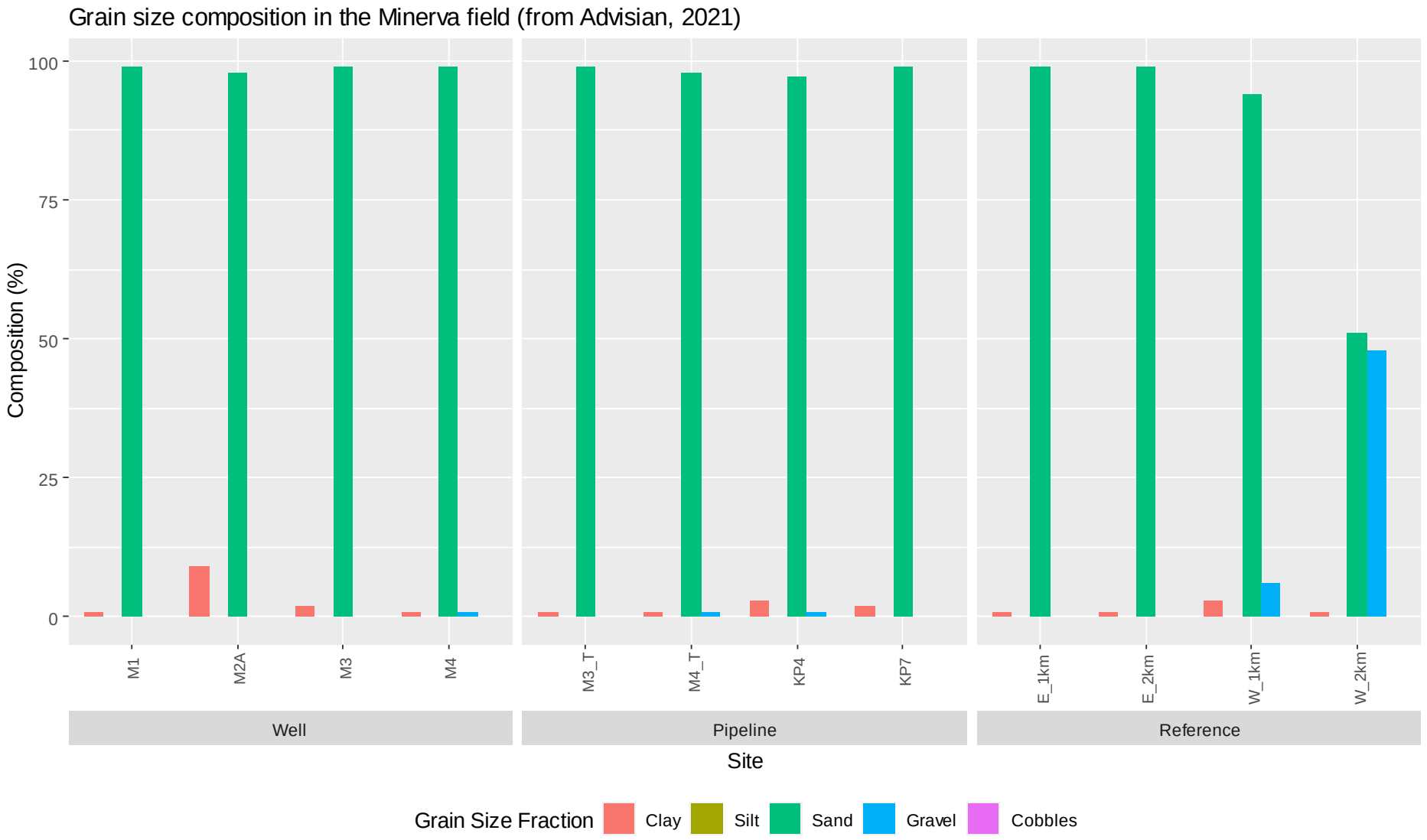


**Figure 4-4: Particle size distribution at sites sampled by Advisian (2021)**

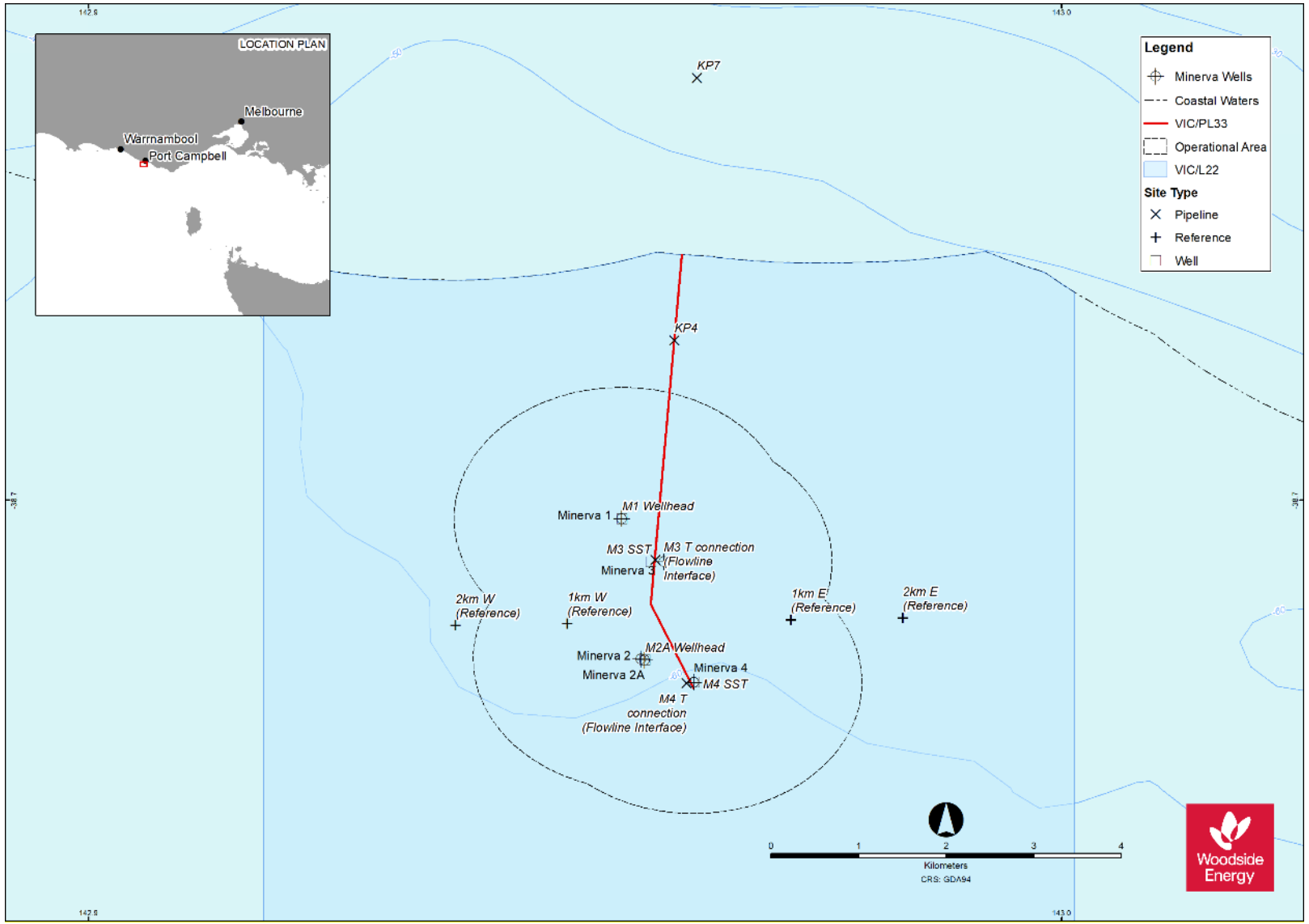


Figure 4-5: Advisian (2021) sampling sites

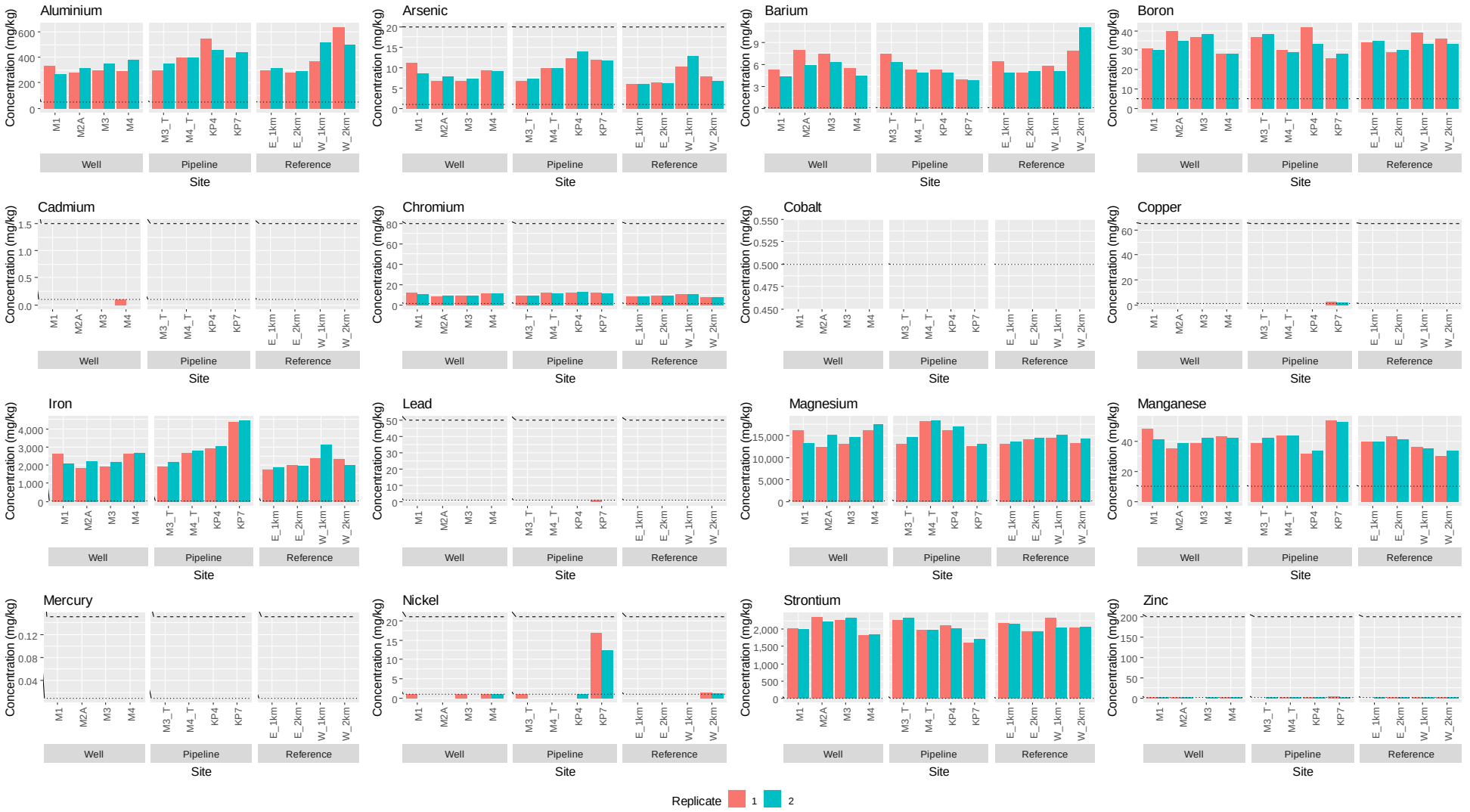


**Figure 4-6: Concentrations of metals in sediments at sites sampled by Advisian (2021). Dotted lines are laboratory limits of reporting. Dashed lines are Default Guideline Values (DGVs) for metals from the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (Commonwealth of Australia, 2018). Note DGVs are not defined for several metals shown.**

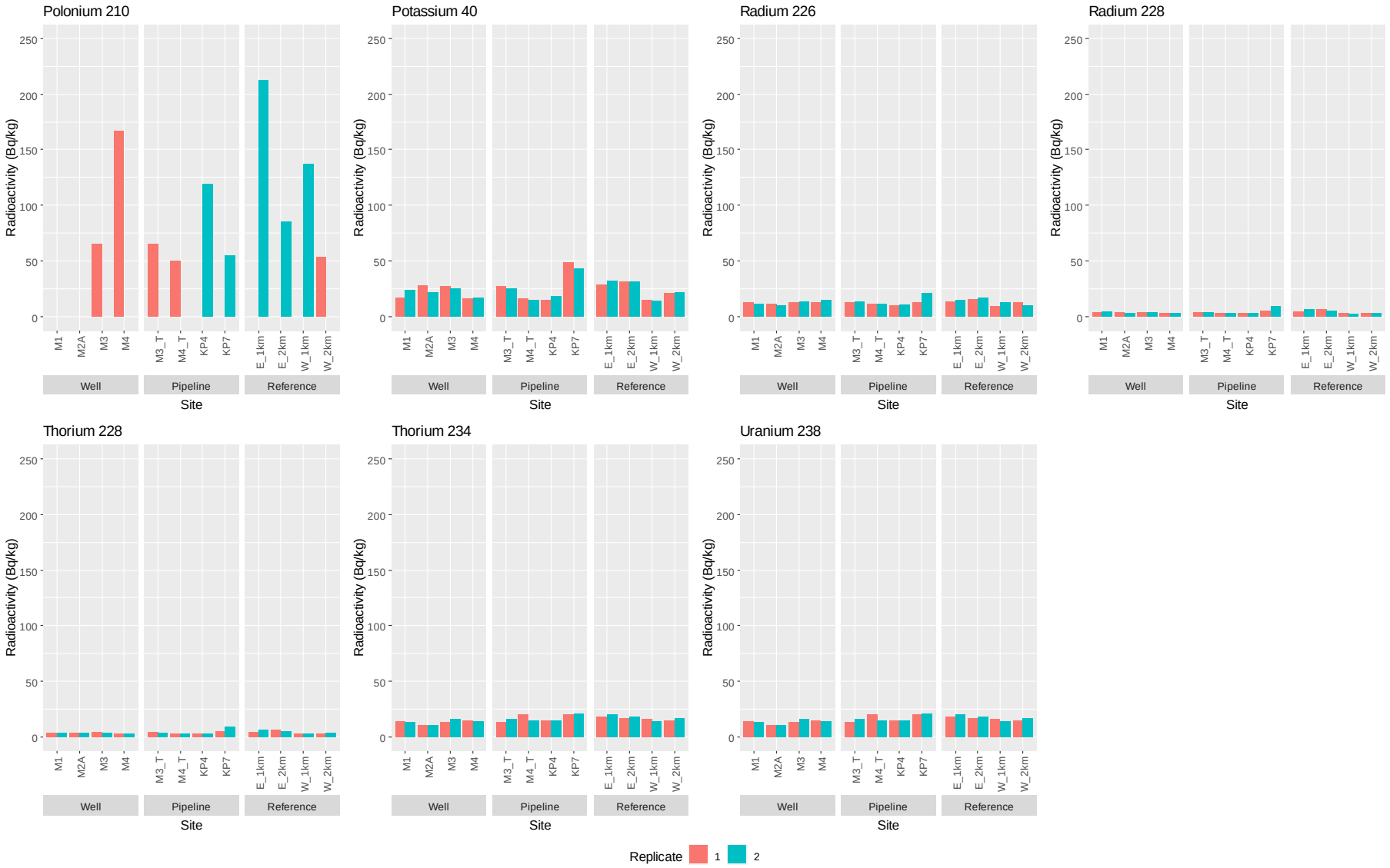


**Figure 4-7: Radioactivity of radionuclides in sediments at sites sampled by Advisian (2021)**

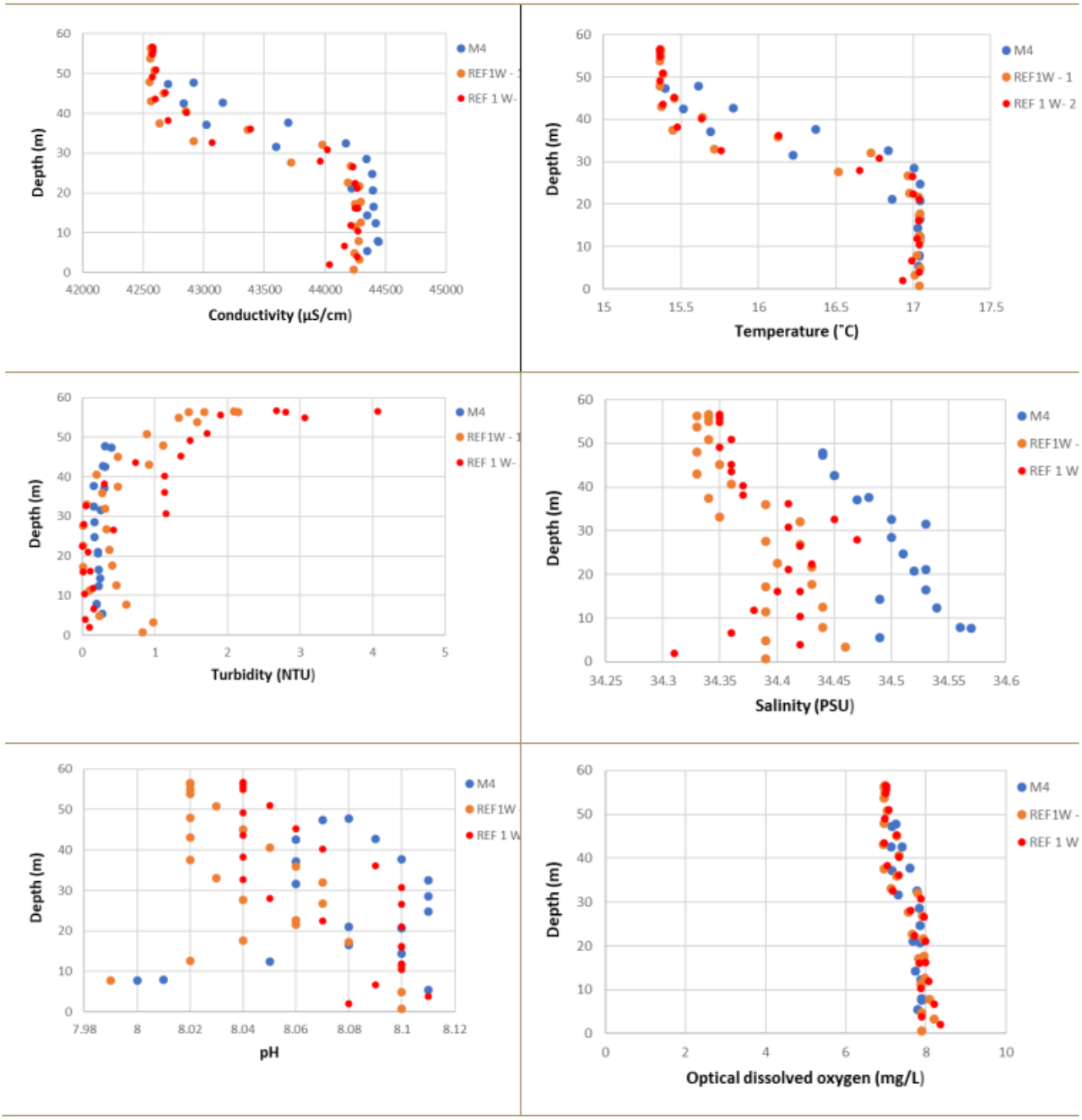


**Figure 4-8: Physico-chemical profiles of the water column in VIC/L22 during late summer 2021 (Advisian, 2021)**

## 4.4. Biological Environment

### 4.4.1. Benthic and Shoreline Habitats

The presence of marine and coastal habitats within the Operational Area and EMBA is summarised in Table 4-2 and a description of these habitats is provided in Appendix D.

Benthic habitat within the Operational Area is unconsolidated sediment (described in Section 4.3.2) with sparse epifauna. Infauna sampling by Advisian (2021) showed similarities between sites in terms of abundance and species richness, however taxa were variable between sites (Figure 4-9 and Figure 4-10). This may be a consequence of the relatively low number of samples taken (three samples per site) and the limited volume of

sediment recovered by the coring method. The benthic habitat within the Operational Area are similar to those found in similar depths across the South East Marine Region.

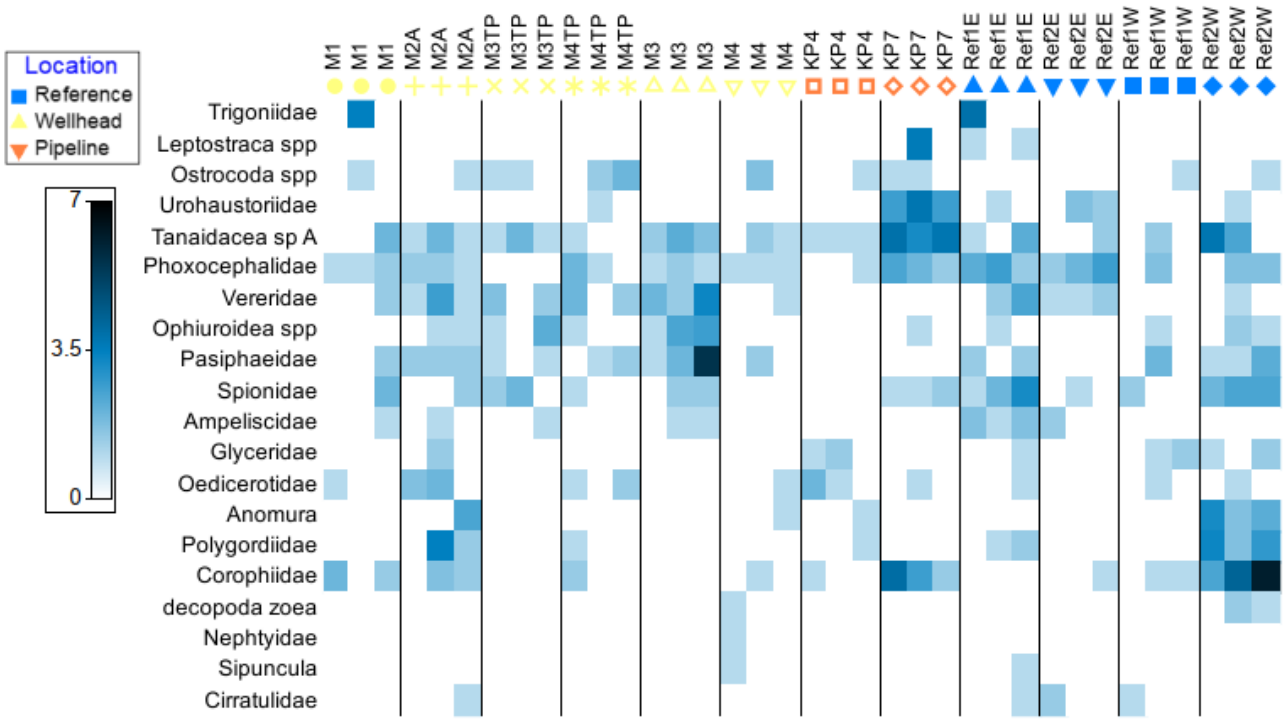


**Figure 4-9: Shade Plot of the relative abundance of infauna taxa (species or family level) at sites sampled by Advisian (2021). Abundance is represented by a spectrum of shades of blue, from white (absent) to dark blue (most abundance). Only top 30 ranked infauna taxa are shown.**

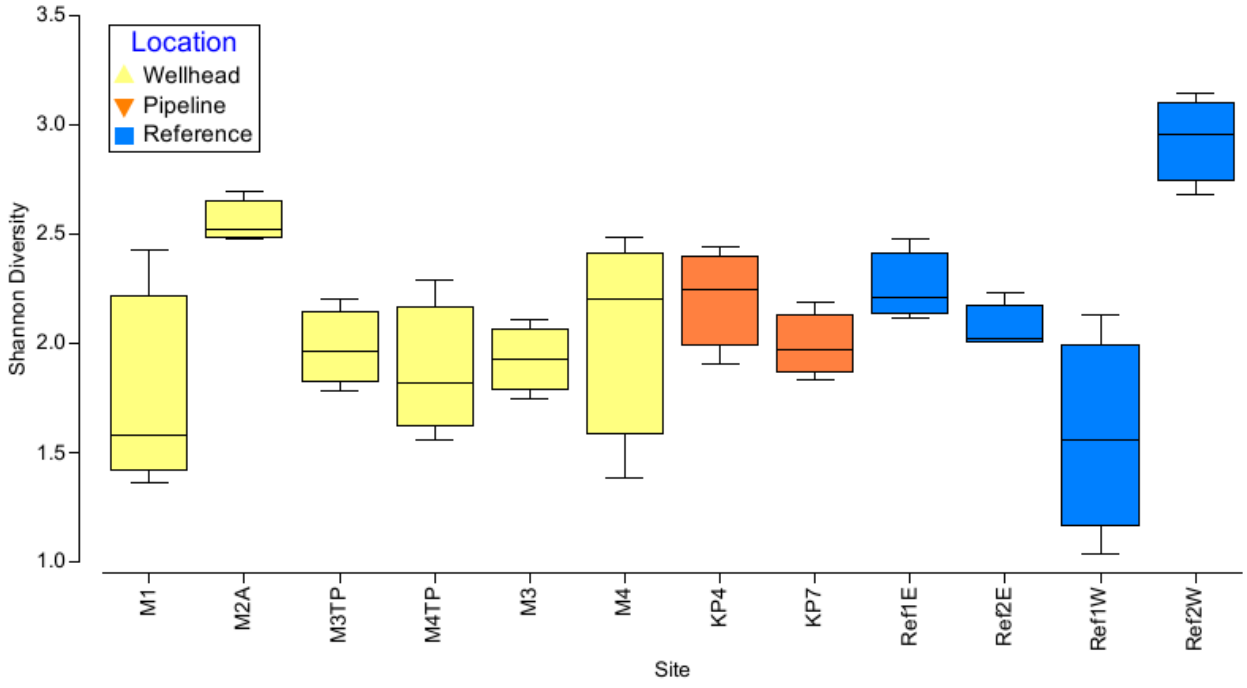


**Figure 4-10: Shannon diversity index of infauna taxa at each site sampled by Advisian (2021).**

Habitats identified within the EMBA includes benthic primary producers (seagrasses, algae, mangroves), soft sediment, rocky substrate, wetlands, saltmarshes, rocky shorelines, and sandy beaches.

Habitat diversity promotes a range of benthic fauna and infauna in the region and supports the wider ecosystem. Benthic primary producers are important components of ecosystems as they provide the source of energy driving food webs and provide shelter for a diverse array of organisms. Further detail on these habitat types is provided in Appendix D.

**Table 4-2: Benthic and coastal habitats occurring within the Operational Area and EMBA**

| Habitat Type | Description | Operational Area | EMBA |
|---|---|---|---|
| Soft sediment | Unvegetated soft sediments are a widespread habitat in both intertidal and subtidal areas, particularly in areas beyond the photic zone. Factors such as depth, light, temperature, and the type of sediment present can vary the biodiversity and productivity of soft sediment habitat. | ✓ | ✓ |
| Seagrass beds | Seagrasses are marine flowering plants, with around 30 species found in Australian waters. | X | ✓ |
| Macroalgal beds | Macroalgae communities occur throughout the Australian coast and are generally found on intertidal and shallow subtidal rocky substrates. Macroalgal systems are an important source of food and shelter for many ocean species. | X | ✓ |
| Rocky shorelines | Rocky shores, including bedrock outcrops, platforms, low cliffs (less than five metres), and scarps. | X | ✓ |
| Sandy beaches | Sandy beaches are dynamic environments, naturally fluctuating in response to external forcing factors (e.g., waves, currents etc). | X | ✓ |

### 4.4.2. Threatened and Migratory Species

Table 4-3 presents the threatened and migratory species within the Operational Area and the EMBA. These include all relevant MNES protected under the EPBC Act, as identified in the PMST search for the Operational Area and EMBA (PMST search results are provided in Appendix D). For each species identified, the extent of likely presence is noted.

Terrestrial species (such as terrestrial mammals, reptiles, and bird species) that appear in the PMST results of the EMBA and do not have habitats along shorelines are not relevant to the petroleum activity impacts and risks and have therefore been excluded from Table 4-3.

The PMST results identified 38 species listed as `threatened' species and 37 marine fauna species listed as `migratory' within the Operational Area. Within the ecological EMBA, the PMST results identified 48 marine fauna species listed as `threatened' species and 48 marine fauna species listed as `migratory'.

A description of the identified threatened and migratory species is included in Appendix D.

Table 4-4 provides a summary of the windows of ecological sensitivity for values identified within and around the Operational Area and the EMBA. These receptors are considered throughout the EP in terms of the identified potential risk.

**Table 4-3: Threatened and migratory species predicted to occur within the Operational Area and EMBA**

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| ***Fishes, Sharks, and Rays*** | | | | | |
| White Shark, Great White Shark | *Carcharodon carcharias* | Vulnerable | Migratory | Migration route known to occur within area | Migration route known to occur within area |
| School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark | *Galeorhinus galeus* | Conservation Dependent | - | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Shortfin Mako, Mako Shark | *Isurus oxyrinchus* | - | Migratory | - | Species or species habitat likely to occur within area |
| Porbeagle, Mackerel Shark | *Lamna nasus* | - | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Blue Warehou | *Seriolella brama* | Conservation Dependent | - | Species or species habitat known to occur within area | Species or species habitat known to occur within area |
| Southern Bluefin Tuna | *Thunnus maccoyii* | Conservation Dependent | - | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| ***Marine Mammals*** | | | | | |
| Sei Whale | *Balaenoptera borealis* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Blue Whale | *Balaenoptera musculus* | Endangered | Migratory | Foraging, feeding or related behaviour known to occur within area | Foraging, feeding or related behaviour known to occur within area |
| Fin Whale | *Balaenoptera physalus* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Pygmy Right Whale | *Caperea marginata* | - | Migratory | Foraging, feeding or related behaviour may occur within area | Foraging, feeding or related behaviour may occur within area |

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| Southern Right Whale | *Eubalaena australis* | Endangered | Migratory (as *Balaena glacialis australis*) | Species or species habitat known to occur within area | Breeding known to occur within area |
| Dusky Dolphin | *Lagenorhynchus obscurus* | - | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Humpback Whale | *Megaptera novaeangliae* | - | Migratory | Species or species habitat likely to occur within area | Species or species habitat known to occur within area |
| Australian Sea-lion, Australian Sea Lion | *Neophoca cinerea* | Endangered | - | - | Species or species habitat may occur within area |
| Killer Whale, Orca | *Orcinus orca* | - | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| ***Reptiles*** | | | | | |
| Loggerhead Turtle | *Caretta caretta* | Endangered | Migratory | Species or species habitat likely to occur within area | Breeding likely to occur within area |
| Green Turtle | *Chelonia mydas* | Vulnerable | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Leatherback Turtle, Leathery Turtle, Luth | *Dermochelys coriacea* | Endangered | Migratory | Species or species habitat likely to occur within area | Breeding likely to occur within area |
| ***Birds*** | | | | | |
| Common Sandpiper | *Actitis hypoleucos* | - | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Fork-tailed Swift | *Apus pacificus* | - | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Flesh-footed Shearwater, Fleshy-footed Shearwater | *Ardenna carneipes* | - | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| Sooty Shearwater | *Ardenna grisea* | Vulnerable | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Short-tailed Shearwater | *Ardenna tenuirostris* | - | Migratory | - | Breeding known to occur within area |
| Australasian Bittern | *Botaurus poiciloptilus* | Endangered | - | - | Species or species habitat known to occur within area |
| Sharp-tailed Sandpiper | *Calidris acuminata* | Vulnerable | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Red Knot, Knot | *Calidris canutus* | Vulnerable | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Curlew Sandpiper | *Calidris ferruginea* | Critically Endangered | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Pectoral Sandpiper | *Calidris melanotos* | - | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Greater Sand Plover, Large Sand Plover | *Charadrius leschenaultii* | Vulnerable | Migratory | - | Species or species habitat likely to occur within area |
| Antipodean Albatross | *Diomedea antipodensis* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Southern Royal Albatross | *Diomedea epomophora* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Wandering Albatross | *Diomedea exulans* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Northern Royal Albatross | *Diomedea sanfordi* | Endangered | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| Latham's Snipe, Japanese Snipe | *Gallinago hardwickii* | Vulnerable | Migratory | - | Species or species habitat known to occur within area |
| Blue Petrel | *Halobaena caerulea* | Vulnerable | - | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Bar-tailed Godwit | *Limosa lapponica* | - | Migratory | - | Species or species habitat known to occur within area |
| Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit | *Limosa lapponica baueri* | Endangered | - | - | Species or species habitat known to occur within area |
| Swinhoe's Snipe | *Gallinago megala* | - | Migratory | - | Roosting likely to occur within area |
| Pin-tailed Snipe | *Gallinago stenura* | - | Migratory | - | Roosting likely to occur within area |
| Swift Parrot | *Lathamus discolor* | Critically Endangered | - | - | Species or species habitat likely to occur within area |
| Southern Giant-Petrel, Southern Giant Petrel | *Macronectes giganteus* | Endangered | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Northern Giant Petrel | *Macronectes halli* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Orange-bellied Parrot | *Neophema chrysogaster* | Critically Endangered | - | Migration route likely to occur within area | Migration route likely to occur within area |
| Blue-winged Parrot | *Neophema chrysostoma* | Vulnerable | - | - | Species or species habitat known to occur within area |
| Eastern Curlew, Far Eastern Curlew | *Numenius madagascariensis* | Critically Endangered | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Little Curlew, Little Whimbrel | *Numenius minutus* | - | Migratory | - | Roosting likely to occur within area |

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| Fairy Prion (southern) | *Pachyptila turtur subantarctica* | Vulnerable | - | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Osprey | *Pandion haliaetus* | - | Migratory | - | Species or species habitat known to occur within area |
| Sooty Albatross | *Phoebetria fusca* | Vulnerable | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Gould's Petrel, Australian Gould's Petrel | *Pterodroma leucoptera leucoptera* | Endangered | - | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Soft-plumaged Petrel | *Pterodroma mollis* | Vulnerable | - | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Australian Painted Snipe | *Rostratula australis* | Endangered | - | - | Species or species habitat likely to occur within area |
| Little Tern | *Sternula albifrons* | - | Migratory | - | Species or species habitat may occur within area |
| Australian Fairy Tern | *Sternula nereis nereis* | Vulnerable | - | Foraging, feeding or related behaviour likely to occur within area | Species or species habitat known to occur within area |
| Buller's Albatross, Pacific Albatross | *Thalassarche bulleri* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Northern Buller's Albatross, Pacific Albatross | *Thalassarche bulleri platei* | Vulnerable | - | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Indian Yellow-nosed Albatross | *Thalassarche carteri* | Vulnerable | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Shy Albatross | *Thalassarche cauta* | Endangered | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| Grey-headed Albatross | *Thalassarche chrysostoma* | Endangered | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Campbell Albatross, Campbell Black-browed Albatross | *Thalassarche impavida* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Black-browed Albatross | *Thalassarche melanophris* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Salvin's Albatross | *Thalassarche salvini* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| White-capped Albatross | *Thalassarche steadi* | Vulnerable | Migratory | Foraging, feeding or related behaviour known to occur within area | Foraging, feeding or related behaviour known to occur within area |
| Eastern Hooded Plover, Eastern Hooded Plover | *Thinornis cucullatus cucullatus* | Vulnerable | - | - | Species or species habitat known to occur within area |
| Common Greenshank, Greenshank | *Tringa nebularia* | Endangered | Migratory | - | Species or species habitat likely to occur within area |

**Table 4-4: Key environmental sensitivities and timing of biologically important activity**

| Category | Environmental Sensitivity | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Habitats / Communities | Phytoplankton abundance | Assumed peak occurrence associated with Bonney Upwelling | | | | Present year-round | | | | | | | |
| | Zooplankton abundance | Assumed peak occurrence associated with Bonney Upwelling | | | | Present year-round | | | | | | | |
| | Seagrass | Present year-round in coastal areas | | | | | | | | | | | |
| | Macroalgae | Present year-round | | | | | | | | | | | |
| TEC | Bonney Coast Upwelling | Upwelling event | | | | | | | | | | | |
| Marine Fauna (threatened/ migratory species) | ***Marine Mammals*** | | | | | | | | | | | | |
| | Australian Sea Lion | Assumed present year-round – SEMR is a known range | | | | | | | | | | | |
| | Pygmy Blue Whale | Foraging occurs during Bonney Upwelling – BIA | | | | | | | | | | | |
| | Dusky Dolphin | Assumed present year-round – prefers inshore habitats but may also be pelagic at times | | | | | | | | | | | |
| | Fin Whale | Present during the Bonney Upwelling event | | | | | | | | | | | |
| | Humpback Whale | | | | Nth Migration through SEMR | | | | | | Sth Migration through SEMR | | |
| | Killer Whale | Assumed present year-round – frequent sightings off Vic along the continental slope and shelf | | | | | | | | | | | |
| | Pygmy Right Whale | Uncommon / few or no records available for Vic. | | | | | | | | | | | |
| | Sei Whale | Sighted during the Bonney Upwelling event | | | | | | | | | | | |
| | Southern Right Whale | | | | Migration BIA | | | | | | | | |
| | | | | | | Reproduction BIA | | | | | | | |
| | ***Marine Reptiles*** | | | | | | | | | | | | |
| | Green turtle | Occurs in limited numbers in Vic and SA | | | | | | | | | | | |

| Category | Environmental Sensitivity | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | Leatherback Turtle | Foraging in the SEMR is known to occur | | | | | | | | | | | |
| | Loggerhead Turtle | Uncommon in southern Australia | | | | | | | | | | | |
| | ***Fish, Sharks, and Rays*** | | | | | | | | | | | | |
| | Porbeagle | Assumed present year-round | | | | | | | | | | | |
| | Shortfin Mako Shark | Assumed present year-round | | | | | | | | | | | |
| | White Shark | Assumed present year-round with breeding, distribution and foraging BIAs identified throughout the region | | | | | | | | | | | |
| | Blue Warehou | Assumed present year-round | | | | | | | | | | | |
| | Eastern School Shark | Assumed present year-round | | | | | | | | | | | |
| | Southern Bluefin Tuna | Assumed present year-round | | | | | | | | | | | |
| | ***Birds*** | | | | | | | | | | | | |
| | Antipodean Albatross | Foraging known to occur all year | | | | | | | | | | | |
| | Black-browed Albatross | | | | Fledglings (Apr – May) | | Present – foraging BIA | | | Breeding within SEMR on Macquarie Is. | | | |
| | Buller's Albatross | Foraging BIA – however, records indicate the species is mainly present around Tas when in the SEMR (species endemic to NZ) | | | | | | | | | | | |
| | Campbell Albatross | | | | | Present in the non-breeding season – foraging BIA | | | Breeds on Campbell Island, south of NZ Aug – May | | | | |
| | Indian Yellow-nosed Albatross | | | Fledgling Mar-Apr | | | Non-breeding visitor – foraging BIA | | | Breeding occurs in South Africa – eggs laid in Sep-Oct | | | |
| | Short-tailed Shearwater | Present Sep-May – foraging and breeding BIAs | | | | | Migrates north for Winter | | | | Breeding Oct – May | | |
| | Shy Albatross | Assumed present year-round – foraging BIA. Breeding occurs in SEMR with eggs laid in Sept and fledglings in Apr | | | | | | | | | | | |
| | Wandering Albatross | Assumed present year-round – foraging BIA. Breeding occurs biennially on Macquarie Island with eggs laid in Dec and fledglings between mid-Nov and late-Feb | | | | | | | | | | | |

| Category | Environmental Sensitivity | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | Birds – other seabirds (with no BIAs identified) | Various species – assumed present | | | | | | | | | | | |
| | Birds – shorebirds | Various species – assumed present | | | | | | | | | | | |
| Legend | | Peak occurrence / activity (reliable and predictable) | | | | | | | | | | | |
| | | Activity can occur throughout the year | | | | | | | | | | | |
| | | Low level of occurrence/ activity (may vary from year to year) | | | | | | | | | | | |
| | | No occurrence | | | | | | | | | | | |

### 4.4.3. Relevant Recovery Plans, Conservation Advice and Threat Abatement Plans

Woodside considered recent updates to Recovery Plans, Conservation Management Plans, Threat Abatement Plans, or approved Conservation Advice in place for EPBC Act-listed threatened species that may potentially occur or utilise habitat within the Operational Area or EMBA.

Recovery Plans set out the research and management actions necessary to stop the decline of and support the recovery of listed threatened species. In addition, Threat Abatement Plans provide for the research, management, and any other actions necessary to reduce the impact of a listed key threatening process on native species and ecological communities.

Table 4-5 summarises the actions relevant to the activity with more information on the specific requirements of the relevant plans of management (including Conservation Advice and Conservation Management Plans) applicable to the Activity and demonstrates how current management requirements have been considered.

**Table 4-5: Summary of relevant species recovery plans, approved conservation plans and threat abatement plans**

| Species or Group | Relevant Plan/Conservation Advice | Relevant Objectives | Threats and or Management Strategies Relevant to the Activity | Relevant Conservation Actions |
|---|---|---|---|---|
| ***All Vertebrate Fauna*** | | | | |
| All vertebrate fauna | Threat Abatement Plan for the Impacts of Marine Debris on Vertebrate Wildlife of Australia's Coasts and Oceans (Commonwealth of Australia, 2018) | There are four relevant objectives:<br>▪ Objective 1: Contribute to the long-term prevention of the incidence of marine debris<br>▪ Objective 2: Understand the scale of impacts from marine plastic and microplastic on key species, ecological communities and locations<br>▪ Objective 3: Remove existing marine debris<br>▪ Objective 4: Monitor the quantities, origins, types and hazardous chemical contaminants of marine debris, and assess the effectiveness of management arrangements for reducing marine debris. | Ship-sourced marine debris as a risk to vertebrate marine life through entanglement or ingestion | No explicit management actions for non-fisheries related industries (note that management actions in the plan relate largely to management of fishing waste (for example 'ghost' gear), and State and Commonwealth management through regulation. |
| ***Marine Mammals*** | | | | |
| Sei Whale | Conservation Advice *Balaenoptera borealis* Sei Whale (Threatened Species Scientific Committee, 2015) | No explicit relevant objectives. | Noise interference | No explicit relevant management actions; anthropogenic noise identified as a minor threat. |
| | | | Pollution | No explicit relevant management actions; pollution identified as a minor threat. |
| | | | Habitat degradation including pollution | No explicit relevant management actions; habitat degradation and pollution identified as threats. |
| | | | Vessel strike | Minimising vessel collisions:<br>Report all vessel strike incidents in the National Vessel Strike Database. |
| Blue Whale | Conservation Management Plan for the Blue Whale 2015-2025 (Commonwealth of Australia, 2015) | The long-term recovery objective is to minimise anthropogenic threats to allow the conservation status of the Blue Whale to improve so that it can be removed from the threatened species list under the EPBC Act. | Noise interference | Action A.2: Assess and address anthropogenic noise.<br>▪ Investigate the baseline acoustic behaviour of blue whales.<br>Assess the effect of anthropogenic noise on blue whale behaviour.<br>Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area. |
| | | | Habitat modification (marine debris and chemical discharge) | No explicit relevant management actions; habitat modification identified as a threat. |
| | | | Vessel disturbance | Action A.4: Minimise vessel collisions.<br>Report all vessel strike incidents in the National Ship Strike Database.<br>Consider the risk of vessel strikes on blue whales when assessing actions that increase vessel traffic in areas where blue whales occur and, if required, implement appropriate mitigation measures. |
| Fin Whale | Conservation Advice *Balaenoptera physalus* Fin Whale (Threatened Species Scientific Committee, 2015) | No explicit relevant objectives. | Noise interference | No explicit relevant management actions; anthropogenic noise identified as a minor threat. |
| | | | Pollution | No explicit relevant management actions; pollution identified as a minor threat. |
| | | | Habitat degradation including pollution | No explicit relevant management actions; habitat degradation and pollution identified as threats. |
| | | | Vessel strike | Minimising vessel collisions:<br>Report all vessel strike incidents in the National Vessel Strike Database. |
| Southern Right Whale | National Recovery Plan for the Southern Right Whale (*Eubalaena australis*) (DCCEEW, 2024) | Long-term Vision:<br>▪ The long-term vision for the recovery of the Australian Southern Right Whale is that the population has increased in size to a level that the conservation status has improved, and | Marine debris | No explicit actions relevant to the petroleum activity. Marine debris from the petroleum activity is identified as a risk and managed to a level that is acceptable and ALARP (Section 8.5). |
| | | | Habitat degradation | Action Area A2: Address habitat degradation impacts from coastal and offshore marine infrastructure developments within the species' range. |

| Species or Group | Relevant Plan/Conservation Advice | Relevant Objectives | Threats and or Management Strategies Relevant to the Activity | Relevant Conservation Actions |
|---|---|---|---|---|
| | | the species no longer qualifies for listing as threatened under any of the EPBC Act listing criteria.<br>Interim Objective 2:<br>▪ Anthropogenic threats are managed consistent with ecologically sustainable development principles and do not impede recovery of Southern Right Whales. | | In particular:<br>▪ Action 1: Coastal and offshore development actions are assessed according to principles of ecological sustainable development to ensure the risk of injury, auditory impairment and/or disturbance to southern right whales is minimised.<br>▪ Action 2: Baseline surveys and monitoring undertaken during activity implementation are conducted in accordance with best practice standards and guidelines to obtain standardised datasets suitable to inform environmental management decision making that can reduce the risk of threats to Southern Right Whales.<br>▪ Action 3: Current information on species' occurrence, particularly in habitat critical to survival (HCTS), BIAs, and historic high use areas, are used to inform planning, assessment, and decision-making on marine infrastructure development actions. |
| | | | Anthropogenic underwater noise (industrial noise, vessel noise, and aircraft noise) | Action Area A5: Assess, manage and mitigate impacts from anthropogenic underwater noise.<br>In particular:<br>▪ Action 2: Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that it does not prevent any southern right whale from utilising the area or cause auditory impairment.<br>▪ Action 3: Actions within and adjacent to southern right whale BIAs and HCTS should demonstrate that the risk of behavioural disturbance is minimised.<br>▪ Action 4: Ensure environmental assessments associated with underwater noise generating activities, include consideration of national policy (e.g., EPBC Act Policy Statement 2.1) and guidelines related to managing anthropogenic underwater noise and implement appropriate mitigation measures to reduce risks to southern right whales to the lowest possible level.<br>▪ Action 5: Quantify risks of anthropogenic underwater noise to southern right whales, including studies aimed to measure physiological effects, behavioural disturbance, and changes to acoustic communication (e.g., masking of vocalisations) to whales. |
| | | | Collision (vessel strike) | Action Area 6: Manage, minimise, and mitigate the threat of vessel strike.<br>In particular:<br>▪ Action 1: Assess risk of vessel strike to southern right whales in BIAs.<br>▪ Action 3: Ensure environmental impact assessments and associated plans consider and quantify the risk of vessel strike and associated potential cumulative risks in BIAs and HCTS<br>▪ Action 5: Report all vessel strike incidents in the National Ship Strike Database managed through the Australian Marine Mammal Centre, Australian Antarctic Division. |
| Australian Sea Lion | Recovery Plan for the Australian Sea Lion (*Neophoca cinerea*) (DSEWPaC, 2013)<br>Approved Conservation Advice on *Neophoca cinerea* Australian Sea Lion (TSSC, 2020a) | The overarching objective of this recovery plan is to halt the decline and assist the recovery of the Australian sea lion throughout its range in Australian waters by increasing the total population size while maintaining the number and distribution of breeding colonies with a view to:<br>▪ Improving the population status leading to the future removal of the Australian sea lion from the threatened species list of the EPBC Act<br>Ensuring that anthropogenic activities do not hinder recovery in the near future or impact on the conservation status of the species in the future. | Habitat degradation | No explicit management actions; habitat degradation recognised as a threat |
| | | | Pollution and oil spills | Implement jurisdictional oil spill response strategies as required. |
| | | | Disease | No explicit management actions; disease and pathogens recognised as a threat. |
| | | | Marine debris | Identify the sources of marine debris having an impact on Australian sea lion populations.<br>Assess the impacts of marine debris on Australian sea lion populations.<br>Develop and implement measures to mitigate the impacts of marine debris on Australian sea lion populations, noting the linkages with the Threat Abatement Plan for the Impact of Marine Debris on Vertebrate Marine Life. |
| | | | Vessel Strike | Collect data on direct killings and confirmed vessel strikes. |
| | | Primary conservation actions: | Marine debris | Assess the impacts of marine debris on Australian Sea Lion populations and identify the sources of marine debris which have an impact. |

| Species or Group | Relevant Plan/Conservation Advice | Relevant Objectives | Threats and or Management Strategies Relevant to the Activity | Relevant Conservation Actions |
|---|---|---|---|---|
| | Approved Conservation Advice on *Neophoca cinerea* Australian Sea Lion (TSSC, 2020a) | ▪ Mitigate the impacts of marine debris on Australian Sea Lions | | Develop and implement measures to mitigate the impacts of marine debris on the species (including reducing the amount of these marine debris entering the oceans), noting linkages with the Threat Abatement Plan for the Impact of Marine Debris on Vertebrate Marine Life. |
| | | | Habitat degradation and pollution | Require all vessels to have oil spill mitigation measures in place and implement jurisdictional oil spill response strategies as required. |
| | | | Noise interference | Monitor and mitigate impacts (including cumulative impacts) of human interactions on Australian Sea Lion colonies.<br>Control access to breeding colonies to minimise the impacts of disturbance on Australian Sea Lions. |
| ***Marine Reptiles*** | | | | |
| EPBC Act listed marine turtles in the EMBAs:<br>▪ Loggerhead Turtle<br>▪ Green Turtle<br>▪ Leatherback Turtle | National Light Pollution Guidelines for Wildlife, including marine turtles, seabirds and migratory shorebirds (Commonwealth of Australia, 2023) | The aim of the Guidelines is that artificial light will be managed so wildlife is:<br>▪ Not disrupted within, nor displaced from, important habitat<br>▪ Able to undertake critical behaviours such as foraging, reproduction and dispersal. | Light pollution | Best practice lighting design incorporates the following design principles:<br>▪ Start with natural darkness and only add light for specific purposes.<br>▪ Use adaptive light controls to manage lighting timing, intensity and colour.<br>▪ Light only the object or area intended – keep lights close to the ground, directed and shielded to avoid light spill.<br>▪ Use the lowest intensity lighting appropriate for the task.<br>▪ Use non-reflective, dark-coloured surfaces.<br>▪ Use lights with reduced or filtered blue, violet and ultra-violet wavelengths. |
| | Recovery Plan for Marine Turtles (DoEE, 2017)<br>Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA, 2008) | Long-term recovery objective:<br>▪ Minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so that they can be removed from the EPBC Act threatened species list.<br>Interim objective 3:<br>▪ Anthropogenic threats are demonstrably minimised. | Marine debris | Action Area A3: Reduce the impacts from marine debris<br>▪ Support the implementation of the EPBC Act Threat Abatement Plan for the impacts of marine debris on vertebrate marine life. |
| | | | Chemical and Terrestrial Discharge | Area Action A4: Minimise chemical and terrestrial discharge.<br>Include in spill risk strategies and response programs adequate management for marine turtles and their habitats, particularly in reference to ‘slow to recover habitats’, e.g. nesting habitat. |
| | | | Vessel disturbance | Vessel interactions identified as a threat; no specific management actions in relation to vessels prescribed in the plan. |
| | | | Light pollution | Action Area A8: Minimise light pollution:<br>▪ Artificial light within or adjacent to habitat critical to the survival of marine turtles will be managed such that marine turtles are not displaced from these habitats.<br>▪ Develop and implement best practice light management guidelines for existing and future developments adjacent to marine turtle nesting beaches.<br>▪ Identify the cumulative impact on turtles from multiple sources of onshore and offshore light pollution. |
| | | | Noise interference | Understand the impacts of anthropogenic noise on turtle behaviour and biology. |
| | | | Habitat modification | Manage anthropogenic activities not to displace marine turtles from identified habitat critical to the survival.<br>Manage anthropogenic activities in Biologically Important Areas to allow biologically important behaviours to continue. |
| Leatherback Turtle | Approved Conservation Advice for *Dermochelys coriacea* (Leatherback Turtle) (DEWHA, 2008) | No explicit relevant objectives | Boat strike | No explicit management actions; vessel strikes identified as threat. |
| | | | Habitat degradation (changes to breeding sites and degradation to foraging areas) | Identify and protect migratory corridors between nesting beaches and common foraging areas to facilitate colonization. |
| | | | Marine debris | No explicit relevant management actions; marine debris identified as a threat. |

| Species or Group | Relevant Plan/Conservation Advice | Relevant Objectives | Threats and or Management Strategies Relevant to the Activity | Relevant Conservation Actions |
|---|---|---|---|---|
| ***Fish, Sharks and Rays*** | | | | |
| White Shark | National Recovery Plan for the White Shark (*Carcharodon carcharias* (DSEWPaC, 2013b) | The overarching objective of this recovery plan is to assist the recovery of the white shark in the wild throughout its range in Australian waters with a view to:<br>▪ Improving the population status leading to future removal of the white shark from the threatened species list of the EPBC Act<br>Ensuring that anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future.<br>The specific objectives of the recovery plan (relevant to industry) are:<br>Objective 7: Continue to identify and protect habitat critical to the survival of the white shark and minimise the impact of threatening processes within these areas. | Habitat modification | No explicit relevant management actions; habitat modification and climate change identified as threats. |
| ***Birds – Shorebirds*** | | | | |
| Seabirds and migratory shorebirds | National Light Pollution Guidelines for Wildlife, including marine turtles, seabirds and migratory shorebirds (Commonwealth of Australia, 2023). | The aim of the Guidelines is that artificial light will be managed so wildlife is:<br>▪ Not disrupted within, nor displaced from, important habitat<br>▪ Able to undertake critical behaviours such as foraging, reproduction and dispersal | Light pollution | Best practice lighting design incorporates the following design principles:<br>▪ Start with natural darkness and only add light for specific purposes.<br>▪ Use adaptive light controls to manage lighting timing, intensity and colour.<br>▪ Light only the object or area intended – keep lights close to the ground, directed and shielded to avoid light spill.<br>▪ Use the lowest intensity lighting appropriate for the task.<br>▪ Use non-reflective, dark-coloured surfaces.<br>▪ Use lights with reduced or filtered blue, violet and ultra-violet wavelengths. |
| All Migratory Shorebirds | Wildlife Conservation Plan for Migratory Shorebirds (CoA, 2015) | Overall vision: Ecologically sustainable populations of migratory shorebirds remain distributed across their range and diversity of habitats in Australia, and throughout the East Asian-Australasian Flyway.<br>Relevant objectives:<br>▪ Protection of important habitats for migratory shorebirds has occurred throughout the EAAF<br>Wetland habitats in Australia, on which migratory shorebirds depend, are protected and conserved<br>▪ Anthropogenic threats to migratory shorebirds in Australia are minimised or, where possible, eliminated | Habitat degradation and modification (including pollution and invasive marine species) | Action 3c: Investigate the significance of cumulative impacts on migratory shorebird habitat and populations in Australia.<br>Action 3f: Continue to consider all areas important to migratory shorebirds in Australia in development assessment processes (specifically for coastal developments).<br>Action 3c: Investigate the significance of cumulative impacts on migratory shorebird habitat and populations in Australia.<br>Action 3f: Continue to consider all areas important to migratory shorebirds in Australia in development assessment processes (specifically for coastal developments). |
| Australasian Bittern | Approved Conservation Advice for *Botaurus poiciloptilus* (Australasian bittern) (TSSC, 2019) | The objective of this conservation advice is to provide guidance for actions that will expand the range and the number of Australasian Bitterns in Australia. | Habitat loss, disturbance and modifications | No explicit relevant management actions; habitat loss and degradation recognised as a threat. |
| Australian Painted Snipe | Approved Conservation Advice for Australian painted snipe (*Rostratula australis*) (DSEWPaC, 2013c) | No explicit relevant objectives | Habitat loss, disturbance and modification | Habitat recovery actions are a priority. |
| Bar-Tailed Godwit (baueri) | Approved Conservation Advice for the bar-tailed godwit (western Alaskan) (*Limosa lapponica baueri*) (TSSC, 2016) | No explicit relevant objectives | Habitat loss, disturbance and modification | Protect important habitat in Australia |
| Curlew Sandpiper | Approved Conservation Advice for the curlew sandpiper (*Calidris ferruginea*) (DoE, 2015c) | Australian Objective:<br>▪ Reduce disturbance at key roosting and feeding sites | Habitat loss and degradation from pollution | No explicit relevant management actions; oil pollution recognised as a threat. |

| Species or Group | Relevant Plan/Conservation Advice | Relevant Objectives | Threats and or Management Strategies Relevant to the Activity | Relevant Conservation Actions |
|---|---|---|---|---|
| Eastern Curlew | Approved Conservation Advice for eastern curlew (*Numenius madagascariensis*) (TSSC, 2015c) | Australian objectives:<br>▪ Achieve a stable or increasing population.<br>▪ Maintain and enhance important habitat.<br>▪ Reduce disturbance at key roosting and feeding sites. | Habitat loss and degradation from pollution | No explicit relevant management actions; habitat loss and degradation recognised as a threat. |
| Great Knot | Approved Conservation Advice for the great knot (*Calidris tenuirostris*) (TSSC, 2016a) | No explicit relevant objectives | Habitat loss and degradation from pollution | Identifies research priorities and the need for actions to prevent destruction of key breeding and migratory staging sites |
| | | | Disease | No explicit relevant management actions; disease recognised as a threat. |
| Greater Sand Plover | Approved Conservation Advice for the greater sand plover (*Charadruis leschenaultii*) (TSSC, 2016b) | No explicit relevant objectives | Habitat loss and degradation from pollution | Identifies research priorities and the need for actions to prevent destruction of key breeding and migratory staging sites.<br>Protect important habitat in Australia. |
| | | | Introduced marine species / disease | No explicit relevant management actions; introduced marine species and disease recognised as a threat. |
| Lesser Sand Plover | Approved Conservation Advice *Charadrius mongolus* (Lesser sand plover) (TSSC, 2016c) | No explicit relevant objectives | Habitat loss and degradation from pollution | Outlines research and survey priorities and recommends habitat restoration / maintenance. |
| | | | Introduced marine species / disease | No explicit relevant management actions; introduced marine species and disease recognised as a threat. |
| Red Knot | Approved Conservation Advice for the red knot (*Calidris canutus*) (TSSC, 2016d) | No explicit relevant objectives | Habitat loss and degradation<br>Pollution/ contamination impacts | Protect important habitat in Australia.<br>Maintain and improve protection of roosting and feeding sites in Australia |
| ***Birds – Seabirds*** | | | | |
| All Seabirds | Wildlife Conservation Plan for Seabirds (CoA, 2020) | To provide a strategic national framework for the research and management of listed marine and migratory seabirds.<br>The long-term survival of seabirds and their habitats is achieved through supporting priority research programs, coordinated monitoring, on-ground management and conservation. | Habitat loss and modification | Action 2A: Identify important habitats for all seabirds during critical life stages.<br>Action 2D: Consider, appropriately and consistently, all areas of important habitat for seabirds in the development assessment process.<br>Action 2I: Restore lost or degraded seabird breeding and roosting habitats. |
| | | | Anthropogenic disturbance | Action 2E: Manage the effects of anthropogenic disturbance to seabird breeding and roosting areas. |
| | | | Pollution (marine debris, light, water and acute pollution) | Action 2E: Manage the effects of anthropogenic disturbance to seabird breeding and roosting areas.<br>Mitigate against impacts of light pollution by vessels at sea |
| | | | Invasive species | Action 2F: Manage invasive species at important seabird habitats. |
| Relevant EPBC Act-listed seabirds:<br>▪ Antipodean Albatross<br>▪ Black-Browed Albatross<br>▪ Buller's Albatross<br>▪ Campbell Albatross<br>▪ Gibson's Albatross<br>▪ Indian Yellow-Nosed Albatross<br>▪ Northern Buller's Albatross | Background Paper, Population Status and Threats to Albatrosses and Giant Petrels Listed as Threatened under the EPBC Act 1999 (DSEWPaC, 2011a)<br>National recovery plan for albatrosses and petrels (2022) (Commonwealth of Australia, 2022) | Overall objective:<br>To improve the conservation status of albatrosses and petrels so that these species are on a trajectory towards no longer being threatened in Australia's jurisdiction.<br>Specific objectives:<br>Land-based threats to the survival and breeding success of albatrosses and giant petrels breeding within areas under Australian jurisdiction are quantified and reduced.<br>Marine-based threats to the survival and breeding success of albatrosses and giant petrels foraging in waters under Australian jurisdiction are quantified and reduced. | Threats from marine pollution, contamination and debris, including plastics and microplastics. | Minimise the effects of marine debris, plastics and pollution. |
| | | | Threats from interactions with offshore installations and ships, including artificial lighting. | No explicit management actions relating to interactions with offshore ships. |

| Species or Group | Relevant Plan/Conservation Advice | Relevant Objectives | Threats and or Management Strategies Relevant to the Activity | Relevant Conservation Actions |
|---|---|---|---|---|
| ▪ Northern Giant Petrel<br>▪ Northern Royal Albatross<br>▪ Soft-Plumaged Petrel<br>▪ Southern Giant Petrel<br>▪ Sooty Albatross<br>▪ Southern Royal Albatross<br>▪ Wandering Albatross<br>▪ White-Capped Albatross | | | | |
| Australian Fairy Tern | Approved Conservation Advice for the Australian Fairy Tern (*Sternula nereis nereis*) (DSEWPaC, 2011b) | No explicit relevant objectives | Oil spills | Have in place appropriate oil spill contingency plans for the subspecies' breeding sites that are vulnerable to oil spills. |
| Blue Petrel | Approved Conservation Advice for the Blue Petrel (*Halobaena caerulea*) (TSSC, 2015d) | No explicit relevant objectives | Habitat loss, disturbance and modification | No explicit management actions; habitat loss, disturbance and modification recognised as a threat. |
| Fairy Prion (Southern) | Approved Conservation Advice for the Fairy Prion (Southern) (*Pachyptila turtur subantartica*) (TSSC, 2015e) | No explicit relevant objectives | Habitat loss, disturbance and modification | No explicit management actions; habitat loss, disturbance and modification recognised as a threat. |
| Grey-Headed Albatross | Approved Conservation Advice for the Grey-Headed Albatross (Thalassarche chrysotoma) (DEWHA, 2009) | No explicit relevant objectives | Habitat loss, disturbance and modification | No explicit management actions; habitat loss, disturbance and modification recognised as a threat. |
| Shy Albatross | Approved Conservation Advice for the Shy Albatross (*Thalassarche cauta*) (TSSC, 2020c) | Conservation Advice refers to the objectives set out in the National recovery plan for albatrosses and petrels (2022) (Commonwealth of Australia, 2022) | Marine debris (plastics) | No explicit management actions; marine debris recognised as a threat. |
| | | | Disease | No explicit management actions; disease recognised as a threat. |
| Soft-Plumaged Petrel | Approved Conservation Advice for the Soft-Plumaged Petrel (*Pterodroma mollis*) (TSSC, 2015f) | No explicit relevant objectives | Habitat loss, disturbance and modification | No explicit management actions; habitat loss, disturbance and modification recognised as a threat. |
| Birds - Other | | | | |
| Orange-bellied Parrot | National Recovery Plan for the Orange-bellied Parrot, *Neophema chrysogaster* (DELWP, 2016). | Objective 1: Stable or increasing wild population.<br>Objective 3: Protect and enhance habitat to maintain, and support growth of, the wild population. | Barriers to migration and movement | Action 2: Manage direct threats to birds in the wild. Tasks recommended to meet this action includes an assessment of risks from barriers on the migration route and management of the threat if the risk rating warrants action.<br>Relevant management practices in the Plan include minimise the disturbance of natural behaviours of wild orange-bellied parrots where the activity causing disturbance provides no recovery benefit. |

### 4.4.4. Biologically Important Areas and Habitat Critical to the Survival of a Species

Biologically important areas (BIAs) are those locations where aggregations of members of a species are known to undertake biologically important behaviours, such as breeding, resting, foraging or migration. BIAs have been identified using expert scientific knowledge about species abundance, distribution, and behaviours. BIAs are not recognised by the EPBC Act but are identified by DCCEEW to aid in the management and protection of threatened fauna.

A review of the PMSTs (Appendix D) identified BIAs for 16 protected species that intersect with the Operational Area and EMBA. The identified protected species and their BIAs are shown in Table 4-6 and in Figure 4-11 to Figure 4-25.

Habitats critical for the survival of a species, referred to as critical habitats, are recognised under the EPBC Act. Critical habitats may be identified in species recovery plans made under the EPBC Act or listed on the register of critical habitat maintained by the minister under the EPBC Act. Woodside considers critical habitats carry greater weight than BIAs.

There are no habitats critical to the survival of a species identified within the Operational Area. The *National Recovery Plan for the Southern Right Whale Eubalaena australis* (DCCEEW, 2024) identifies the reproduction BIA adjacent to the Victorian coastline and habitat critical to the survival of southern right whales. This BIA is approximately 4 km from the Operational Area at the closest point. Reproduction activity in this BIA is typically from May to October, with a peak in late July and August (Commonwealth of Australia, 2022).

**Table 4-6: BIAs within the EMBA**

| Species | BIA Type | Closest approx. distance to Operational Area (km) |
|---|---|---|
| ***Whales*** | | |
| Pygmy blue whale (Figure 4-11) | Foraging (annual high use area) | Overlaps Operational Area |
| | Distribution | Overlaps Operational Area |
| | Foraging | 15 |
| | Known Foraging Area | 51 |
| Southern right whale (Figure 4-12) | Migration | Overlaps Operational Area |
| | Reproduction | 4 |
| ***Sharks*** | | |
| White shark (Figure 4-13) | Known distribution | Overlaps Operational Area |
| | Distribution | Overlaps Operational Area |
| | Distribution (low density) | Overlaps Operational Area |
| | Foraging | 57 |
| ***Seabirds*** | | |
| Antipodean albatross (Figure 4-14) | Foraging | Overlaps Operational Area |
| Australasian gannet (Figure 4-15) | Foraging | 83 |
| Black-browed albatross (Figure 4-16) | Foraging | Overlaps Operational Area |
| Bullers albatross (Figure 4-17) | Foraging | Overlaps Operational Area |
| Campbell albatross (Figure 4-18) | Foraging | Overlaps Operational Area |
| Common Diving-petrel (Figure 4-19) | Foraging | Overlaps Operational Area |
| | Breeding | 87 |

| Species | BIA Type | Closest approx. distance to Operational Area (km) |
|---|---|---|
| Indian yellow-nosed albatross (Figure 4-20) | Foraging | Overlaps Operational Area |
| Short-tailed shearwater (Figure 4-21) | Foraging | 18 |
| | Breeding | 284 |
| Shy albatross (Figure 4-22) | Foraging likely | Overlaps Operational Area |
| Wandering albatross (Figure 4-23) | Foraging likely | Overlaps Operational Area |
| Wedge-tailed shearwater (Figure 4-24) | Foraging likely | Overlaps Operational Area |
| White-faced storm-petrel (Figure 4-25) | Foraging | 54 |

[1] Where multiple BIAs overlap with the wider EMBA, the distance shown is the distance of the closest BIA to the Operational Area.

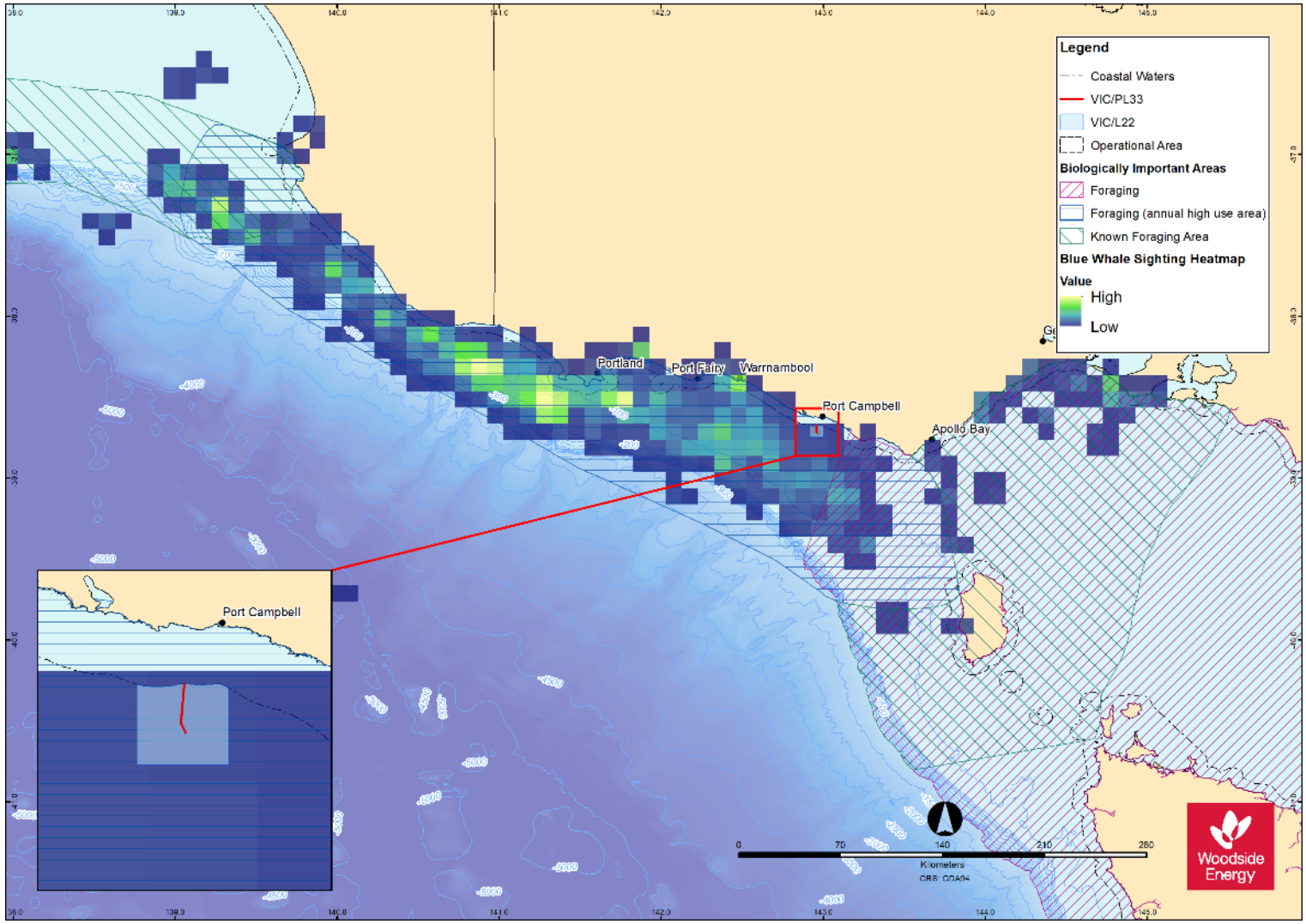


**Figure 4-11: Pygmy Blue Whale BIAs within Operational Area and EMBAs and heatmap of pygmy blue whale sighting data from the Atlas of Living Australia (n.d.)**

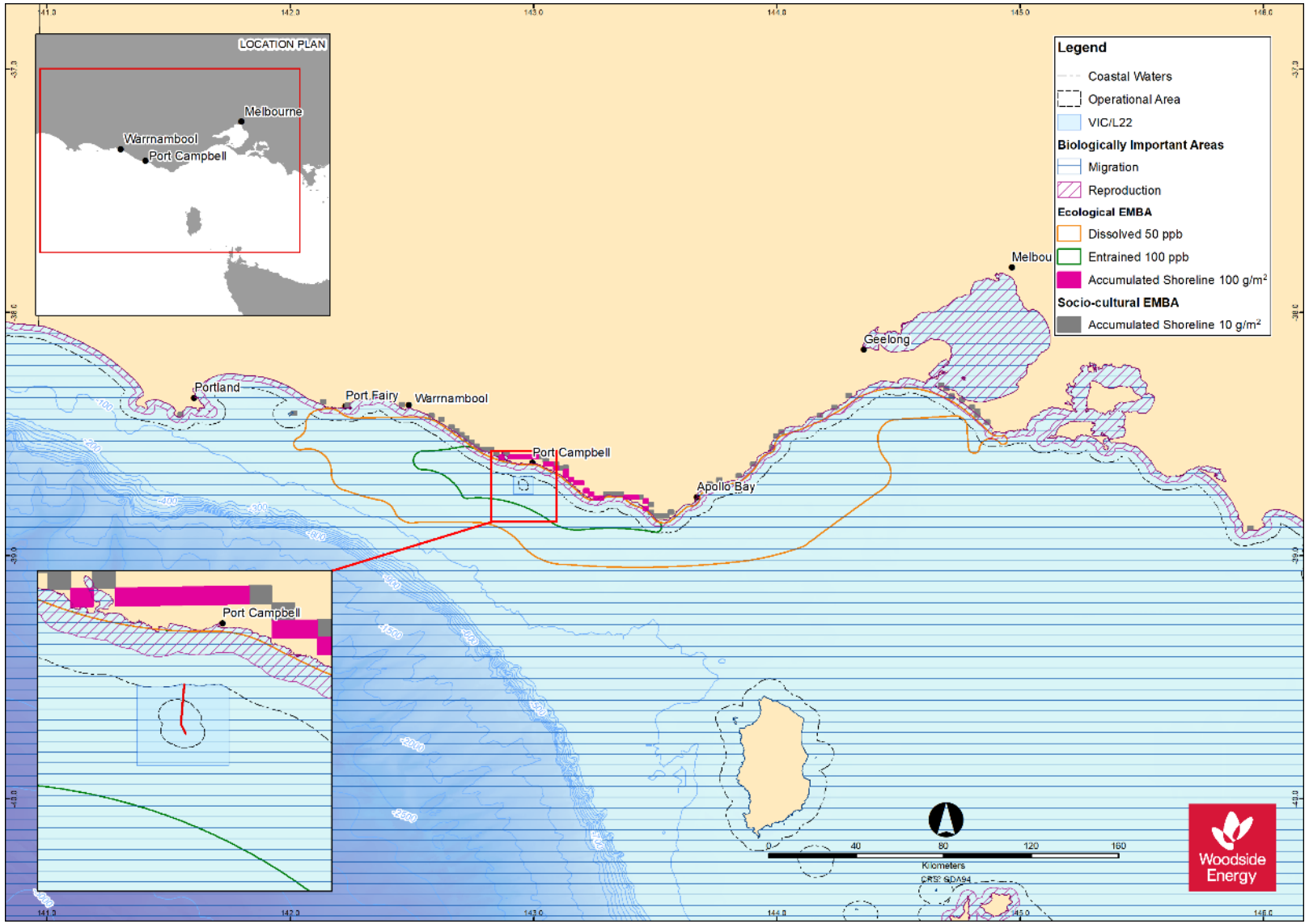


Figure 4-12: Southern Right Whale BIAs within the Operational Area and EMBAs

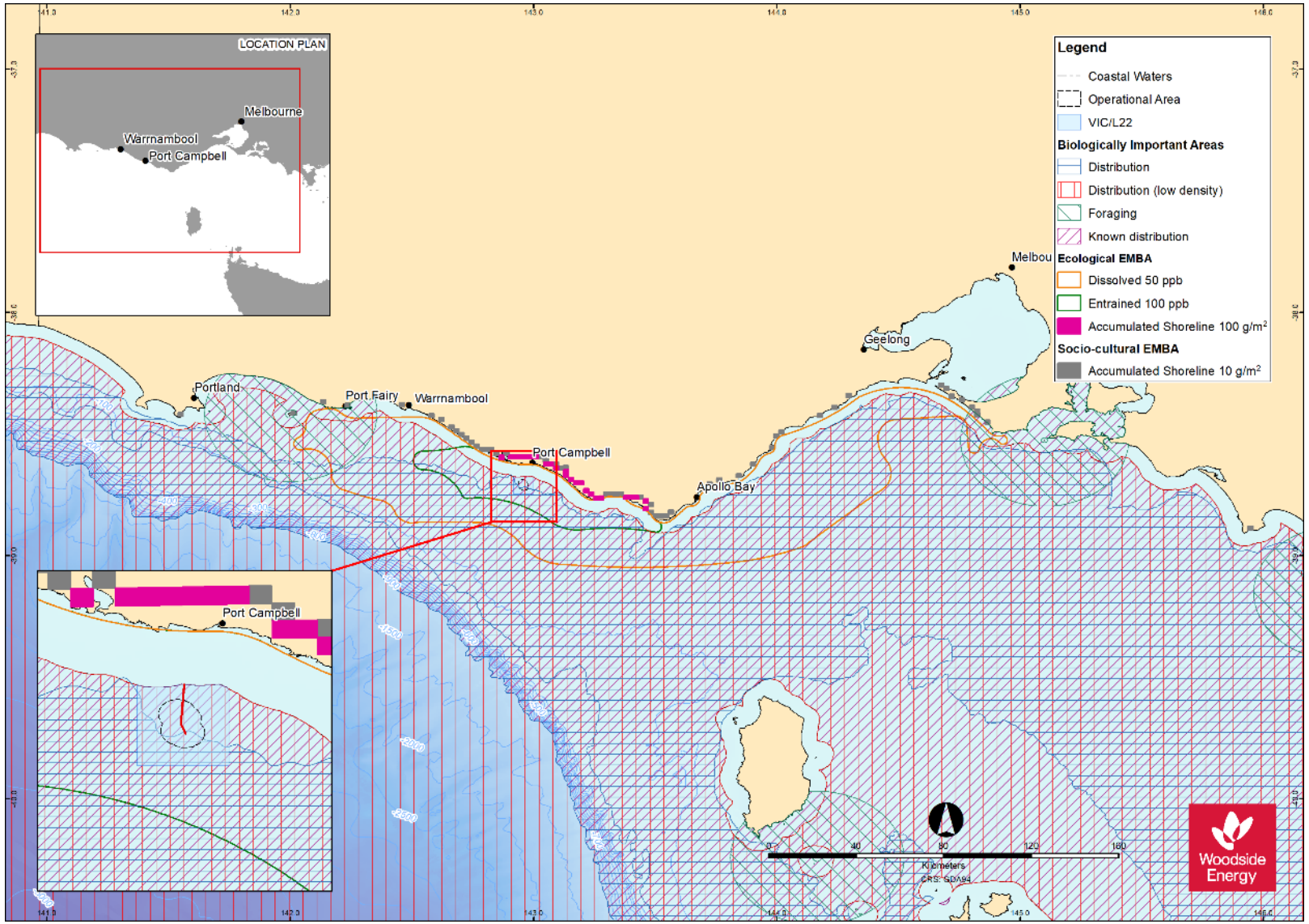


Figure 4-13: White shark BIAs within the Operational Area and EMBAs

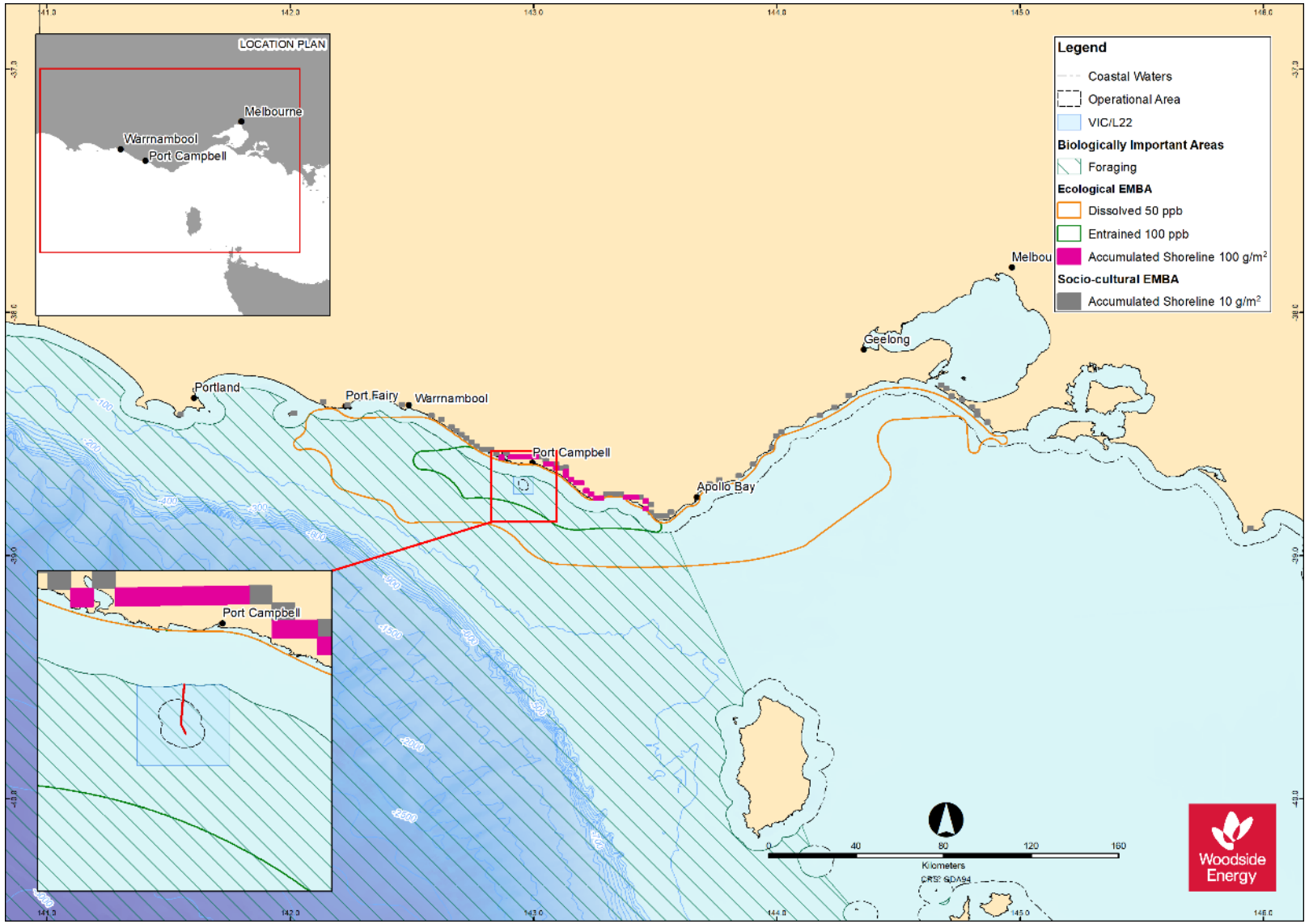


Figure 4-14: Antipodean albatross BIAs in the Operational Area

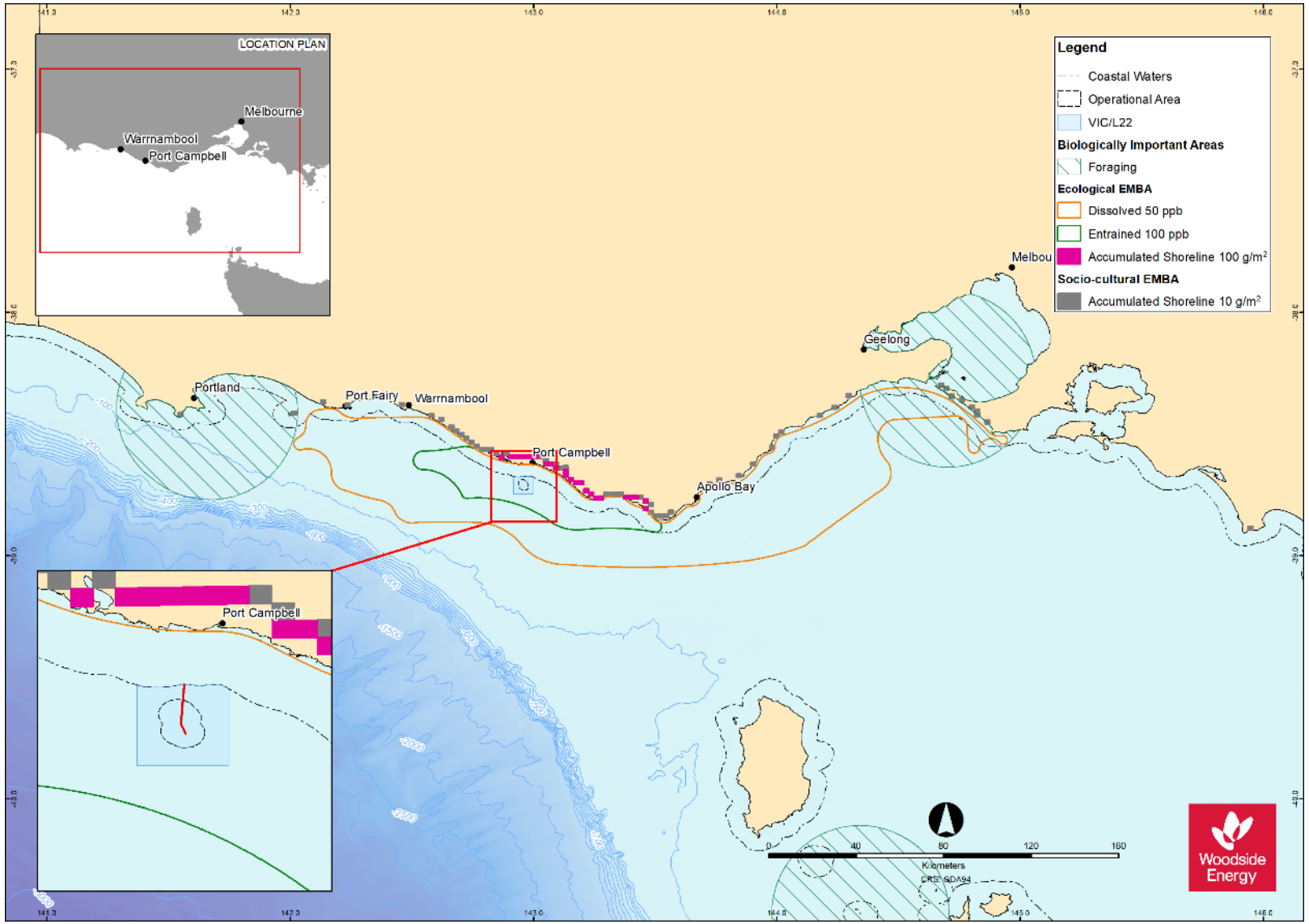


Figure 4-15: Australasian gannet BIAs in the Operational Area

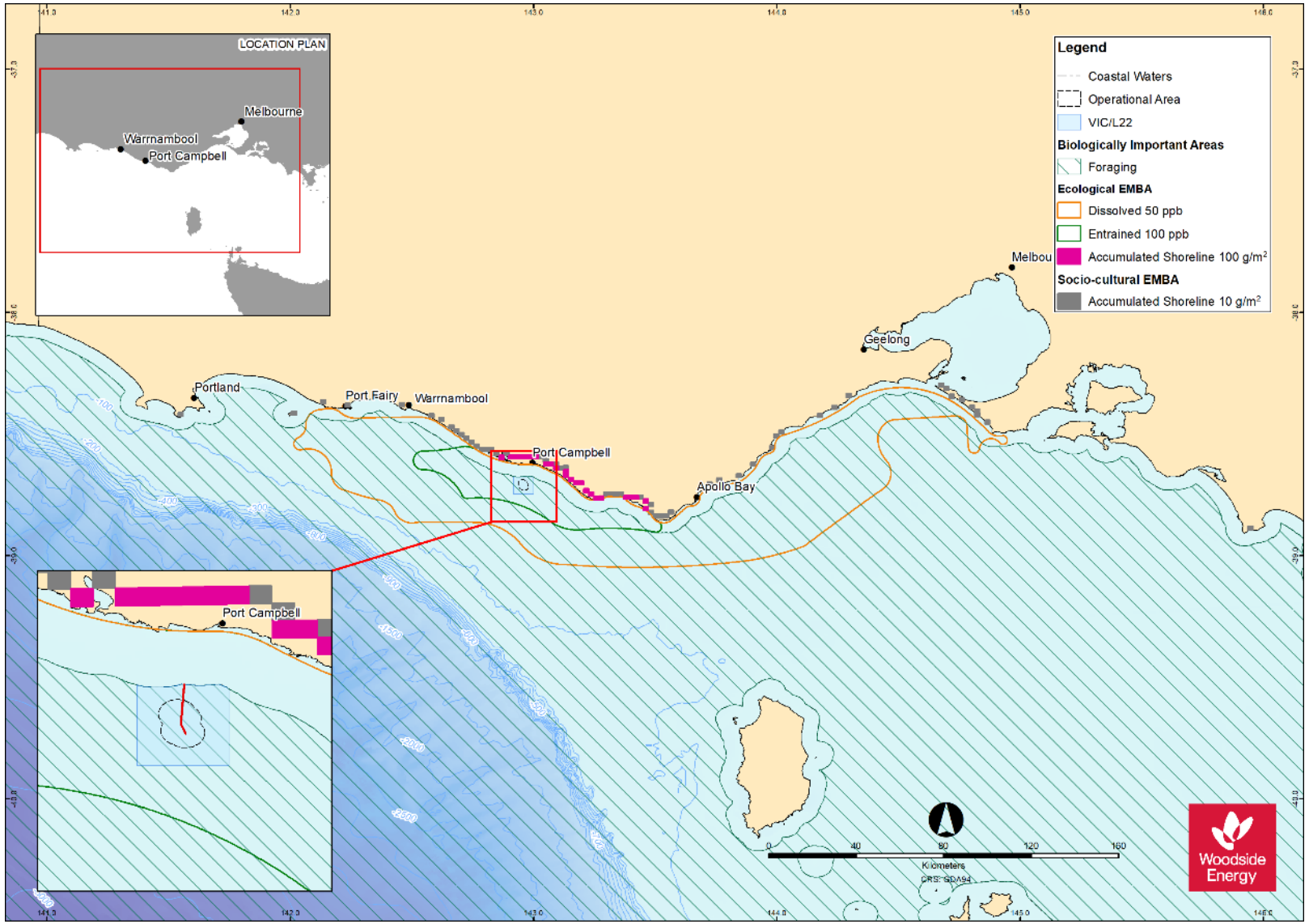


Figure 4-16: Black-browed albatross BIAs in the Operational Area

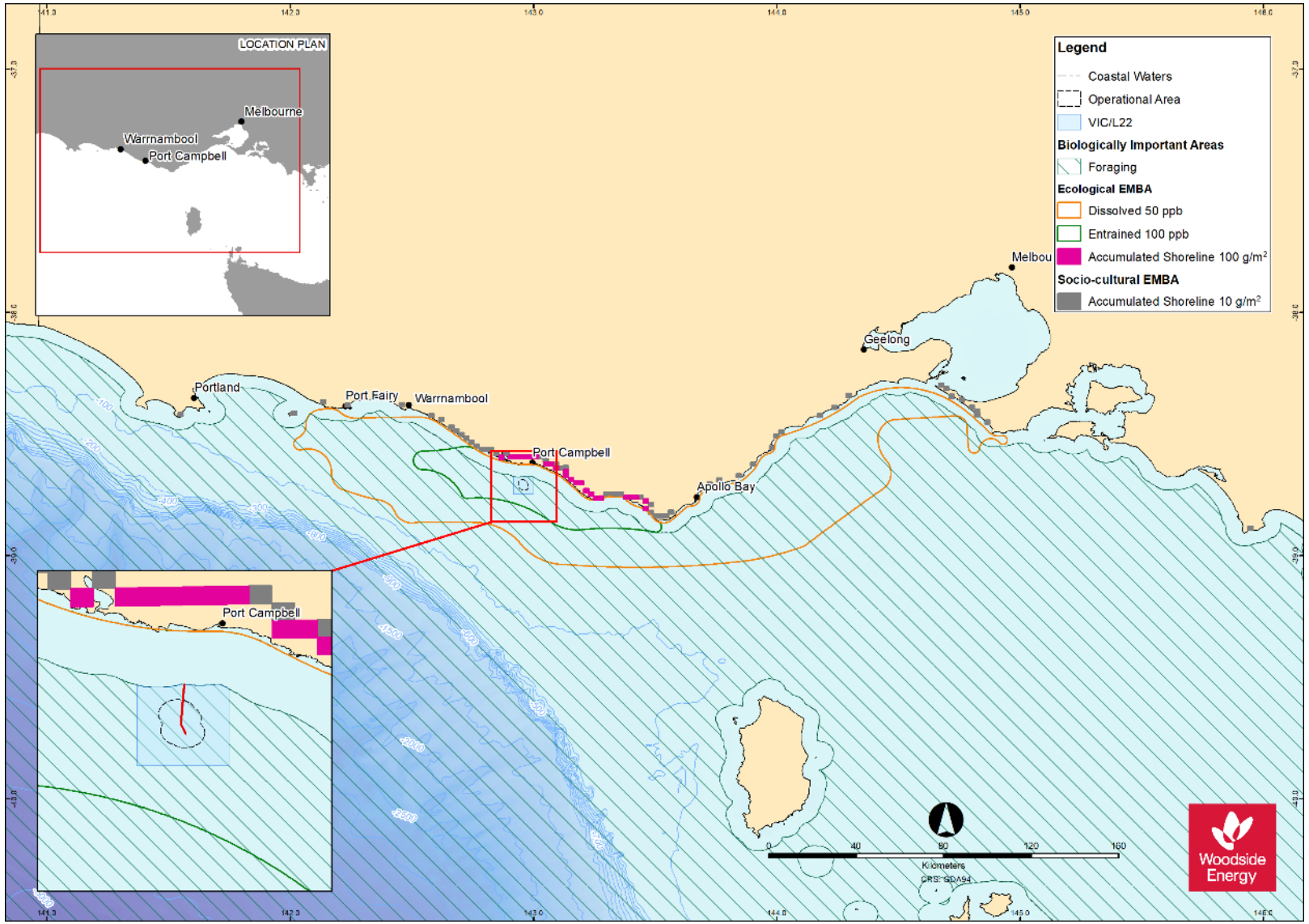


Figure 4-17: Bullers albatross BIAs in the Operational Area

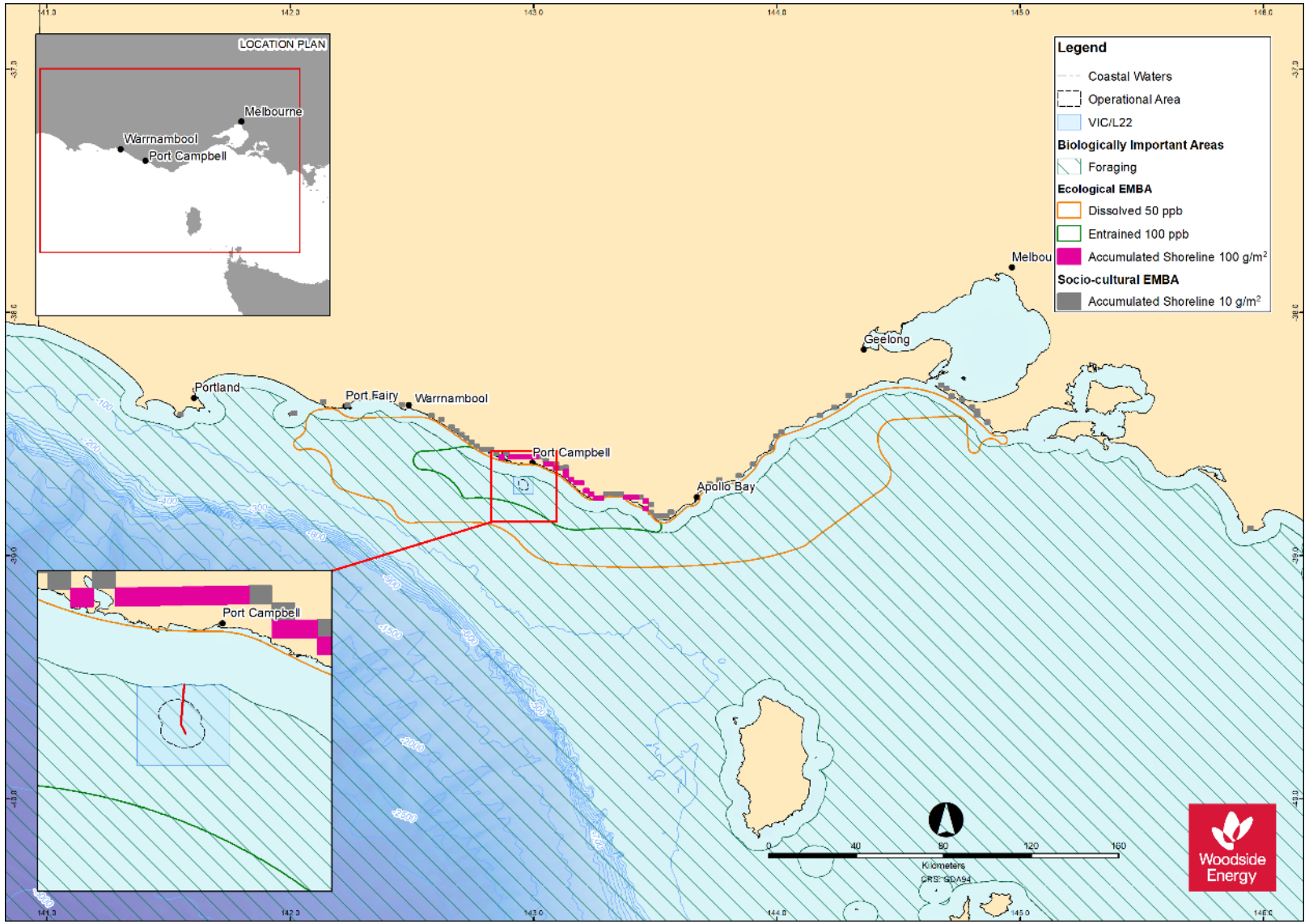


Figure 4-18: Campbell albatross BIAs in the Operational Area

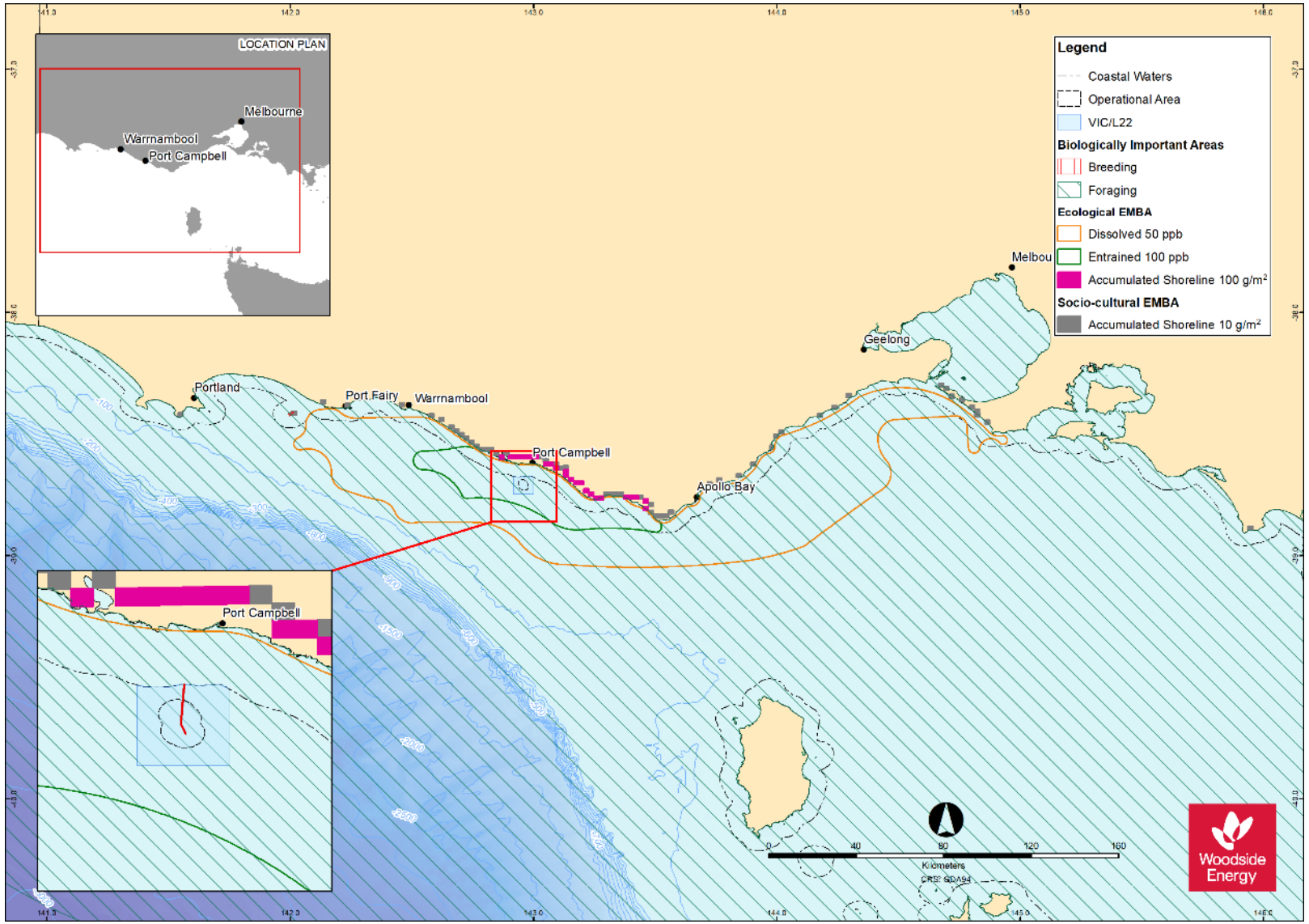


Figure 4-19: Common diving-petrel BIAs in the Operational Area

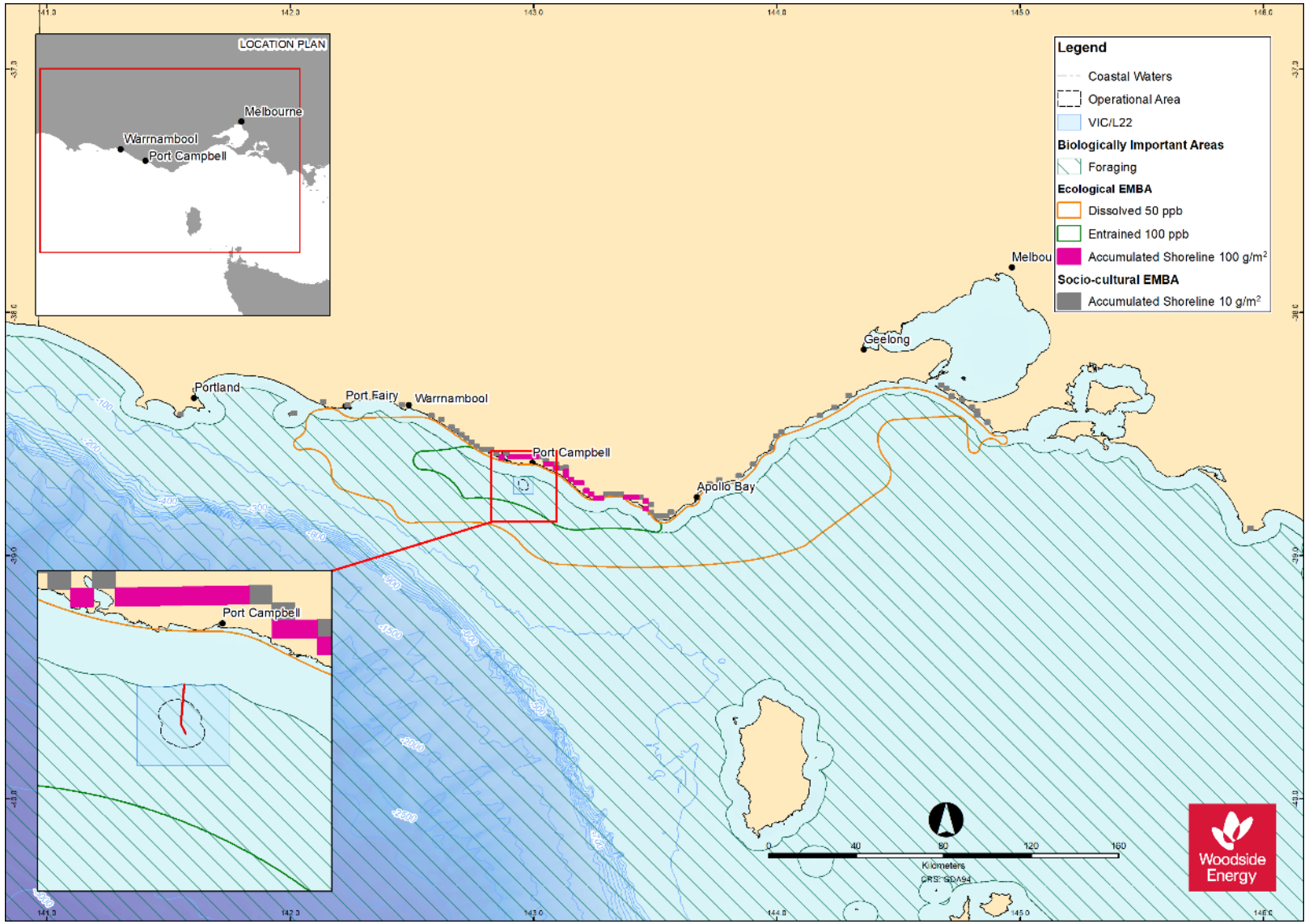


Figure 4-20: Indian yellow-nosed albatross BIAs in the Operational Area

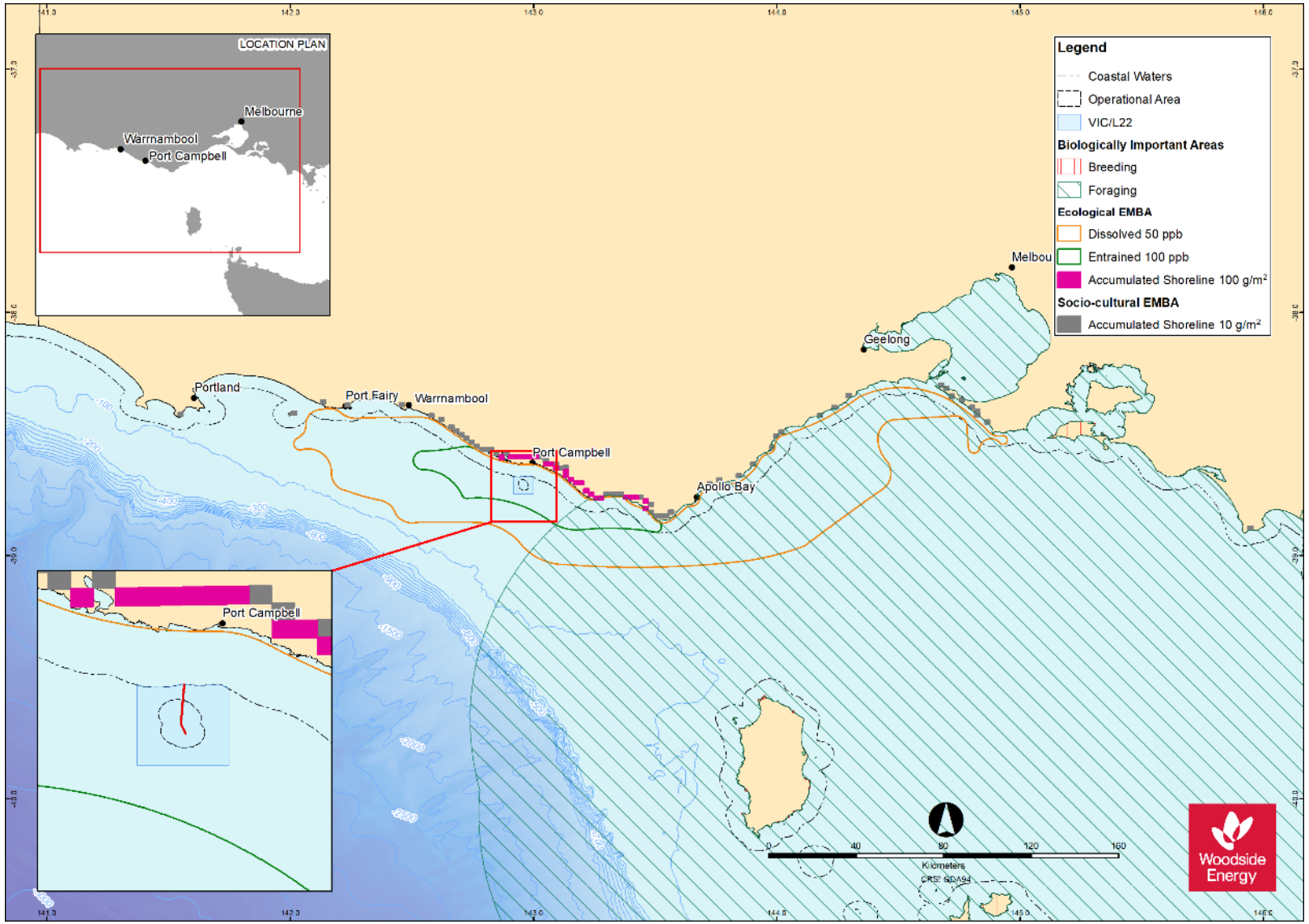


Figure 4-21: Short-tailed shearwater BIAs in the Operational Area

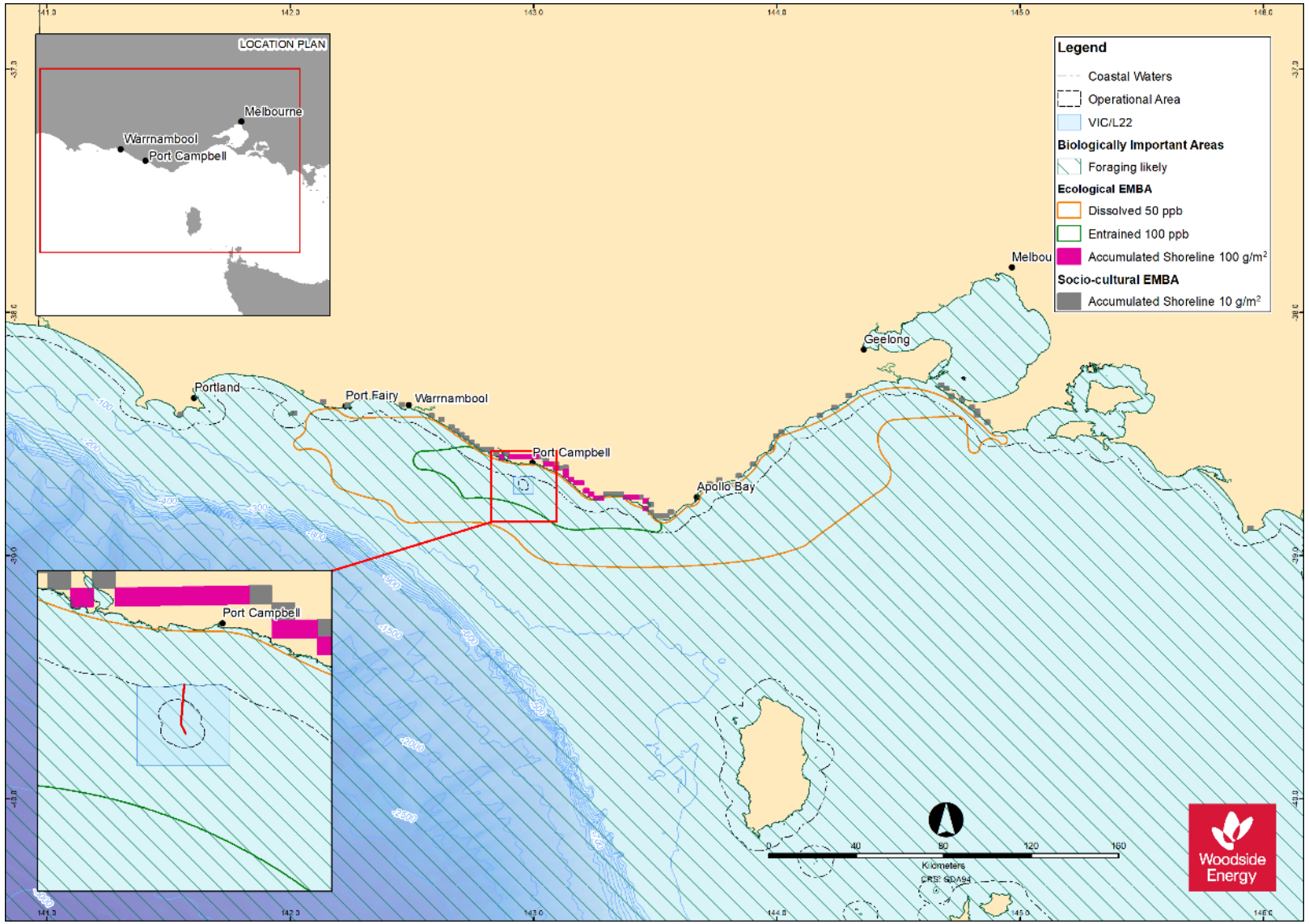


Figure 4-22: Shy albatross BIAs in the Operational Area

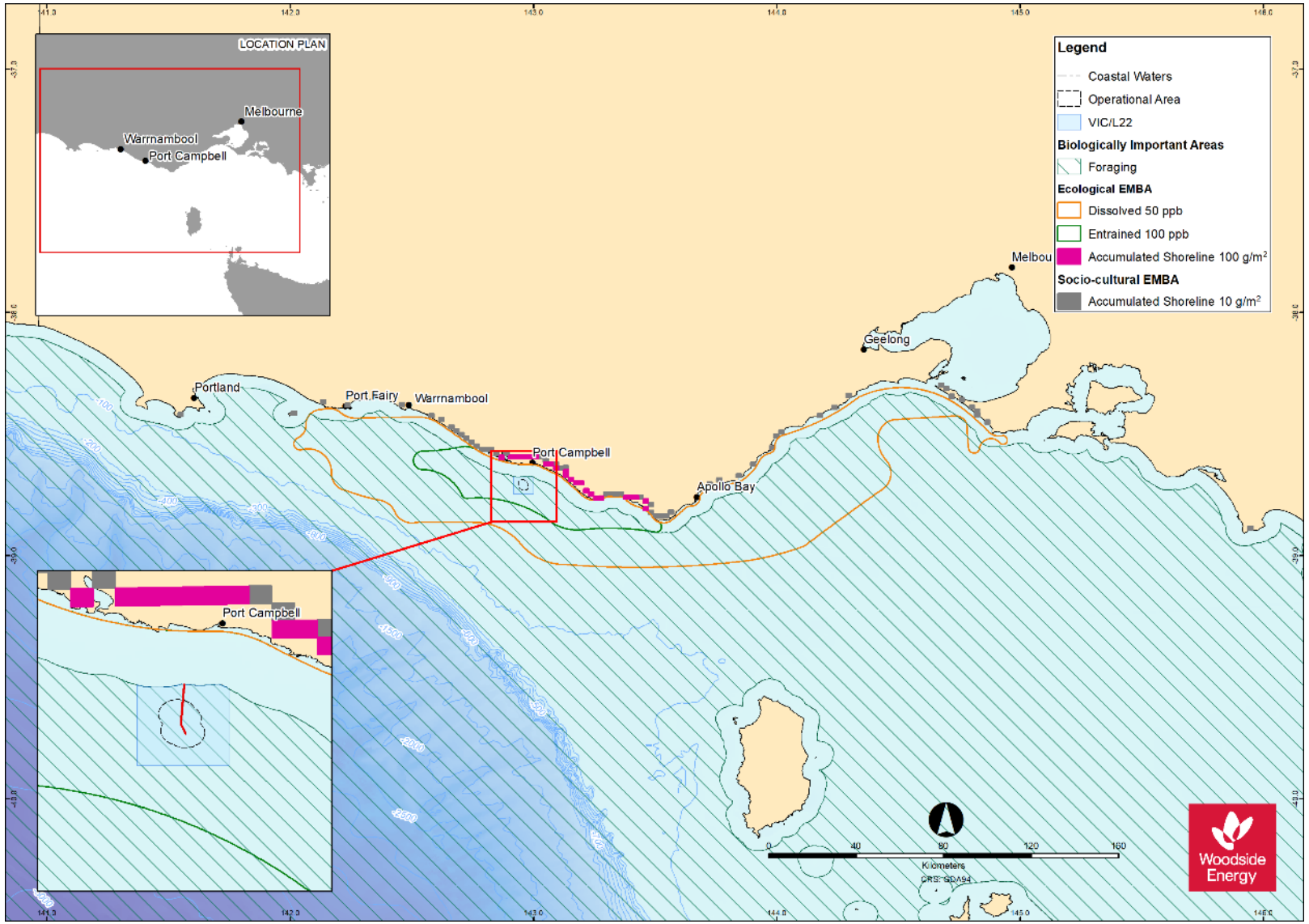


Figure 4-23: Wandering albatross BIAs in the Operational Area

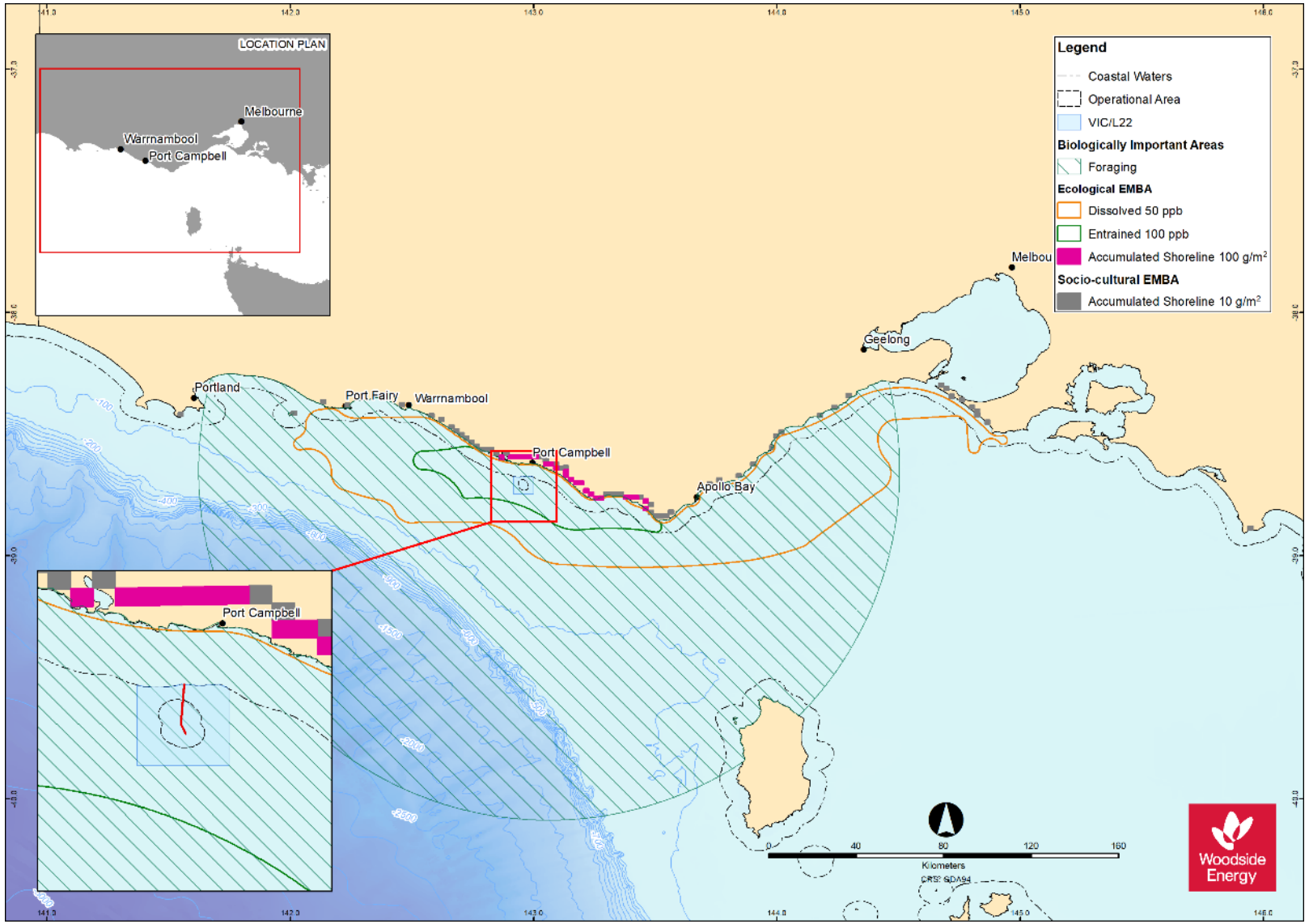


Figure 4-24: Wedge-tailed shearwater BIAs in the Operational Area

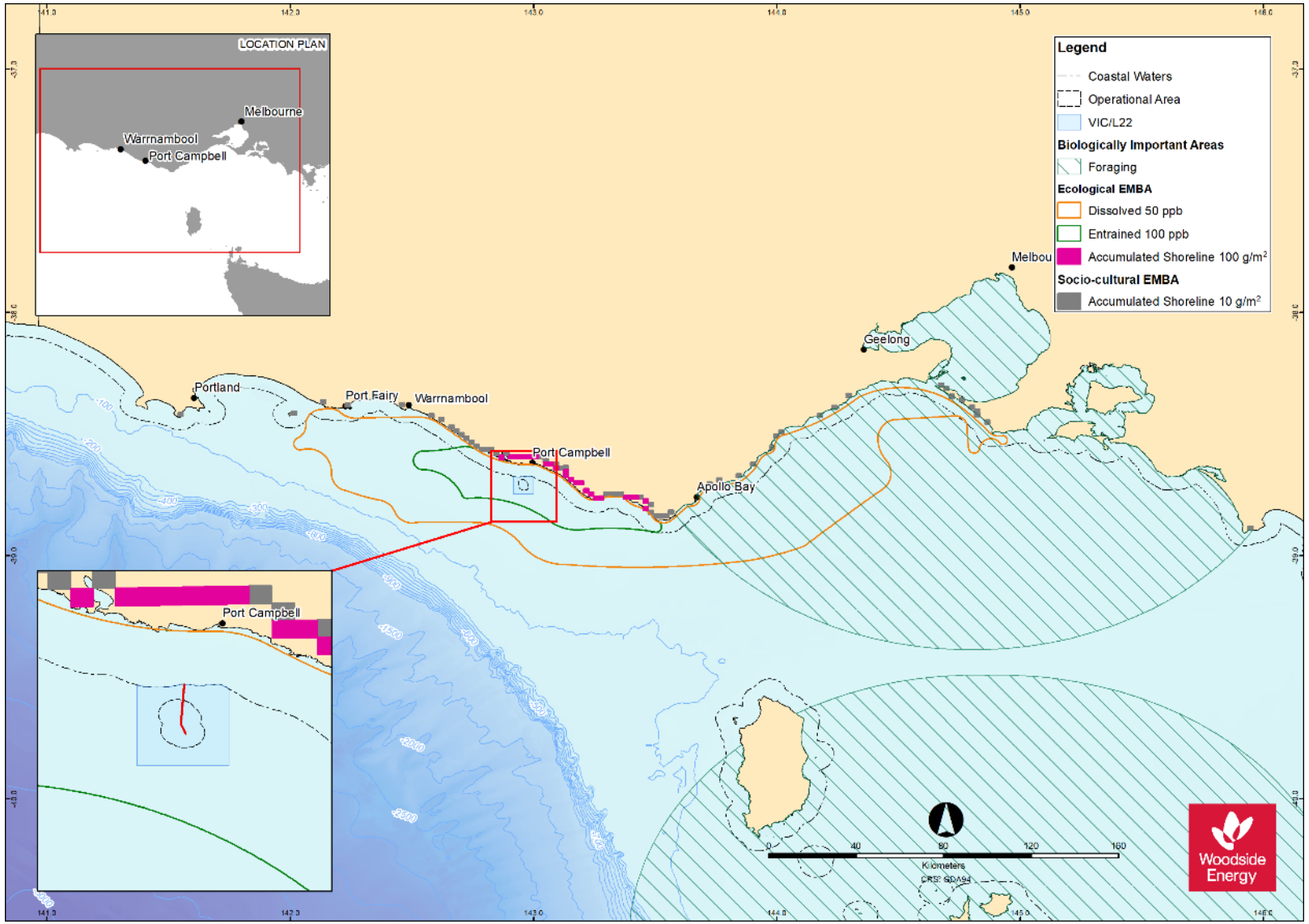


Figure 4-25: White-faced storm-petrel BIAs in the Operational Area

# 4.5. Protected and Significant Areas

## 4.5.1. Key Ecological Features

The Operational Area and EMBA do not overlap any key ecological features.

## 4.5.2. World Heritage Properties

The Operational Area and EMBA do not overlap any World Heritage properties.

## 4.5.3. National Heritage Properties

The following National Heritage properties lie within the EMBA:

- Great Ocean Road and Scenic Environs (7 km from the Operational Area)
- Point Nepean Defence Sites and Quarantine Station Area (154 km from the Operational Area)
- Quarantine Station and Surrounds (155 km from the Operational Area).

## 4.5.4. Wetlands

There are no Wetlands of International Importance (Ramsar wetlands) within the EMBA.

The following Nationally Important Wetlands occur within the EMBA:

- Princetown Wetlands (15 km from the Operational Area)
- Lower Aire River Wetlands (42 km from the Operational Area)
- Aire River (43 km from the Operational Area).

## 4.5.5. Threatened Ecological Communities

Several threatened ecological communities (TECs)[3] listed under the EPBC Act occur in the EMBA:

- Giant Kelp Forests of South East Australia, listed as Endangered (5 km from the Operational Area)
- Subtropical and Temperate Coastal Saltmarsh, listed as Vulnerable (8 km from the Operational Area)
- Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community, listed as Endangered (8 km from the Operational Area).

## 4.5.6. Protected Areas

There are no Australian or Victorian protected areas overlapping the Operational Area. One Australian Marine Park and ten State national parks, coastal parks, or marine sanctuaries overlap the EMBA (Table 4-7 and Figure 4-26). A description of these protected areas is provided in Appendix D.

**Table 4-7: Summary of protected areas in waters within the Operational Area and EMBA**

| Protected Area | IUCN Category or Relevant Park Zone | Distance from Operational Area (km) |
|---|---|---|
| ***Australian Marine Parks*** | | |
| Apollo | Multiple Use Zone (IUCN Zone VI) | 50 |
| ***Victorian Protected Areas*** | | |
| Twelve Apostles Marine National Park | IUCN Category II – National Park | 5 |
| The Arches Marine Sanctuary | IUCN Category III – Natural Monument or Feature | 7 |
| Port Campbell National Park | IUCN Category II – National Park | 7 |

[3] The PMST report identified several terrestrial TECs that would not credibly be impacted by the petroleum activity. These have not been considered in the EP.

| Protected Area | IUCN Category or Relevant Park Zone | Distance from Operational Area (km) |
|---|---|---|
| Bay of Islands Coastal Park | IUCN Category II – National Park | 13 |
| Great Otway National Park | IUCN Category II – National Park | 16 |
| Marengo Reefs Marine Sanctuary | IUCN Category III – Natural Monument or Feature | 61 |
| Point Addis Marine National Park | IUCN Category II – National Park | 114 |
| Port Phillip Heads Marine National Park | IUCN Category II – National Park | 154 |
| Point Nepean National Park | IUCN Category II – National Park | 154 |
| Mornington Peninsula National Park | IUCN Category II – National Park | 156 |

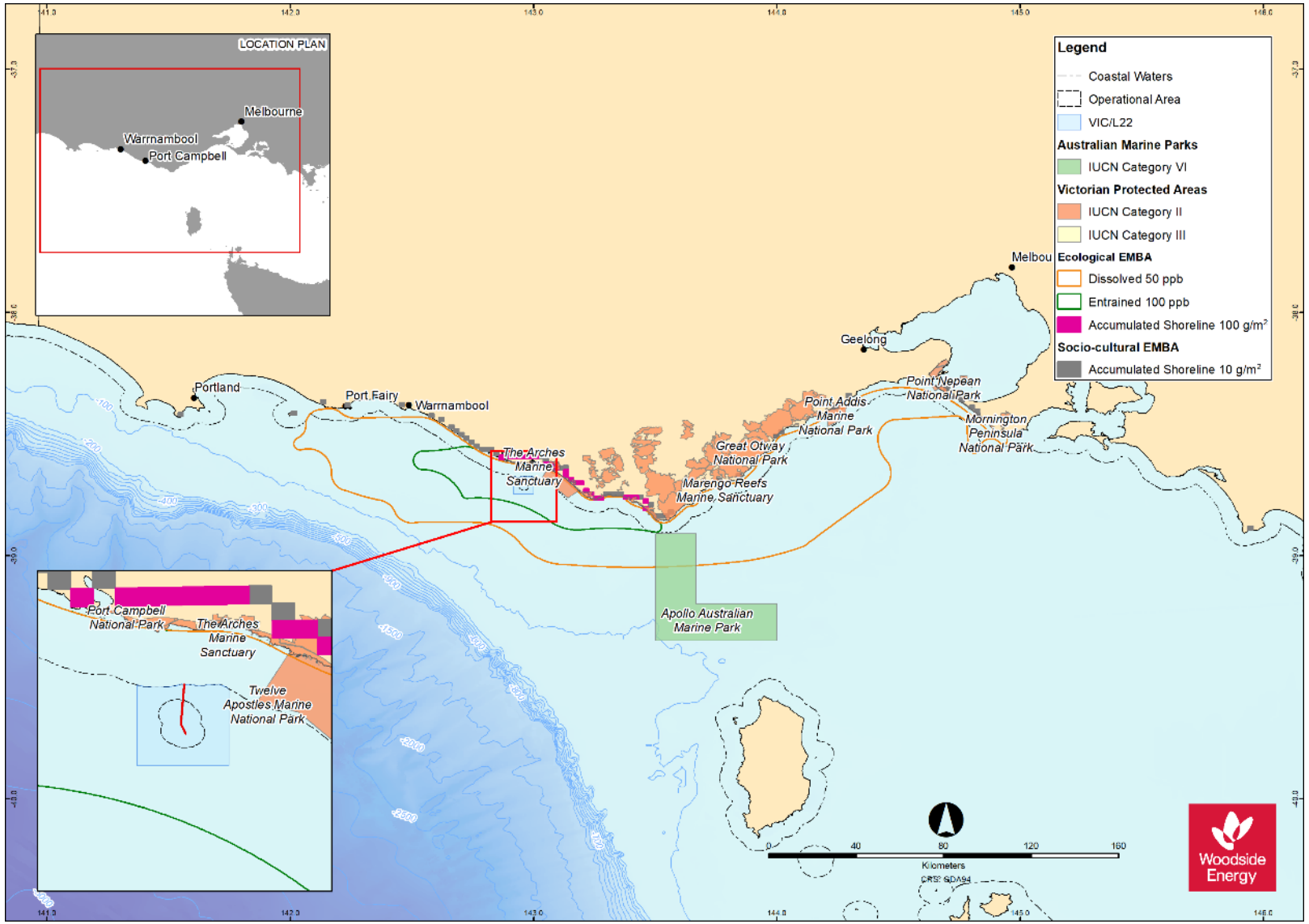


Figure 4-26: Protected Areas within the EMBA

# 4.6. Socio-Economic Environment

Socio-economic activities that may occur within the Operational Area and EMBA include commercial fishing, oil and gas exploration and production, and recreational fishing and tourism. More detailed descriptions of socio-economic considerations are available in the Description of Environment for the Minerva Field document (Appendix D).

## 4.6.1. Cultural Features and Heritage Values

### 4.6.1.1. Background

Woodside recognises the 'environment' for the purpose of the evaluation required under the Environment Regulations includes:

- the heritage value of places; and
- the social, economic, and cultural features of the broader environment.

In this section, the heritage value of places within the Operational Area and EMBA and the cultural features of the Operational Area and EMBA are described.

In line with *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (Australia ICOMOS 2013) (Burra Charter) and associated practice notes, Woodside understands heritage value to refer to the cultural significance of a place to an individual or group. A cultural feature, by contrast, is understood to be comparable to the Burra Charter term “fabric” and refer to a place’s elements, fixtures, contents, and objects which have cultural values. Although these features are necessarily physical, the place they inhabit or comprise may have tangible or intangible dimensions (Australia ICOMOS 2013)

Through consultation with relevant persons, Woodside recognizes the deep spiritual and cultural connection to the environment that First Nations peoples hold.

### 4.6.1.2. First Nations Peoples

As a starting point for understanding social and cultural features of the environment for Indigenous (First Nations) groups, Woodside uses the existing systems, such as native title, to identify Indigenous groups that may have functions, interests or activities that may be affected. To that end, Woodside identifies native title representative bodies and nominated representative entities (defined in Section 5.5.2.1), as well as native title claimant applications (claims), native title determinations and Indigenous Land Use Agreements (ILUAs) which the EMBA overlaps. While acknowledging that cultural features and heritage values may exist outside of the native title framework, native title claims, native title determinations and ILUAs are defined under the *Native Title Act 1993* (Cth) (Native Title Act). Woodside considers this to be the broadest extent over which Indigenous groups have claimed native title rights and interests.

Native title claims are applications made to the Federal Court under the Native Title Act for a determination or decision about native title in a particular area. A claim is made by a native title claim group which asserts it holds native title rights and interests in an area of land and/or water, according to its traditional laws and customs. By making a claim, the native title claim group seeks a decision that native title exists so that its native title rights and interests are recognised by the common law of Australia. This is called a native title determination. A determination is a decision by a recognised body, such as the Federal Court or High Court of Australia, that native title either does or does not exist in relation to a particular area (National Native Title Tribunal).

A requirement to establishing a positive determination of native title in court is proving that there is an organised society that occupied the land and/or waters at the time of British annexation and that there is a continuous system of law and customs that gives right to the land and or waters, and that this has been handed down from generation to generation. The requirement of an ‘organised society’ is set out by Justice Toohey in the

historic judgment of *Mabo v Queensland (No 2)* [1992] HCA 23; (1992) 175 CLR 1 ('Mabo'). Justice Toohey had the following to say (at 187):

'it is inconceivable that indigenous inhabitants in occupation of land did not have a system by which land was utilized in a way determined by that society. There must, of course, be a society sufficiently organized to create and sustain rights and duties…'

Therefore, Woodside understands that native title rights and interests are held communally by an organised society, that native title claims are understood to represent the area over which Indigenous groups are claiming these rights and interests, and that native title determinations provide clarity on where native title rights and interests are found to either exist or not exist. Where native title rights or interests are determined to exist, they will be held by a Registered Native Title Body Corporate (section 57 of the Native Title Act) in trust or as agent for native title holders. The National Native Title Register holds information about the determination of claimant applications.

ILUAs are voluntary agreements between native title parties and other people or bodies about the use and management of land and/or waters and are registered by the Native Title Registrar in the Register of ILUAs. An ILUA can be made over areas where:

- native title has been determined to exist in at least part of the area; or
- a native title claim has been made; or
- where no native title claim has been made.

While registered, ILUAs operate as a contract between the parties, including relevant native title holders (National Native Title Tribunal).

The Native Title Act provides for a Representative Aboriginal/Torres Strait Islander Body (Native Title Representative Body) to be recognised by the Commonwealth Minister for an area. Native Title Representative Bodies have specialist functions set out in the Native Title Act within the area for which they are the Native Title Representative Body. However, the functions of a Native Title Representative Body are such that they do not hold details on the cultural features or heritage values of an area and therefore do not inform Woodside's understanding of heritage values or cultural features.

For the activity in this EP, there are 10 coastal ILUAs, 3 native title claims or determinations and 5 Registered Aboriginal Parties (RAPs) overlapping the EMBA (see Figure 4-27).

#### 4.6.1.3. Coastally Adjacent First Nations Groups

Woodside understands that Indigenous groups are keenly aware of the extent of their rights, interests, and responsibilities for Country, and these are generally discrete, defined areas, including areas of sea (Smyth 2007). To identify cultural features and heritage values which may exist outside of native title claim, determination and ILUA areas, Woodside considers native title claims, determinations and ILUAs coastally adjacent to the EMBA to be an instructive means of identifying potentially relevant Indigenous groups to be consulted (see Table 4-8).

That said, Woodside understands from engagement with stakeholders that extending a native title group's responsibility to areas which those groups have elected to not include in their claims or ILUAs can have significant cultural consequences for Indigenous groups and individuals. This may also, over time, build expectations in the broader Indigenous community that a group is responsible for maintaining environmental values in areas for which they do not hold traditional knowledge. Woodside also acknowledges that an Indigenous group's relative proximity to any Operational Areas or EMBA is not necessarily a meaningful indicator of the connection of Indigenous groups to the area, and providing advice over such areas can be culturally dangerous. As a result, caution must be used when conducting broader engagement.

A summary of native title claims, determinations, Registered Aboriginal Parties (RAPs) and ILUAs overlapping or coastally adjacent to the EMBA is set out in Table 4-8. Claims and determinations have not been differentiated in this table, as it is acknowledged that either of these may indicate the existence of rights and interests.

For the activity in this EP, the ILUAs, RAPs, native title claims or determinations adjacent to, and overlapping the EMBA are shown in Figure 4-27.

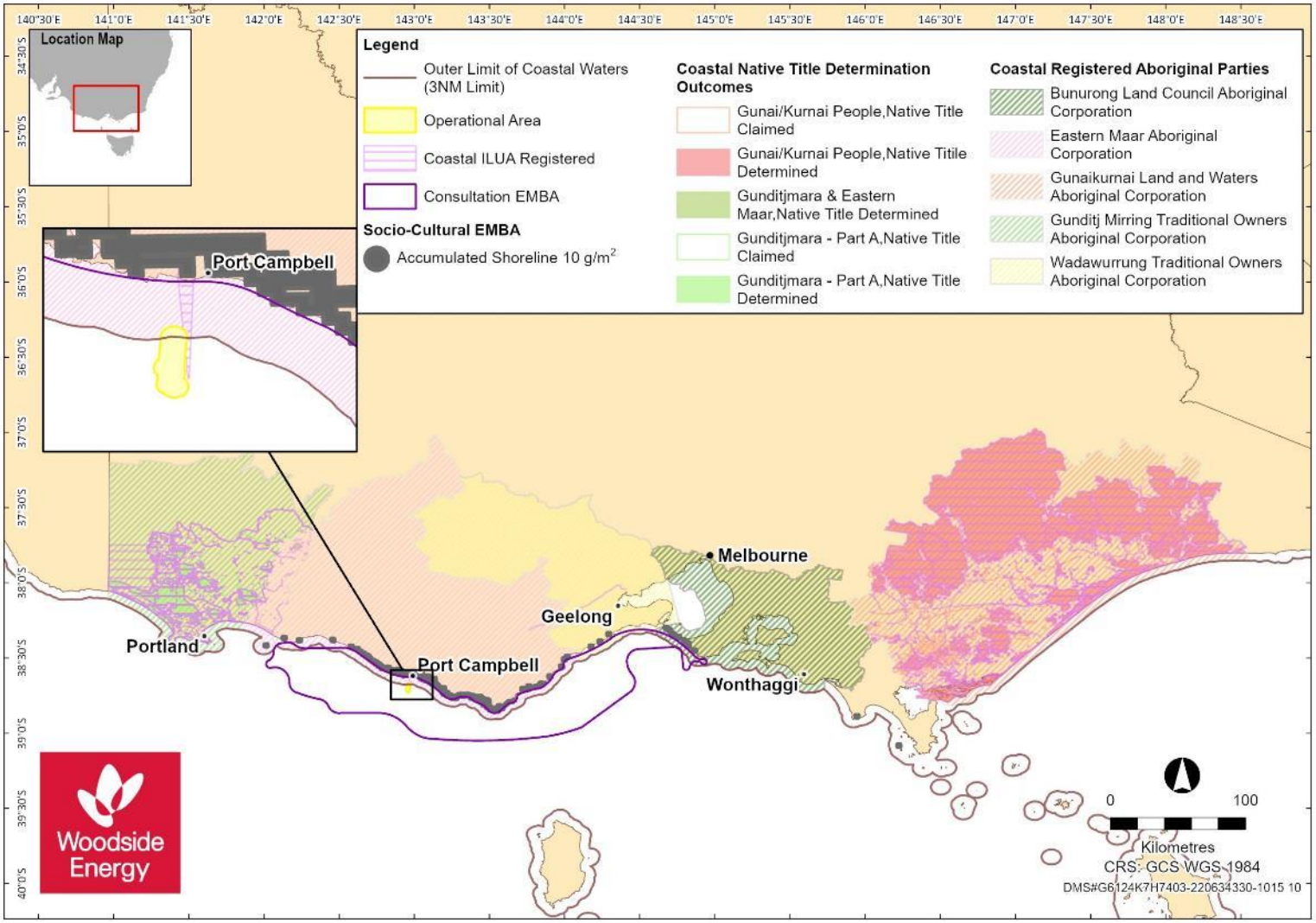


**Figure 4-27: Operational Area and socio-cultural EMBA in relation to native title claims, determination, RAPs, and ILUAs**

**Table 4-8: Summary of Native Title Claims, Determinations. RAPs, and ILUAs which overlap or are coastally adjacent to the EMBA**

| Claim / Determination / ILUA / RAP | Registered Native Title Body Corporate | Overlap with EMBA | Coastally Adjacent to the EMBA |
|---|---|---|---|
| ***Claim / Determination*** | | | |
| Gunai/Kurnai People | Gunaikurnai Land & Waters Aboriginal Corporation RNTBC (GLAWAC) | No | Yes |
| Gunditjmara & Eastern Maar | Gunditj Mirring Traditional Owners Aboriginal Corporation RNTBC (GMTOAC), Eastern Maar Aboriginal Corporation RNTBC (EMAC) | Yes | Yes |
| Gunditjmara – Part A | GMTOAC | Yes | Yes |
| ***RAP*** | | | |
| Bunurong Land Council Aboriginal Corporation (BLCAC) | BLCAC | Yes | Yes |
| Eastern Maar Aboriginal Corporation (EMAC) | EMAC | Yes | Yes |
| Gunaikurnai Land and Water Aboriginal Corporation (GLAWAC) | GLAWAC | No | Yes |
| Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC) | GMTOAC | Yes | Yes |
| Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC) | WTOAC | Yes | Yes |
| ***ILUA*** | | | |
| BHPP - Minerva | None listed | Yes | Yes |
| Blargowrie | None listed | Yes | Yes |
| Gunditj Mirring and State of Victoria | GMTOAC | Yes | Yes |
| Gunditj Mirring Non-Extinguishment Principle ILUA | GMTOAC | Yes | Yes |
| Gunditjmara – SEAGAS Port Campbell VIC to Torrens Island SA Pipeline ILUA | GMTOAC, EMAC | Yes | Yes |
| Kirrae Whurrong and SEA Gas ILUA | None listed | Yes | No |
| All Abilities Playspace ILUA | GMTOAC | No | Yes |
| Gournditch Mara and Essential Petroleum Resources Ltd ILUA | None listed | No | Yes |
| Gunaikurnai and Icon Energy ILUA | GLAWAC | No | Yes |

| Claim / Determination / ILUA / RAP | Registered Native Title Body Corporate | Overlap with EMBA | Coastally Adjacent to the EMBA |
|---|---|---|---|
| Gunaikurnai Settlement ILUA | GLAWAC | No | Yes |

#### 4.6.1.4. Marine Parks

Woodside acknowledges that Commonwealth and State Marine Park Management Plans have sought to recognise cultural values of Indigenous groups. Australian Marine Parks (AMP) describe this framework in the following way: 'when making decisions about what can occur in marine parks and what action we will take to protect marine parks, we take values into account'. AMP summarises these values as natural values, cultural values, heritage values and socio-economic values. Woodside undertakes an assessment of cultural values within Marine Park Management Plans where the Operational Area or EMBA overlaps an AMP. Woodside considers the management plans of marine parks that overlap the Operational Area and the EMBA to determine whether cultural features and heritage values have been identified and whether there are specified Traditional Custodians or representative bodies referenced to contact regarding potential cultural features and heritage values.

The Operational Area does not overlap any AMPs or State Marine Parks. One Australian Marine Park and nine State national parks, coastal parks, or marine sanctuaries overlap the EMBA (Table 4-7 and Figure 4-26). A description of these protected areas is provided in Appendix D. Where these plans identify representative bodies who may hold knowledge of heritage values or cultural features—including but not limited to Registered Native Title Bodies Corporate—these bodies are consulted (see Appendix F). Consultation with these groups may identify heritage values and cultural features beyond those addressed in the marine park management plans. No identifiable representative bodies were specified for the marine parks overlapped by the EMBA (Section 4.5.6).

The South-east Commonwealth Marine Reserves Network Management Plan 2013-2023 identifies that "Indigenous people from at least 17 distinct Aboriginal language groups have occupied, used and managed coastal land and sea environments in and adjacent to the South-east Marine Region for thousands of years. Their relationship with the Region began when sea levels were much lower, allowing Indigenous people to harvest species and use parts of the Region that are now covered by deeper offshore waters" (Director of National Parks, 2013). The assessment of First Nations' people connection to the Operational Area and EMBA is addressed in Section 4.6.1.5, including consideration of underwater cultural heritage.

Multiple Management Plans note the significance of the marine park areas to Aboriginal groups. For example, the Management Plan for the Twelve Apostles Marine National Park and The Arches Marine Sanctuary states "that Sea Country is central to the culture of Indigenous communities in south-western Victoria. The park and sanctuary are an integral part of this sea Country and present an opportunity to build community awareness of their cultural significance" (Parks Victoria, 2006). Sea country values and Indigenous archaeological heritage are addressed in Section 4.6.1.5.

A number of Management Plans note shipwrecks within the marine parks. These are addressed in Section 4.6.1.8.

#### 4.6.1.5. Sea Country Values

Woodside recognises the potential for marine ecosystems to include cultural features as well as environmental values. This is one aspect of the broader concept of "sea country", which can be defined as the area of sea over which an Indigenous group has interests, cultural value, connection and use. Country' refers to more than just a geographical area: it is shorthand for all the values, places, resources, stories and cultural obligations associated with that geographical area." (Smyth, 2007). It necessarily follows that an impact to marine ecosystems has the potential to impact cultural features where the impact is detectable within sea country—the seascape which Traditional Custodians view, interact with or hold knowledge of. The link between environmental protection and cultural heritage protection is illustrated in the Australian Government's Indigenous Protected Areas Program. The Indigenous Protected Areas program provides for "areas of land and sea managed by Indigenous groups as protected areas for biodiversity conservation…IPAs deliver

environmental benefits…Managing IPAs also helps Indigenous communities protect the cultural values of their country for future generations…" (DCCEEW, 2023c).

McNiven (2004) suggests that "For those mainland groups whose exploitation of the sea was limited to littoral resources, it is likely that seascapes extended no more than c. 20–30 km out to sea, out to the horizon and the limit of human visibility. ... However, in some coastal places, clouds that can be seen well over 100 km out to sea are imbued with spiritual significance. For those groups with elaborate canoe technology, seascapes extend well over the horizon." There is evidence of watercraft being used for short ocean voyages to visit some islands offshore Victoria, however they tended to be more frequently used on inland lakes and rivers (Gaughwin and Fullagar, 1995). The process for identifying Indigenous groups who may have interests and connection in Sea Country are set out in Section 5.5.2.1. The scope of advice Traditional Custodians were encouraged to provide through project consultation was not limited by reference to any particular boundaries or limits of sea country.

Cultural features of coastal areas may include marine species (e.g., whales) that may travel many thousands of kilometres through areas with similar cultural values to multiple Indigenous language groups. As noted in Section 4.4.1, Southern Right Whales are a highly mobile migratory species that can travel thousands of kms between habitats used for these essential life functions (Kenney, 2018) passing Indigenous language groups along the southern and eastern coasts of Australia. For a further description of whales, whale distribution and whale migration patterns, see Section 4.4.1.

As set out above, an impact to marine ecosystems has the potential to impact cultural values where the impact is detectable within Sea Country. Woodside considers that impact to cultural values of marine species will be adequately managed in areas of traditional Sea Country, and therefore management of the environmental values will preserve the cultural values of environmental receptors, as assessed in Sections 7 and 8.

Woodside consults on cultural values of Sea Country where Traditional Custodians or representative institutions are identified, or self-identify, as relevant persons.

***Indigenous Archaeological Heritage Assessment***

Woodside understands that communal cultural connection may exist between Traditional Custodians and land and waters. It is understood from the onshore archaeological record that Aboriginal people have occupied the Australian continent for at least 65,000 years (Clarkson et al., 2017) and in many places maintain a strong continuing connection that is said to extend back in Indigenous cosmology to the beginning of time.

It is understood that the sea level has risen significantly during the 65,000 years of Indigenous occupation of Australia, and areas that were once inhabited are now submerged on the continental shelf (Veth et al., 2019). Sea levels reached a minimum of -130 m at the Last Glacial Maximum ~20,000 years ago (Benjamin et al., 2020). Material preserved on the ancient landscape to -130 m has the potential to provide further information about the earliest periods of human occupation (Veth et al., 2019; UWA, 2021).

Recent archaeological discoveries demonstrate that the now submerged landscape was occupied and inhabited and can retain archaeological material from this time (Benjamin et al., 2020; Benjamin et al., 2023 see Ward et al, 2021 for an opposing view (noting Ward et al., 2021 has been retracted)).

In recognition of this, Woodside considers the ancient landscape between the mainland and -130 m water depth as an area where potential Indigenous archaeological material may exist on the seabed, as this covers the full extent of this possible Indigenous occupation. Known Indigenous heritage places including archaeological sites within Commonwealth waters may be protected subject to declarations under the *Aboriginal and Torres Strait Islander Heritage Protection Act 1984*, *Underwater Cultural Heritage Act 2018* or EPBC Act 1999. However, these Acts only extend protection to heritage places specified by declaration or otherwise included on a statutory list. Woodside understands that there is no Indigenous archaeology known to exist anywhere within Commonwealth waters and no declarations or prescriptions under these Acts are located within the EMBA. Archaeological material on the ancient landscape is a relevant matter for the proposed activity as there is overlap between the Operational Area and the ancient landscape, and potential for seabed disturbance from planned activities and therefore potential for impacts to archaeological material.

Aboriginal cultural heritage within Victorian State waters is protected under the *Aboriginal Heritage Act 2006*. The waters within the Operational Area, and waters and coastline within the EMBA are identified as "areas of

cultural heritage sensitivity" within the Aboriginal Cultural Heritage Information System (ACHRIS) online mapping tool. For this EP, an Application for Advice for the Victorian Aboriginal Heritage Register was submitted. 3 Aboriginal Places were identified adjacent to the Operational Area, however First Peoples State Relations confirmed these Places are not located near the Operational Area (see Appendix G).

No archaeological sites within the Operational Area or EMBA were identified by First Nations groups during the course of preparing the EP.

***Cultural Features and Heritage Values identified in Publicly Available Literature***

Publicly available sources were assessed for any records of previously identified Sea Country values or cultural features that may overlap with the Operational Area or EMBA. Where cultural features or Sea Country values were identified these are summarised in Table 4-9 according to the First Nations groups (where identified or inferable) who hold these values.

**Table 4-9: Cultural Features and Heritage Values identified in publicly available literature**

| First Nations Group | Features and Values | Source | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| Eastern Maar (Maar, Eastern Gunditjmara, Tjap Wurrung, Peek Whurrong, Kirrae Whurrung, Kuurn Kopan Noot and/or Yarro waetch (Tooram Tribe)) | Value: "Deen Maar Island [Lady Julia Percy Island] is a culturally significant site and special place to Eastern Maar and Gunditjmara peoples." | Victoria State Government, 2023 | No | Yes |
| | Feature: Eels, perch, blackfish, yabbies, abalone, cockles, crayfish | Eastern Maar Aboriginal Corporation, 2015 | Yes | Yes |
| | Feature: Ancient middens | | No | Yes |
| | Value: "Spirits of our dead reside in our waterways and water bodies" | | Possible | Possible |
| | Value: "A story associated with Deen Maar Island is that the spirits go first to Deen Maar and then up to the stars, as Bunjil had done" | | Possible | Possible |
| | Value: Responsibility to protect cultural heritage | | Yes | Yes |
| | Value: Connections with the sea and its resources | | Yes | Yes |
| | Value: "The coastline is home to sites that are important for our Dreaming - Three Sisters Rocks and Deen Maar (Lady Julia Percy Island) where our Ancestors leave the earth." | | Possible | Possible |
| | Value: "The connection with our Sea Country extends well beyond the current shoreline to the edge of the continental shelf." | | Yes | Yes |
| | Value: Dreaming and creation stories | | Possible | Possible |
| | Value: Songlines across the land and out to sea | | Possible | Possible |
| | Feature: middens and burial sites along the coastline | | Possible | Possible |
| | Value: "Koontapool Woorrkngan Yakeen (Whale Birthing Dreaming | DCCEEW, 2024 | No | Possible |

| First Nations Group | Features and Values | Source | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | Sites), are in coastal bay areas from Port Campbell to Portland, including Warrnambool. These places on Gunditjmara Country are known resting and feeding sites for mothers and calves and are directly related to Gunditjmara Neeyn (midwives), explaining why Gunditjmara is a Matrilineal Nation." | | | |
| | Value: Yambuk and Deen Maar are spiritually significant places | Lovett on behalf of the Gunditjmara People v State of Victoria (No 5) [2011] FCA 932 | No | Yes |
| | Value: Fishing at Port Fairy | | No | Yes |
| Gunditjmara | Value: "Deen Maar Island [Lady Julia Percy Island] is a culturally significant site and special place to Eastern Maar and Gunditjmara peoples." | Victoria State Government, 2023 | No | Yes |
| | Value: Ancestral creation beings revealing themselves in the landscape: erupting volcanoes; tsunamis; mountains forming; sea country creeping up onto the land. | Weir, 2009 | Possible | Possible |
| | Value: The island Deen Maar (Lady Julia Percy Island), is where the Gunditjmara believe the spirits of their dead travel to wait to be reborn. | | No | Possible |
| | Feature: The Budj Bim lava flow, recognised as an attribute contributing to the Outstanding Universal Value of the Budj Bim World Heritage Site extends into Portland Bay. | Wheeler et al., 2023 | No | Yes |
| | Value: The spiritscape associated with the Gundjitmara dreaming spirits extends into Portland Bay up to Deen Maar Island (Lady Julia Percy Island). | ICOMOS, 2019 | No | Possible |
| | Value: "Koontapool Woorrkngan Yakeen (Whale Birthing Dreaming Sites), are in coastal bay areas from Port Campbell to Portland, including Warrnambool. These places on Gunditjmara Country are known resting and feeding sites for mothers and calves and are directly related to Gunditjmara Neeyn (midwives), explaining why Gunditjmara is a Matrilineal Nation." | DCCEEW, 2022 | No | Possible |
| | Value: Yambuk and Deen Maar are spiritually significant places | Lovett on behalf of the Gunditjmara | No | Yes |

| First Nations Group | Features and Values | Source | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | Value: Fishing at Port Fairy | People v State of Victoria (No 5) [2011] FCA 932 | No | Yes |
| | Value: Cultural obligations to country, ceremony, learnings/lore, language and relationships, intergenerational sharing of knowledge | Gunditj Mirring Traditional Owners Aboriginal Corporation RNTBC, 2023 | Possible | Possible |
| | Value: Nyamat Mirring (sea country) holds dreamings, knowledge and power. Gunditjmara are intertwined with tangible and intangible aspects. | | Possible | Possible |
| | Feature: Flint stone from rocky shores | | No | Possible |
| | Feature: Sites of significance - shell middens, meeting places | | Possible (submerged) | Possible |
| | Value: Sea, caves, estuaries, reefs, islands, dunes and wetlands hold stories | | Possible | Possible |
| | Value: Deen Maar holds deep spiritual significance | | No | Possible |
| | Feature: Sea country resources including:<br>Fish<br>Coastal vegetation<br>Shellfish (turbos, pipis, abalone, limpets, mussel, elephant snail)<br>Crustaceans (crayfish/lobster, crabs)<br>Birds (magpie geese, Cape Barren geese, mutton bird/short-tailed shearwater) | | No (coastal vegetation)<br>Possible (other resources) | Possible |
| | Value: Access to sea country for practicing culture | | Possible | Possible |
| | Feature: Kooyang (eels) are culturally significant and are a resource | | Possible | Possible |
| | Feature: Sandy beaches | | No | Possible |
| | Feature: Intertidal reefs | | No | Possible |
| | Feature: Koorn Moorn (seals) feature in song and dance and are used as a resource | | Possible | Possible |
| | Feature: Karntubul (whales) feature in stories, ceremony, song and dance<br>Whale dreaming stories connect Aboriginal groups all along the Australian coast | | Possible | Possible |
| | Feature: The Bonney Upwelling supports culturally significant species | | No | No |

| First Nations Group | Features and Values | Source | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | Feature: The Nyamat Mirring Indigenous Protected Area [currently under consultation] including sea and submerged lands | | No | Possible |
| | Value: Sea country knowledge is living and shared | | Possible | Possible |
| | Feature: Possible submerged fish traps | | Possible | Possible |
| | Value: Cultural obligations and responsibilities which arise from Gunditjmara country and under Gunditjmara law, custom and beliefs are upheld and recognised for the protection and benefit of our traditional lands and waters | GMTOAC, n.d. | Possible | Possible |
| | Value: GMTOAC promotes and realises the continuing connection to country by Gunditjmara people. | | Possible | Possible |
| | Feature: Black Fish | GMTOAC, 2013a | No (freshwater fish) | Possible |
| | Feature: Tupong (freshwater & estuarine fish) | GMTOAC, 2013c | No (freshwater / estuarine fish) | Possible |
| | Feature: Short Finned Eel (kooyang) | GMTOAC, 2013b | Possible | Possible |
| | Value: Protection of, and caring for, country | GMTOAC, 2020 | Possible | Possible |
| | Value: Protection and continuation of Gunditjmara lore (law) and custom | | Possible | Possible |
| | Value: To promote, protect and manage Aboriginal Cultural Heritage | | Possible | Possible |
| | Feature: Deen Mar (Lady Julia Percy Island) guards the final resting place of the spirits of Gunditjmara people | Wettenhall, G. with the Gunditjmara People, 2010 | No | Yes |
| | Feature: Sea caves at the foot of cliffs facing Deen Mar were places where corpses were taken to | | No | Possible |
| | Feature: Short-finned eels (kooyang) | | Possible | Possible |
| | Feature: galaxia (fish) as a resource | | No (freshwater fish) | Possible |
| | Value: Country encapsulates people, plants and animals alike. It embraces | Parks Victoria, 2015 | Possible | Possible |

| First Nations Group | Features and Values | Source | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | the seasons, stories and spirits of the Creation. This flowing, connected cultural landscape possesses sacred places, proud languages, vibrant ceremonies, strong totems, ancient art, unique clan groupings, and law and lore. | | | |
| | Value: “Gunditjmara spirit is in this Country, from Tungatt (the stones), entwined in Woorrowarook (forests), along Bocara (Glenelg River) to the roaring Nyamat (sea)” | | Possible | Possible |
| | Feature: Deen Maar (Lady Julia Percy Island), where the Gunditjmara believe the spirits of their dead travel to wait to be reborn. | | No | Yes |
| | Feature: Sea country as the place where eels come from the sea to travel to Tungatt Mirring. | | Possible | Possible |
| | Feature/Value: Submerged lands that bear the footprints of Gunditjmara ancestors. | | Possible | Possible |
| | Feature: Place where the spirits of Gunditjmara ancestors cross over the sea to Deen Maar (Lady Julia Percy Island). | | Possible | Possible |
| | Feature: Plentiful resources. | | Possible | Possible |
| | Feature: The coast of Discovery Bay is filled with Aboriginal artefacts that are evidence of earlier ages of plenty and integral to the cultural heritage of the Gunditjmara people. | | No | No |
| | Feature: Sealers and whalers massacred almost the entire Kilcarer gundidj clan at the ‘Convincing Ground’ in Nyamat Mirring. | | No | No |
| | Feature: Places that represent creation stories and spiritual connections, intensively used and occupied landscapes, places of conflict and massacres, favourite camping and meeting places and places that symbolise resistance and land justice. | | Possible | Possible |
| | Value: cultural and natural values, and tangible and intangible values, are indivisible. | | Possible | Possible |

| First Nations Group | Features and Values | Source | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | Value: 'Country' includes all living things - none better than the other but equal in its importance in forming this diverse natural landscape that is Gunditjmara Country. Country means people, plants and animals alike. It embraces the seasons, stories and spirits of the creation. This flowing, connected cultural landscape possesses its own sacred places, languages, ceremonies, totems, art, clan groupings and law | GMTOAC, 2022 | Possible | Possible |
| | Value: "Our spirit is in this Country, from Koonang Mirring (Sea Country) up through Bocara Woorrowarook Mirring (Glenelg River Forest Country)…" | | Possible | Possible |
| | Value: "Cultural values are attached to the landscape as a whole and to its individual components such as plant and animal species used by Gunditjmara." | | Possible | Possible |
| | Value: "Gunditjmara spirit is in this Country, from Tungatt (the stones), entwined in Woorrowarook (forests), along Bocara (Glenelg River) to the roaring Nyamat (sea)" | | Possible | Possible |
| | Value: "Volcanic activity, eruptions, earthquakes, and tsunamis are part of our oral history that tells of an ancestral creation being who revealed himself in the centre of this landscape." | | Possible | Possible |
| | N/A Does not contain information on cultural features or heritage values in relation to GMTOAC | AIATSIS, 2020 | N/A | N/A |
| | N/A Does not contain information on cultural features or heritage values in relation to GMTOAC | First Nations Clean Energy Network, 2022 | N/A | N/A |
| | N/A Does not contain information on cultural features or heritage values in relation to GMTOAC | Victoria State Government, 2021 | N/A | N/A |
| | N/A Does not contain information on cultural features or heritage values in relation to GMTOAC | Clean Energy Council, 2018 | N/A | N/A |
| | N/A Does not contain information on cultural features or heritage values in relation to GMTOAC | NOPSEMA, 2024 | N/A | N/A |

| First Nations Group | Features and Values | Source | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | N/A Does not contain information on cultural features or heritage values in relation to GMTOAC | Victoria State Government, 2018 | N/A | N/A |
| | N/A Does not contain information on cultural features or heritage values in relation to GMTOAC | Dhawura Ngilan Business and Investor Initiative, 2024a | N/A | N/A |
| | N/A Does not contain information on cultural features or heritage values in relation to GMTOAC | Dhawura Ngilan Business and Investor Initiative, 2024b | N/A | N/A |
| | Feature: This Strategy includes a reference to the Budj Bim Cultural Landscape and GMTOAC, in the description of a project: “DELWP supports Indigenous data sovereignty in the Budj Bim LIDAR project”. | DEECA, 2019 | No (Budj Bim Cultural Landscape) | No (Budj Bim Cultural Landscape) |
| Bunurong | Feature: The sands of the Bass Coast contain the footprints left behind by elders | Engage Victoria, n.d. | No | Yes |
| | Feature: Where the rivers meet the sea | | No | Yes |
| Wadawurrung People | Values: Bundjil and our ancestor spirits who continue to live in the land, water and sky | Wadawurrung Traditional Owners Aboriginal Corporation, 2020a | Possible | Possible |
| | Feature: Middens in bays or sand dunes | | No | Possible |
| | Feature: Crayfish, abalone, mussels, oysters, pipis and fish | | Yes | Yes |
| | Feature: Fish traps near tidal marine locations | | No | Possible |
| | Value: Caring for country aspirations including coastal country and sea country | | No | Yes |
| | Features: Sandy beaches | WTOAC, 2020b | No | Yes |
| | Features: Coastal cliffs | | No | Yes |
| | Features: Rocky reefs | | Possible | Possible |
| | Features: Tidal areas | | No | Yes |
| | Features: Kelp and seaweed forests | | Possible | Possible |
| | Features: Seagrass | | Possible | Possible |
| | Features: Rock lobster | | Possible | Possible |
| | Features: Abalone | | Possible | Possible |
| | Features: Seals | | Possible | Possible |

| First Nations Group | Features and Values | Source | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | Features: Whales | | Possible | Possible |
| | Features: Dolphins | | Possible | Possible |
| | Features: Fish | | Yes | Yes |
| | Features: Oysters | | Possible | Possible |
| | Features: Birds | | Possible | Possible |
| Gunaikurnai | Value: Connection to coastal and marine parts of country | GLAWAC, 2024 | Yes | Yes |
| | Features: Terrestrial and marine resources of sea country | | Yes | Yes |

### *Feedback Received via Consultation to Inform Existing Environment Description*

Indigenous cultural values are communally held. This is reflected in Vision 3 of Dhawura Ngilan that "Aboriginal and Torres Strait Islander heritage is managed... according to community ownership" (Heritage Chairs of Australia and New Zealand, 2021). Dhawura Ngilan also specifically notes that "Aboriginal and Torres Strait Islander... intangible knowledge systems, which are held in songlines and language, are endangered. This knowledge is held by Elders and the community...". Through consultation with relevant persons, Registered Native Title Bodies Corporate have identified or raised topics relating to environmental values of cultural interest. Details of consultation are provided in Appendix F.

**Table 4-10: Feedback received via consultation with First Nations groups**

| Relevant First Nations Group / Individuals | Consultation Context | Description of Value / Feature / Interest | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| Wadawarrung Traditional Owners Aboriginal Corporation | Consultation in the course of preparing this EP | Value: The coastline is culturally important | No | Yes |
| Gunaikurnai Land and Waters Aboriginal Corporation | Consultation in the course of preparing this EP | Interest: Being consulted in the event of an emergency | Yes | Yes |
| Bunurong Land Council Aboriginal Corporation | Consultation in the course of preparing this EP | Value: Eels | Yes | Yes |
| | | Value: Seagrass | No | Yes |
| | | Feature: The submerged Pleistocene land bridge between Tasmania and mainland Australia represents a submerged cultural landscape | No | Possible |
| | | Value: Whales (all species)<br>Whales are important to women's stories | Yes | Yes |

| Relevant First Nations Group / Individuals | Consultation Context | Description of Value / Feature / Interest | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | | Value: Whales as the companion animals to dingoes | Yes (whales) No (dingoes) | Yes (whales) Unlikely (dingoes - shoreline contact areas) |
| | | Value: Tangible and intangible cultural heritage | Possible | Possible |
| | | Value: Seals are important to women's stories | Possible (seals) | Yes (seals) |
| | | Value: Shells especially warrener shells (*turbo undulatus*) | No | Possible |
| Eastern Maar Aboriginal Corporation | Consultation in the course of preparing this EP | Interest: Being notified in the event of leaks from wells | Yes | No |
| | | Feature: Risks to whales from the activities described in this EP | Yes | Yes |
| | | Feature: Noise impacts to eels | Yes | Yes |
| | | Value: Eels – "We are the eel people" | Yes | Yes |
| | | Value: Intangible heritage | Yes | Yes |
| Gunditj Mirring Traditional Owners Aboriginal Corporation | Consultation in the course of preparing this EP | Value: These waters are significant breeding grounds and habitats for culturally significant species to the Gunditjmara people and also hold intangible heritage as well as submerged tangible heritage for our community | Possible | Possible |
| | | Feature: Deen Maar Island (also known as Lady Julia Percy Island) and its surrounds hold deep spiritual significance to Gunditjmara people | No | Yes |
| | | Feature: Kooyang (short-finned eel) [*Anguilla australis*] migrate out of the Budj Bim World Heritage Area in Gunditjmara Country through the Otway Basin, up to the Coral Sea. Kooyang hold an incredibly important place in the culture of Gunditjmara people and are central to the functioning of the Budj Bim World Heritage Area – one of the oldest aquaculture systems in the world | Yes | Yes |
| | | Feature: Karntubul (whales) found in Gunditjmara Sea Country hold deep cultural significance to our people, featuring in Dreaming | Yes | Yes |

| Relevant First Nations Group / Individuals | Consultation Context | Description of Value / Feature / Interest | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | | stories, ceremony, song and dance traditions of the Gunditjmara | | |
| | | Feature: The Bonney Upwelling is a dominant ecological feature of Gunditjmara Sea Country, creating vital feeding grounds for culturally significant species. It is extremely important for marine and coastal ecosystems within Gunditjmara Sea Country | No | No |
| | Consultation in the course of preparing this EP: Gundijtmara Consultation and Negotiation Protocol (GMTOAC, 2024) and GMTOAC (2022) Cultural Values Assessment Guidelines (as cited in GMTOAC, 2024) | Value: Gunditjmara Mirring (Country) is a complex, connected landscape incorporating four Mirring, including Nyamat Mirring (Sea Country), each with their own unique values, stories and ecological systems connected to the Gunditjmara. | Possible | Possible |
| | | Feature: The GMTOAC Registered Aboriginal Party (RAP) area is not reflective or representative of the extent of Gunditjmara Nyamat Mirring.<br><br>[Note: per Section 4.6.1.5 the scope of advice Traditional Custodians were encouraged to provide through project consultation was not limited by reference to any particular boundaries or limits of sea country.] | Possible | Possible |
| | | Feature: Gunditjmara Mirring encompasses volcanic plains, coastline, Nyamat Mirring, limestone caves, forests and rivers. Nyamat Mirring is connected to the rest of Gunditjmara Mirring as part of a continuous, connected landscape. | Possible | Possible |
| | | Value: Gunditjmara have a circular spiritual connection to Mirring [Country] and are the voice for Mirring. | Possible | Possible |
| | | Value: Gunditjmara cultural values are understood as relating to all aspects of Ceremony/Obligation, Skin/Totems/Kin/Relationships, Law/Lore/Learning, Wurrung/Communication and Mirring [country] in line with GMTOAC's (2022) Cultural Values Assessment Guidelines.<br>Including: | Possible (Ceremony/ obligation)<br>Possible (Skin / Totems / Kin / Relationships)<br>Possible (Law / Lore / Learning) | Possible (Ceremony/ obligation)<br>Possible (Skin / Totems / Kin / Relationships)<br>Possible (Law / Lore / Learning) |

| Relevant First Nations Group / Individuals | Consultation Context | Description of Value / Feature / Interest | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | | | Possible (Wurrung / Communication)<br>Possible (Mirring) | Possible (Wurrung / Communication)<br>Possible (Mirring) |
| | | Value: creation stories and song-lines | Possible | Possible |
| | | Value: spirit | Possible | Possible |
| | | Value: ceremonial sites | Possible (submerged) | Possible |
| | | Feature: Cultural material (tangible, archaeological) | Possible (submerged) | Possible |
| | | Feature: Site lines | Possible | Possible |
| | | Feature: living and camping places | No | Possible |
| | | Feature: resource places | Possible (submerged) | Possible |
| | | Feature: water above and below the ground including Nyamat Mirring | Possible | Possible |
| | | Feature: landscape & seascape features | No (landscape features)<br>Possible (seascape features) | Possible |
| | | Feature: Sky Mirring [sky country] | Possible | Possible |
| | | Feature: soils and rocks | Possible | Possible |
| | | Feature: plants | Possible | Possible |
| | | Feature: animals | Possible | Possible |
| | | Feature: algae (and other biota at all stages of life) | Possible | Possible |
| | | Feature: ecological systems | Possible | Possible |
| | | Value: relationships | Possible | Possible |
| | | Value: family stories | Possible | Possible |
| | | Value: pathways and trade routes | Possible | Possible |
| | | Value: Cultural practices | Possible | Possible |
| | | Value: historical events and periods | No | No |
| | | Value: “Gunditjmara’s cultural authority to speak for and care for their Mirring is derived from traditional lores, customs and | Possible (traditional lores, customs, knowledge) | Possible (traditional lores, customs, knowledge) |

| Relevant First Nations Group / Individuals | Consultation Context | Description of Value / Feature / Interest | Potential for overlap | |
|---|---|---|---|---|
| | | | *Operational Area* | *EMBA* |
| | | knowledge passed through generations." | | |

#### 4.6.1.6. Intangible Cultural Heritage

Cultural knowledge, as expressed through songlines, dreaming, dance and other cultural practices, can be associated with tangible objects and physical sites that are culturally important to First Nations people (Ardler, 2021; Bursill et al., 2007). Intangible cultural heritage can also be embodied in the practices, representations, expressions, knowledge, uses and skills associated with physical sites (UNESCO, 2003). As a result, physical features may have intangible dimensions (ICOMOS, 2013). In terms of identified cultural features and heritage values related to intangible values, see below some additional context:

- Songlines, site lines, sky country, pathways and trade routes: Oral Songlines are often described by First Nations people as the law of the land and make up part of the Dreaming (Neale and Kelly, 2020). Songlines are viewed in Western academia as a framework for relating people to land and consist of a series of invisible, interconnected routes along the landscape that mark significant sites for First Nations people (Higgins, 2021). Songlines demonstrate First Nations peoples' strong connections to land by revealing shared knowledge that is place-specific (Roberts, 2023). The land's physical features are instrumental in maintaining songlines because this is how ancestral spirits journeyed through, and interacted with, the physical landscale leaving shared knowledge behind. The interconnection between the physical and spiritual is where songlines become intrinsically tied to significant places across Country. As a result, geographical landforms are recorded within songlines and become sacred places. Such landforms can include inter alia: rocks, mountains, rivers, caves, and hills (Higgins, 2021). Songlines can become lost, fragmented, or broken when there is a loss of Country or forced removal from Country (Neale and Kelly, 2020). Physical sites that have been identified as comprising a component of a songline are important to protect in order to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. The Activity is located within the ancient landscape where prominent landscape features (e.g., rocks, mountains, rivers, caves and hills) would have been visible or used by Traditional Custodians and therefore likely to be incorporated in songlines. In Australia, songlines can stretch thousands of kilometres, making up a complex and organic network of stories containing cultural knowledge of First Nations communities across the land (Neale and Kelly, 2020). Songlines can also extend out to Sea Country and contain cultural knowledge that is tied to geographic features, atmospheric phenomena and marine plants and animals. Often songlines containing references to a seascape or Sea Country make mention of mythical events occurring around marine life, fishing areas, submerged rocks or coral. Songlines that embody seascapes can reflect how a group may relate to, or value, Sea Country—for example connections to nearby islands that they once inhabited in their songlines (Smyth and Isherwood, 2016). Songlines can also be used as proof of long-standing connection to land and support a legal entitlement to land rights (Higgins, 2021). Examples where songlines contain strong references to Sea Country are more common in Pacific Islander and Torres Strait Islander communities, who often refer to seascapes and skylines in their songlines in order to communicate sacred knowledge that assists in safe navigation of the ocean (Neale and Kelly, 2020). Songlines may also be tied to Sky Country which can contain cultural knowledge and stories that reference Aboriginal life and lore. Songlines that start on the ground may also find their way geographically tied to the sky including night sky constellations as told in the Seven Sister songline (Neale & Kelly 2020). Songlines can also refer to dreaming tracks, trade routes or paths that connected people across the continent of Australia and allowed for trading of ideas and technologies (Muller, 2014). It can be confirmed that no landforms typical of songlines have been identified or are anticipated to be impacted by the Activity.

- Creation/dreaming sites, sacred sites and ancestral beings, spirit(s): Sources identified by Woodside referred to creation/dreaming sites, sacred sites, ancestral beings, or spirit(s) or contained descriptions of the location of ancestral beings or creation/dreaming/ sacred sites and placed these locations on land, islands, within inland water sources such as rivers and in the sea (e.g., Portland Bay). It is acknowledged that some ancestral beings are noted to live within or originate from the sea generally, and some creation stories talk to the creation of features from or in the sea. Additionally, places on shore or at sea are (without further information or specificity) assumed to have been created on some level in First Nations cosmology.
- Cultural obligations to care for Country: Caring for Country collectively refers to the cultural obligations of individuals and groups, as well as rituals and ceremonies required for the physical and spiritual health of the environment. In the literature reviewed by Woodside, caring for Country was noted to include, but is not limited to, maintenance of the physical environment and ecosystem. It may also have cultural, spiritual, and ritual dimensions such as caring for ancestral beings or ensuring cultural safety.
- Knowledge of Country/customary law/lore, cultural practices, stories, ceremony and transfer of knowledge: Knowledge of and familiarity with the features of Sea Country is itself a "value". The inherent potential for restricted or secret knowledge (or information that is not wished to be shared) makes this difficult to assess even through consultation with Traditional Custodians. However, aspects such as limitations on access to sites or disruption/relocation of First Nations communities may have implications for the preservation of First Nations knowledge. Further, connection to Country may be damaged where people are displaced or disrupted (e.g., during colonisation) or where there is a loss of technical skills or environmental knowledge (McDonald and Phillips, 2021). Transfer of knowledge could include various methods of communication and includes continuing traditional cultural practices such as ceremony, or passing on stories, practical skills and enabling learning. This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO, 2003).
- Connection to Country: Describes the multi-faceted relationship between First Nations people and the landscape, which is envisioned as having personhood and spirit. It is also an aspect of personal identity for many First Nations people. In the case of Sea Country this can mean identifying as a Saltwater person, where "essence of being a 'Saltwater' person is ontological… it is about how people relate spiritually to the sea and engage with spiritual forces that created it, the marine flora and fauna and people" (McDonald and Phillips, 2021). Table 4-9 notes a reference to "Sky Country". The relationship between Country, including Sea Country and Sky Country is described by Bawaka Country as "Land, Sea and Sky Country are all connected, so there is no such thing as "outer space" or "outer Country" – no outside. What we do in one part of country affects all others." (Bawaka Country, 2020).
- Access to Country, including Sea Country: Is necessary for the continuation of other values including caring for Country and the transfer of traditional knowledge. Being on Country can be an important way of expressing or maintaining connection to Country (Australian Indigenous HealthInfoNet. N.d.). Access is also a value in its own right as a continuation of traditional Sea Country access and use.
- Cultural Safety: refers to respecting local Lore and culturally significant areas to protect individuals from cultural harm. There are many cultural implications for those (Aboriginal and non-Aboriginal) who do not follow cultural advice or access Country in culturally inappropriate ways. Cultural safety may include observing gender restricted areas, respecting significant places and restricted areas as well as following the advice from those with cultural authority.
- Skin, Kinship systems, relationships and totemic species: Individuals may have kinship to specific species (Smyth, 2008; Juluwarlu, 2004) and/or a responsibility to care for species (Muller, 2008). Kinship arises from totemic associations within First Nations "skin group" systems. It is forbidden for an individual to kill or eat a species who is from the same "skin group" (Juluwarlu, 2004). They may also have certain obligations linked to caring for Country. It is assumed that marine species may have kinship/totemic relationships to Traditional Custodians, but it is understood that these relationships do not prohibit people outside of that "skin group" from hunting or eating that same species (Juluwarlu, 2004).

- The DCCEEW National Recovery Plan for the Southern Right Whale *Eubalena Australis* (Commonwealth of Australia, 2024) notes that “In Victoria, Koontapool (Southern Right Whales) occur along the coastlines of south-west Victoria in Gunditjmara Sea Country to feed and birth. These Koontapool Woorrkngan Yakeen (Whale Birthing Dreaming Sites), are in coastal bay areas from Port Campbell to Portland, including Warrnambool. These places on Gunditjmara Country are known resting and feeding sites for mothers and calves and are directly related to Gunditjmara Neeyn (midwives), explaining why Gunditjmara is a Matrilineal Nation”. The Southern Right Whale is addressed in Sections 4.4.1, 7 and 8.
- Resource collection: A number of marine species are identified in literature as important resources, particularly as food sources. In addition to their immediate value as sustenance, the gathering and preparation of these resources is informed by cultural knowledge, and an inability to use these resources may result in a loss of ability to transfer that knowledge to future generations.
- Ceremony: The actions involved in a ceremony (such as song, dance) may hold intangible values. A ceremony could also occur at a particular place(s) and as such the ceremony may be linked to a tangible physical place(s).

***Songlines***

Management of intangible cultural heritage can include reducing impacts and risks to environmental features that are associated with intangible cultural heritage (UNESCO 2003; ICOMOS 2013). Impacts to marine plants, animals and other cultural features associated with songlines might impact the intergenerational transmission of knowledge of songlines when individuals can no longer witness or interact with the cultural features tied to songlines on Country. Therefore, managing songlines may require environmental controls protecting species at a population level, including migratory routes.

Physical features comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. Songlines can become lost, fragmented, or broken when there is a loss of Country or impact to culturally important physical features (Neale and Kelly 2020:30). No landforms typical of songlines (e.g., mountains, rivers, caves and hills (Higgins 2021)) have been identified within the Operational Area.

During consultation, BLCAC described the whale songline as an intangible landscape that extends along the coast of Victoria. BLCAC described the whale migration story as a dreaming story. BLCAC identified seals and whales as important to continuation of women’s stories.

During consultation, GMTOAC identified whales as featuring in dreaming stories.

***Creation / Dreaming Sites, Sacred Sites, and Ancestral Beings***

Woodside has undertaken all reasonable steps to identify creation and dreaming sites, and places associated with ancestral beings within the EMBA. The literature review (Table 4-9) identified the following sites within the EMBA as creating and dreaming sites:

- Deen Maar (Lady Julia Percy) Island
- the coastline generally
- whale birthing dreaming sites along the coast from Port Campbell to Portland
- Yambuk
- the submerged extension of the Budj Bim lava flow into Portland Bay
- Portland Bay.

The literature review also has identified creation, dreaming and ancestral narratives related to the sea more broadly without confirming where (if anywhere) these overlap the EMBA. These references are of a general nature, and do not identify any features or values requiring specific protection or management from the proposed activities.

#### 4.6.1.7. Historic Sites of Significance

There are no known sites of historic heritage of significance within the Operational Area. Within the EMBA, there are 33 sites of historic heritage listed on the Victorian Heritage Database (Appendix G).

#### 4.6.1.8. Underwater Cultural Heritage

A search of the Australasian Underwater Cultural Heritage Database, which records all known Maritime Cultural Heritage (shipwrecks, aircraft, relics, and other underwater cultural heritage) in Australian waters does not contain records of sites within the Operational Area but does include approximately 179 shipwrecks within the EMBA. The Minerva Gas Field Development Environmental Impacts Statement – Environmental Effects Statement Summary notes that the pipeline route selected for construction avoided any known archaeological and heritage features [including shipwrecks] (BHPP, 1999). In line with the Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters - Guidelines on the application of the Underwater Cultural Heritage Act 2018 (DCCEEW 2024), Woodside engaged a suitably qualified underwater archaeologist to undertake an Underwater Cultural Heritage desktop assessment for the Minerva decommissioning activities to assess risks to underwater cultural heritage, as described in Section 7.3.

#### 4.6.1.9. World, National and Commonwealth Heritage Listed Places

No listed World or National heritage places overlap the Operational Area. One National Heritage Place overlaps the EMBA – the Great Ocean Road Scenic Environs. As noted in Section 4.6.1.5, whilst the Budj Bim World Heritage Area boundaries do not overlap the Operational Area or EMBA, the lava flow feature associated described in the Statement of Outstanding Universal Value for Budj Bim (UNESCO, 2019) is known to extend into the EMBA (Wheeler et. al, 2023). It does not extend into the Operational Area. The Budj Bim World Heritage Area boundary is approximately 5 km north of the coast.

### 4.6.2. Commercial Fisheries

The EMBA overlaps the management areas for eight Commonwealth-managed fisheries and seven State-managed fisheries. Table 4-11 provides a summary description of the commercial fisheries with management areas overlapping the Operational Area and EMBA and assesses the potential for those fisheries to be operating within those areas during the petroleum activity.

**Table 4-11: Commonwealth and State managed fisheries with management areas overlapping the Operational Area and EMBA**

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| ***Commonwealth-managed Fisheries*** | | | | |
| Bass Strait Central Zone Scallop | Scallops (*Pecten fumatus*) | Towed dredge fishing method.<br>Fishery managed via seasonal/area closures and total allowable catch (TAC) controls together with quota statutory fishing rights (35 permits in the 2022 fishing season) and individual transferrable quotas.<br>10 vessels were active in the fishery in the 2022 season.<br>Fishing season: typically July to 31 December | No<br>Fishing intensity data shows activity north and east of King Island, with most effort north of Flinders Island. | Yes |
| Eastern Tuna and Billfish | Albacore tuna (*Thunnus alulunga*)<br>Bigeye tuna (*Thunnus obesus*)<br>Yellowfin tuna (*Thunnus albacares*)<br>Broadbill swordfish (*Xiphias gladius*)<br>Striped marlin (*Kaijikia audux*) | Pelagic longline, minor line (such as handline, troll, rod and reel).<br>36 vessels were active in the fishery in the 2022 season.<br>Fishing season: 12-months beginning on 1 January | No<br>Fishery effort is concentrated along the NSW coast and southern Queensland coast.<br>No Victorian ports are used to land catches. | No |
| Skipjack (eastern) | Skipjack tuna (*Katsuwonus pelamis*). | Historically, over 98% of the catch was taken using purse seine catch method. Pole and line method was used for the remaining 2% of the catch.<br>Fishing season: not currently active. | No<br>No fishing effort in the fishery since 2008-09 fishing season (stock highly variable and Australia is at the edge of the species range). | No |
| Small Pelagic (western sub-area) | Jack mackerel (*Trachurus declivis, T. symmetricus, T. murphyi*)<br>Blue mackerel (*Scomber australasicus*), | Purse seine and mid-water trawl are the main fishing methods.<br>There were 33 Statutory Fishing Rights in the 2022-23 fishing season, with 4 purse seine and 2 mid-water trawl vessels active.<br>Fishing season: 12-months beginning 1 May | No<br>Fishery effort concentrated in NSW, South Australia, and eastern Tasmania. | No |

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| | Redbait (*Emmelichthys nitidus*) and<br>Australian sardine (*Sardinops sagax*). | | | |
| Southern and Eastern Scalefish and Shark Fishery (SESSF) – Commonwealth Trawl Sector (CTS) | Blue grenadier (*Macruronus novaezelandiae*),<br>Tiger flathead (*Platycephalus richardsoni*),<br>Pink ling (*Genypterus blacodes*)<br>Silver warehou (*Seriolella punctata*) | Fishing methods include otter trawl and Danish seine.<br>There were 31 trawl, 18 Danish-seine, and 12 scalefish hook fishing vessels active in 2022-2023.<br>Fishing season: 12-months beginning 1 May | No (CTS)<br>No (Danish Seine)<br>Trawl sector is concentrated around shelf-break areas. Danish seine activity is located on the continental shelf and operate in sandy bottom environments. | Yes (CTS)<br>No (Danish Seine) |
| SESSF – Shark Gillnet and Shark Hook Sectors | Gummy shark (*Mustelus antarcticus*) | Fishing methods are gillnets and baited hooks.<br>Vessels actively fishing during the 2022-23 season included 30 gillnet vessels and 57 hook vessels.<br>Fishing season: 12-months beginning 1 May | Yes (Gillnet)<br>No (Hook)<br>Gillnet sector heavily utilises the continental shelf. Hook sector does not fish in the Gippsland Basin. | Yes (Gillnet)<br>No (Hook) |
| Southern Bluefin Tuna | Southern bluefin tuna (*Thunnus maccoyii*) | The primary fishing method is purse seine in waters off South Australia with a number of fishes captured by longline vessels off the East Coast.<br>Tuna caught off South Australia are then transferred to aquaculture farming pens off Port Lincoln in South Australia.<br>Vessels actively fishing in the 2022-23 season included 8 purse seine and 22 longline vessels.<br>Fishing season: 12-months beginning 1 December | No<br>Fishery effort concentrated in the Great Australian Bight (GAB) off Kangaroo Island and in southern NSW coast off the continental shelf. | No |
| Southern Squid Jig | Gould's squid (*Nototodarus gouldi*) | Squid jigging is the fishing method used, mainly in water depths of 60 to 120 m, at night. | No<br>Catches are concentrated in Commonwealth waters between | Yes |

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| | | In 2022, there were 6 active jig vessels in the Commonwealth fishery.<br>Portland is a primary landing port.<br>Fishing season: 12-month season beginning 1 January | Portland and Robe (SA). Low fishing intensity occurs in eastern Victoria and southern NSW. | |
| ***State-managed Fisheries*** | | | | |
| Victorian Rock Lobster Fishery | Predominantly southern rock lobster (*Jasus edwardsii*), along with small quantities of eastern rock lobster (*Jasus verreauxi*). | 71 licences in the Western zone, permitted to use baited rock lobster pots. In 2019/20, there were 43 vessels working in the western zone (VFA, 2021).<br>In 2019/20, 225.6 tonnes were harvested in the western zone.<br>Fished from rocky reefs in waters up to 150 m depth, with most of the catch coming from inshore waters less than 100 m deep. Pots are generally set and retrieved each day, marked with a surface buoy.<br>Closed seasons: females 1 June to 15 November and males 15 September to 15 November. | Yes<br>Fishing occurs throughout the area on rocky reefs. | Yes |
| Victorian Giant Crab Fishery | Giant crab (*Pseudocarcinus gigas*). | Giant crabs can only be taken using commercial rock lobster pots by Western Zone lobster fishers.<br>Since the introduction of quota management in the Giant Crab Fishery in 2001, there have been < 5 dedicated fishers active in the fishery and up to 20 fishers annually reporting Giant Crab catch as by-product from Rock Lobster fishing (VFA, 2021).<br>In 2019/20 season 9.5 t was landed (VFA, 2021).<br>Fished mostly on the shelf break (150-350 m water depth). | No<br>Although concentrated on the continental shelf, given that licence holdings are linked to southern rock lobster licences, there may be some fishing. | Yes |
| Abalone Fishery | Blacklip abalone (*Haliotis rubra*) and greenlip abalone (*Haliotis laevigata*). | The fishery consists of 71 fishery access licences of which 14 operate in the Western Zone, 34 in the Victorian Central Zone, and 23 in the Eastern Zone.<br>Commercial fishing methods use diving equipment such as a surface air supply to the diver (hookah system) from small high speed fishing boats. Diving is normally to depths less than 20 m. | No<br>Abalone diving activity occurs close to shoreline (generally to depths of 30 m on rocky reefs). | Yes<br>EMBA intersects the Victorian coastline where diving could occur, however, activity data is |

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| | | Fishing season: 12-months beginning 1 April | | unavailable due to confidentiality. |
| Wrasse Fishery | Blue-throat wrasse (*Notolabrus tetricus*)<br>Saddled (or purple) wrasse (*Notolabrus fucicola*)<br>Rosy Wrasse (*Pseudolabrus psittaculus*)<br>Senator Wrasse (*Pictilabrus laticlavius*)<br>Southern Maori Wrasse (*Ophthalmolepis lineolatus*) | The fishery is divided into three commercial management zones; west, central, and east, with licence holders able to fish in any of these zones.<br>There are 22 licences (2021) issued for this fishery. Licences are transferrable.<br>Fishing method is via hand line fishing (other than longline which are not permitted) and rock lobster pots if also in possession of a Rock Lobster Access Fishing Licence. | Yes<br>Wrasses are fished along the entire Victorian coast but in recent years, catches have been the highest off the central coast (Port Phillip Heads, Western Port, and Wilsons's Promontory) and west coast of Victoria (Portland). Catches of saddled wrasse are highest in the Western part of Victoria, which is thought to be related to a greater proportion of suitable reef habitat in this area.<br>Wrasse can inhabit depths up to 160 m, but their preferred depths are approximately 30 m. | Yes |
| Scallop Fishery | Scallop (*Pecten fumatus*). | A total of 91 commercial licenses are issued each year and approximately 10-15 vessels operate within the fishery.<br>Commercial vessels tow a single dredge that is dragged along the seabed. Dredges are deployed from the rear of the vessel and are up to 4.5 m wide.<br>Fishing season: 12-months beginning 1 April | No<br>Fishery boundary extends the entire length of the Victorian coastline and out to the 20 nm point from the shoreline although mostly fished from Lakes Entrance and Welshpool. | No |
| Octopus Fishery | Pale Octopus (*Octopus pallidus*)<br>Maori octopus (*Macroctopus maorum*) | The fishery has established three zones; western, central and eastern octopus zones to manage commercial octopus fishing in Victoria. The western and central zones are less established and are being managed through exploratory, temporary permits. While the Eastern Zone (East Gippsland) is operational and extends | No<br>The eastern octopus zone, from Seaspray to the Victorian / NSW border, is authorised for commercial take of octopus. | Yes |

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| | Gloomy Octopus (*Octopus tetricus*) | from Seaspray to the Victorian / NSW border and out to 20 nm offshore, except for marine reserves.<br>There are 11 transferable licences issued for the eastern octopus zone.<br>The fishery uses purpose-built unbaited traps which aim to minimise bycatch. | Western and central octopus zones are less established. | |
| Multi-species Ocean Fishery | Pale Octopus (*Octopus pallidus*)<br>Maori octopus (*Macroctopus maorum*)<br>Gloomy Octopus (*Octopus tetricus*)<br>A variety of other species may also be taken. | The multi-species ocean fishery is comprised of three relevant sub-sectors: ocean fishery, commercial permit fishery and the octopus fishery (central and western zones). Fishery allows for a variety of fishing methods.<br>Fishing season: 12-months | Possible<br>However, activity data is unavailable this fishery. | Possible<br>However, activity data is unavailable this fishery. |

[1] Commonwealth fisheries information sourced from Butler et al., 2023 and AFMA, ND.

[2] State-managed fisheries information sourced from VFA, 2021a

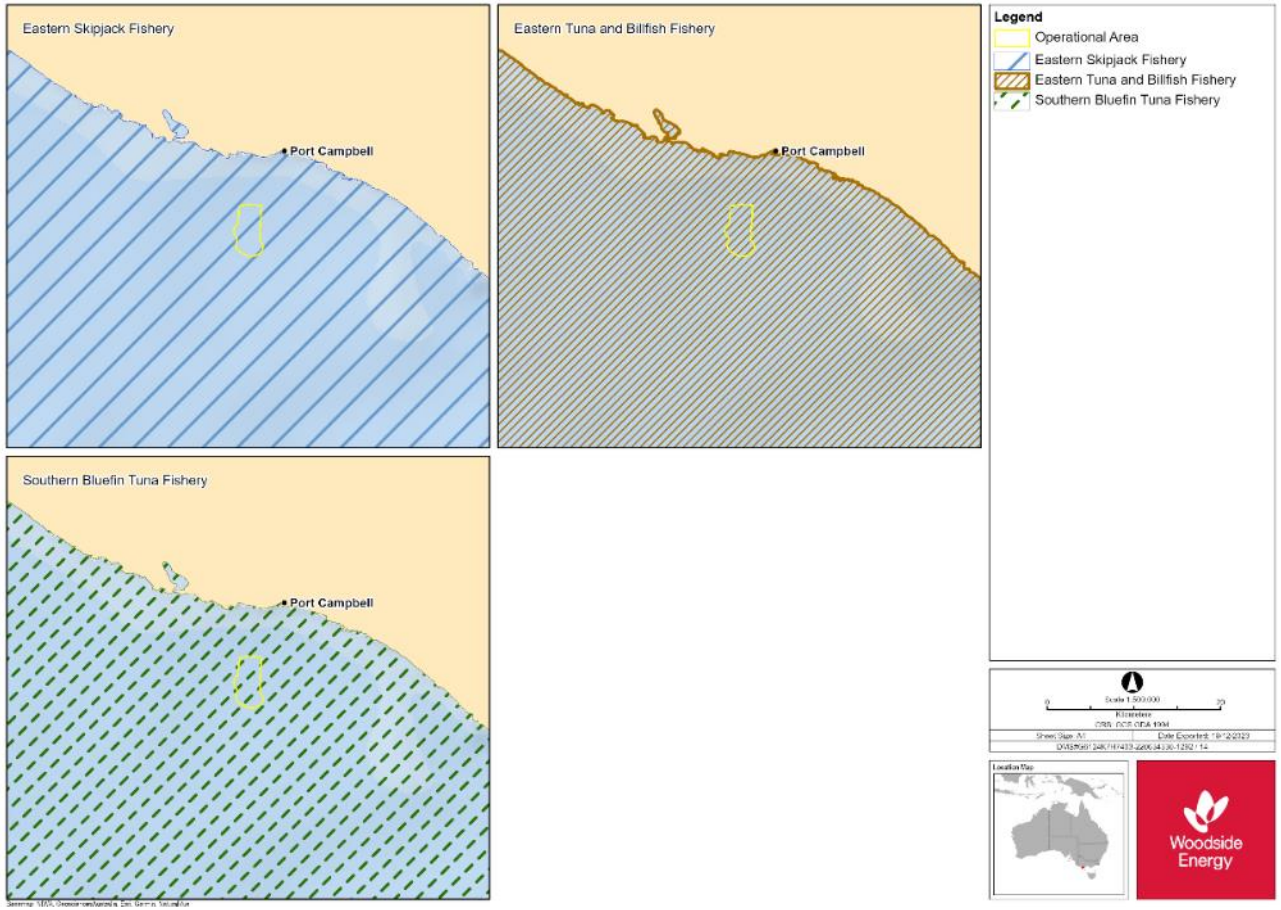


**Figure 4-28: Commonwealth fisheries in relation to the operational area (Figure 1 of 2**

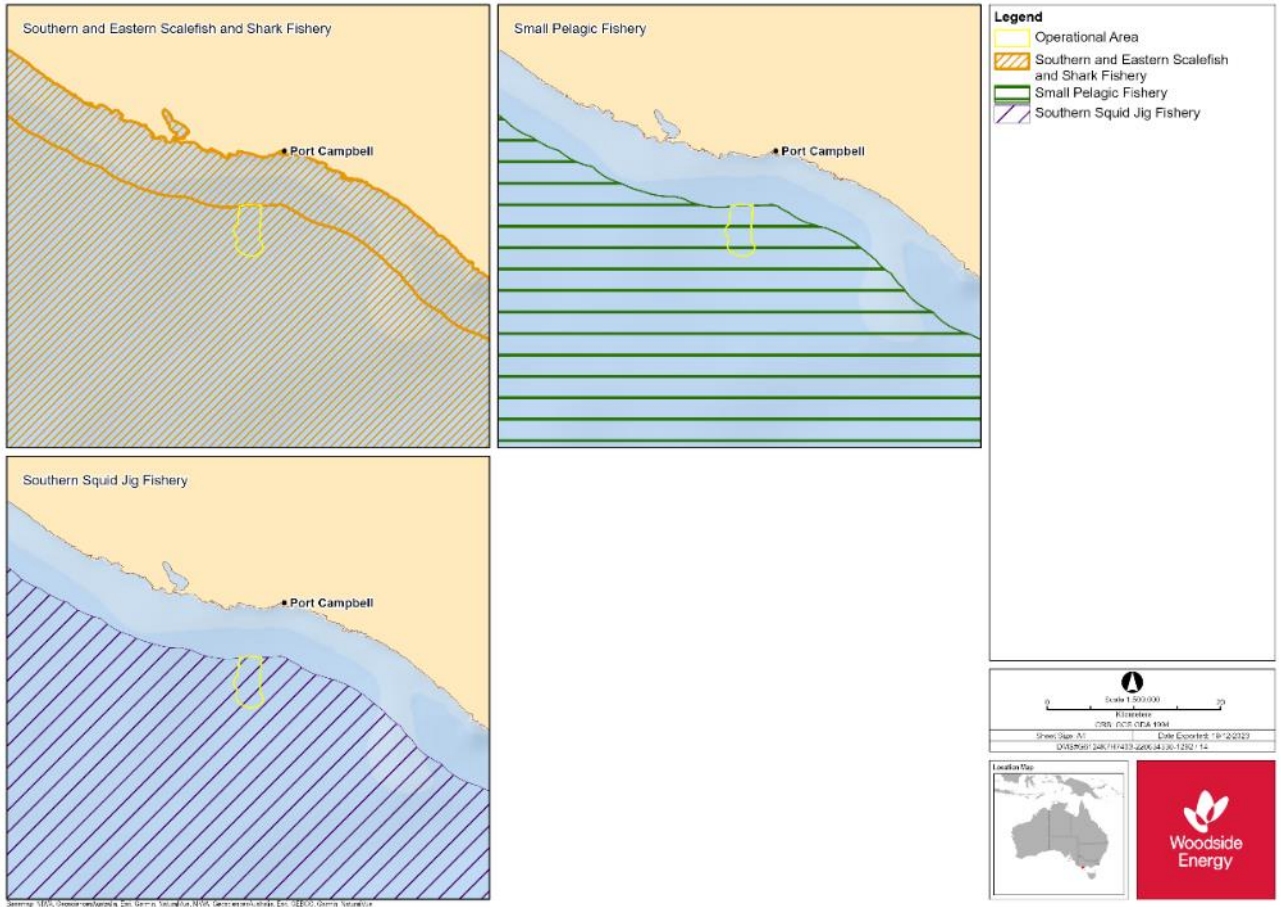


**Figure 4-29: Commonwealth fisheries in relation to the operational area (Figure 2 of 2)**

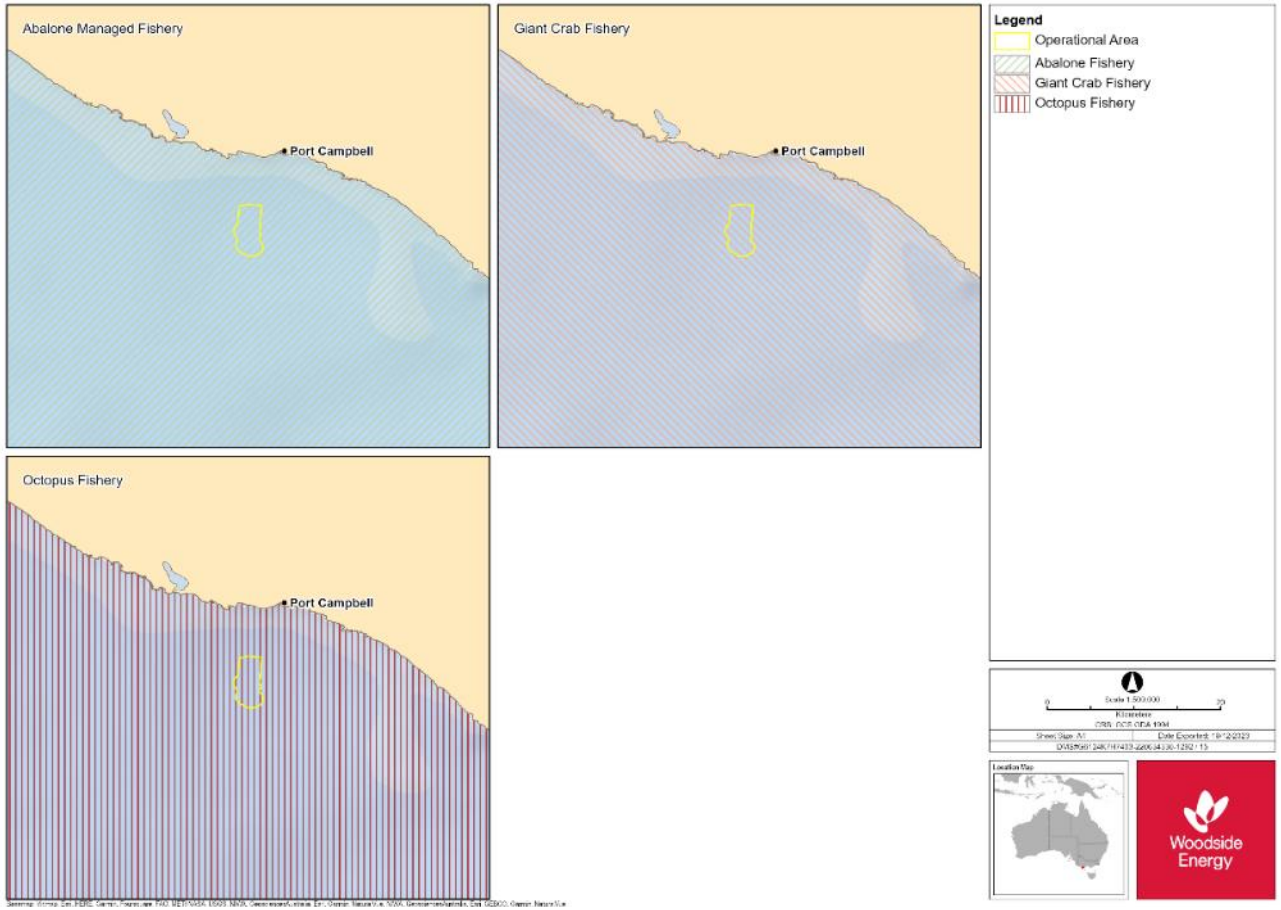


**Figure 4-30: Victorian fisheries in relation to the operational area (Figure 1 of 2)**

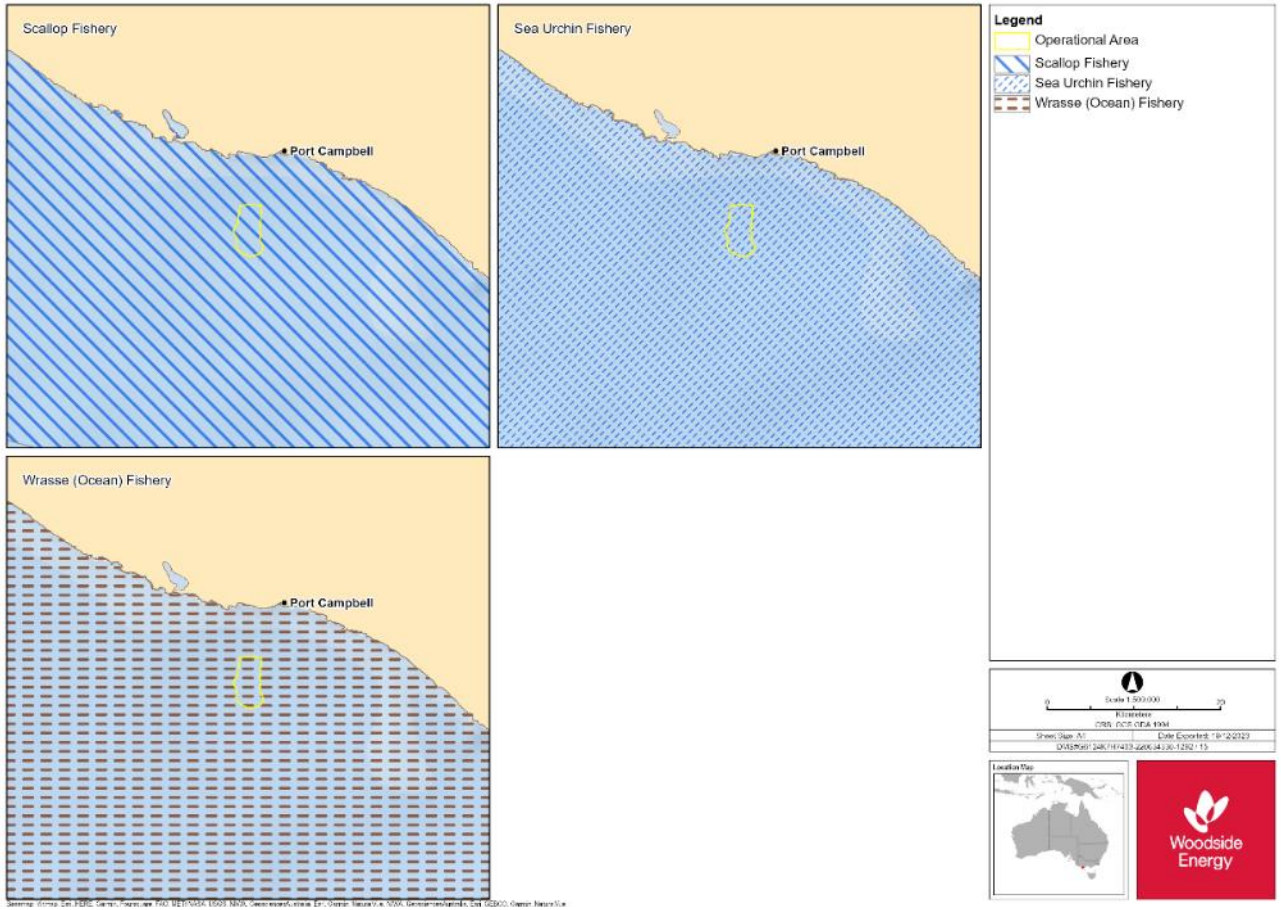


**Figure 4-31: Victorian fisheries in relation to the operational area (Figure 2 of 2)**

### 4.6.3. Tourism and Recreation

Recreational and tourism activities are extremely valuable foundations for the local and regional economy. Key activities include sight-seeing, surfing, and fishing. However, these are generally land-based or near-shore activities and given the Operational Area is located approximately 8 km from Port Campbell, Victoria, in approximate water depths of 55-60 m, these activities are not expected to overlap the Operational Area.

### 4.6.4. Commercial Shipping

The South-east Marine Region is one of the busiest shipping regions in Australia and Bass Strait is one of Australia's busiest shipping routes. The Australian Maritime Safety Authority (AMSA) indicates that there are no designated shipping lanes in the vicinity of the Operational Area, with the main shipping channel for vessels (e.g., cargo tankers) travelling between major Australian and foreign ports located south of the Operational Area, about 75 km (40 nm) south of Warrnambool.

Although a dedicated shipping lane is not present, commercial, and local vessels are frequently present in the area. Ship tracking data from AMSA provides details of the shipping traffic in the area and is described further in Appendix D.

### 4.6.5. Oil and Gas Activities

Nearby oil and gas production fields include the Otway Gas Field Development, operated by Beach Energy and the Casino, Henry, Netherby (CHN) gas field operated by Cooper Energy. Both operations are within the EMBA.

There are also a range of proposed petroleum activities in the vicinity of the Operational Area in the Otway Basin, which are summarised in Table 4-12. Several drilling programs are described in EPs or offshore project proposals (OPPs) currently seeking acceptance from NOPSEMA. All drilling activities described in Table 4-12 are proposed to be undertaken as part of a drilling consortium, of which Woodside is a member.

### 4.6.6. Defence Activities

The Department of Defence uses offshore areas for training operations including live firing, bombing practice from aircraft, air-to-air and air-to-sea or ground firing, anti-aircraft firing, firing from shore batteries or ships, remote controlled craft firing, and rocket and guided weapons firing.

The closest training and practice areas to the Operational Area are located to the east in and around Port Phillip Bay and Western Port Bay areas.

Mine fields were laid in Australian waters during World War II. Post-war minefields were swept to remove mines and to make marine waters safe for maritime activities however areas of unexploded ordnance (UXO) still exist. The closest areas to the Operational Area that have been identified as dangerous due to UXO, are located south and east of Wilson's Promontory (approximately 300 km east of the Operational Area).

### 4.6.7. Offshore Renewable Energy

The Victorian Minister for Climate Change and Energy declared an area in the Southern Ocean off Victoria for offshore renewable energy (e.g., wind generation) on 6 March 2024, as given effect by the Offshore Electricity Infrastructure (Declared Area OEI-01-2024) Declaration 2024. The area is referred to as OEI-01-2024 and is approximately 1,030 $km^2$ and lies south of Port Fairy (approximately 34 km from the operational area at the closest point). As at 17 October 2024, 12 feasibility licences have been granted in relation to OEI-01-2024. Activities in relation to offshore renewable energy in OEI-01-2024 are not permitted to occur without an appropriate commercial licence in place.

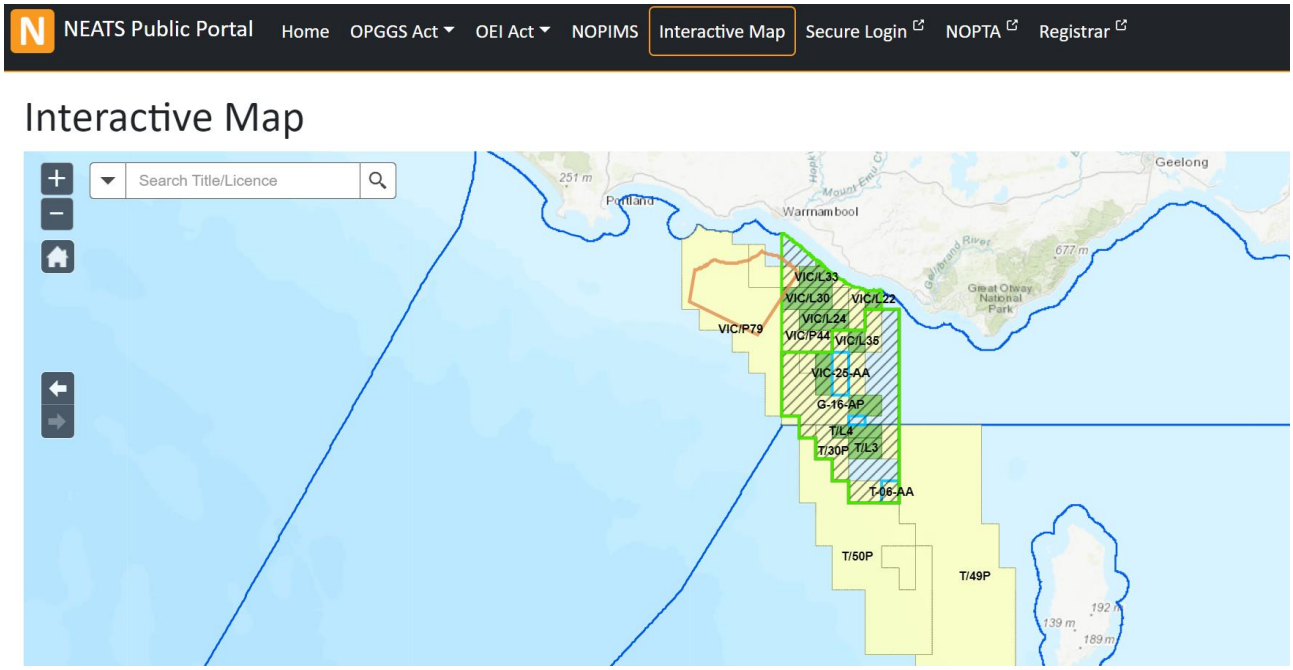


Figure 4-32: Interactive Map of offshore titles and licences (Commonwealth of Australia, 2024)

**Table 4-12: Petroleum activities approved or seeking approvals in the Otway Basin as of October 2024**

| Titleholder | Approvals Document | Activities | Description | Activity Duration | Earliest Start | Latest Finish |
|---|---|---|---|---|---|---|
| Beach Energy | Offshore Gas Victoria Geophysical and Geotechnical Seabed Survey EP | Geotechnical and geophysical survey in:<br>▪ VIC/P43<br>▪ VIC/P73<br>▪ VIC/L23<br>▪ T/L2<br>▪ T/L3<br>▪ T/L4<br>▪ T/30P<br>▪ T/L1<br>▪ T/RL2<br>▪ T/RL4<br>▪ T/RL5 | Survey of the seabed by a survey vessel to:<br>▪ identify seabed debris etc. that may interfere with the positioning and anchoring of moored MODU for subsequent drilling<br>▪ identify and map geomorphological features using sidescan sonar and multi-beam echo sounder<br>▪ identify shallow geology using sub-bottom profiler<br>▪ verify position of existing infrastructure<br>▪ geotechnical sampling and testing. | Up to 200 days | 1 February 2024 | 31 December 2028 |
| Beach Energy | Offshore Gas Victoria Drilling Program EP | Exploration well and plug and abandonment drilling activities in:<br>▪ T/30P<br>▪ T/L1<br>▪ T/L2<br>▪ T/RL2<br>▪ T/RL4<br>▪ VIC/L23<br>▪ VIC/P43<br>▪ VIC/P73. | Drilling of up to five wells in Otway Basin . Plug and abandonment of five wells.<br>Beach is part of the rig consortium. Woodside has first access to the MODU as part of the consortium agreement to complete plug and abandonment of Minerva wells. Minerva equipment removal activities are planned to be completed before commencing Minerva plug and abandonment activities. As such, Beach's activities are planned to occur after completion of Minerva equipment removal and plug and abandonment activities. | Drilling: 30–40 days per well<br>Completion: 15–20 days (one well only)<br>Plug and abandonment: 15–20 days per well | Campaign commencement 1 January 2025 | Campaign completion 31 December 2028 |
| Beach Energy | Otway Offshore | Development of gas resources, with phases including: | Full field development cycle for gas resources in Otway Basin. The early phase of the project includes drilling. The drilling activity will be | Duration of OPP activities may be until end of field life | ▪ Exploration and appraisal | End of field life: 2055 |

| Titleholder | Approvals Document | Activities | Description | Activity Duration | Earliest Start | Latest Finish |
|---|---|---|---|---|---|---|
| | Gas Victoria Project OPP | ▪ exploration and appraisal drilling<br>▪ installation of subsea infrastructure<br>▪ commissioning and start-up<br>▪ future drilling and tie-backs<br>▪ end of field life.<br>Petroleum titles:<br>▪ T/30P<br>▪ T/L2<br>▪ T/L3<br>▪ T/L4<br>▪ VIC/L23<br>▪ VIC/P43<br>▪ VIC/P73. | done using the consortium MODU described above, and as planned to occur after the completion of Minerva equipment removal and plug and abandonment activities. | (2055). Durations of specific activities are not described in the OPP. | drilling: Q1 2025<br>▪ Installation of subsea infrastructure: Q1 2026<br>▪ Commissioning and start-up: Q2 2026<br>▪ Future drilling and tie-backs: within facility life | |
| CGG | Regia Marine Seismic Survey EP | Three-dimensional (3D) seismic survey.<br>Petroleum Titles:<br>▪ Special Prospecting Authority (SPA) | 3D seismic survey using seismic source array and series of streamers towed by the survey vessel. Survey water depths between 50 m and 200 m water depth.<br>Approval window being sought by EP is large (2024-2028); acquisition program is 90 days, and will not occur during January, February, or March in any year.<br>Note:<br>▪ No seismic source discharge during January, February, and March.<br>▪ No discharge of seismic source within 12 km of southern right whale or habitat | 90 days of seismic acquisition. | Earliest commencement: 1 April 2024 | Latest completion: 31 October 2028 |

| Titleholder | Approvals Document | Activities | Description | Activity Duration | Earliest Start | Latest Finish |
|---|---|---|---|---|---|---|
| | | | critical for the survival of southern right whales when they are present. | | | |
| ConocoPhillips | Otway Exploration Drilling Program EP | Seabed survey to support drilling activities.<br>Drilling of up to six exploration wells.<br>Petroleum titles:<br>▪ T/49P<br>▪ VIC/P79 | Seabed surveys will assess up to nine well locations using geophysical and geotechnical equipment. Results will inform the design of the drilling program (e.g., mooring system design).<br>Drilling activities for six wells, with two well locations confirmed. The remaining four well locations will be determined following seismic data processing.<br>ConocoPhillips is part of the rig consortium. Woodside has first access to the MODU as part of the consortium agreement to complete plug and abandonment of Minerva wells. Minerva equipment removal activities are planned to be completed before commencing Minerva plug and abandonment activities. As such, ConocoPhillips's activities are planned to occur after completion of Minerva equipment removal and plug and abandonment activities. | Up to one week per seabed survey location (up to 63 days in total)<br>Up to 90 days drilling per well (up to 540 days in total) | Earliest commencement: 1 September 2024 | Latest completion: 31 December 2028 |
| Cooper Energy | Athena Supply Project | Seabed survey to support drilling activities.<br>Drilling of up to three exploration wells.<br>Plug and abandonment of four wells<br>Petroleum titles:<br>▪ VIC/L24<br>▪ VIC/P76<br>▪ VIC/P44 | Cooper Energy is part of the rig consortium. Woodside has first access to the MODU as part of the consortium agreement to complete plug and abandonment of Minerva wells. Minerva equipment removal activities are planned to be completed before commencing Minerva plug and abandonment activities. As such, Cooper's activities are planned to occur after completion of Minerva equipment removal and plug and abandonment activities. | Each drilling campaign is expected to take up to 60 days | Earliest commencement 1 January 2025 | Latest completion 1 January 2030 |

| Titleholder | Approvals Document | Activities | Description | Activity Duration | Earliest Start | Latest Finish |
|---|---|---|---|---|---|---|
| | | ▪ VIC/L30 | | | | |
| Cooper Energy | Otway Offshore Operations EP (Casino, Netherby & Henry Revision) | Production operations of subsea wells and pipelines.<br>Petroleum titles:<br>▪ VIC/PL37<br>▪ VIC/PL42<br>▪ VIC/L24<br>▪ VIC/L39 | Operation of existing subsea wells and pipeline. The activity does not include brownfield development. Inspection, maintenance, and repair activities provided for in the EP. | Ongoing until end of field life. | Production commenced in 2006 and is ongoing. | Not specified. End of field life assumed to be after petroleum activity described in this EP is completed. |
| | | ▪ | | | | |

# 5. Consultation

## 5.1. Summary

Woodside consults relevant persons in the course of preparing an Environment Plan (EP) in accordance with regulation 25 of the Environment Regulations. (In this Section, references to 'regulations' are to regulations of the Environment Regulations, unless otherwise stated).

Consultation is designed to identify relevant persons and provide them with sufficient information and a reasonable period to allow them to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities. This is to enable titleholders to consider and adopt appropriate measures in response to objections or claims received from relevant persons. Consistent with regulation 4, consultation also supports the objective to ensure that the activity is carried out in a manner by which the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable (ALARP) and will be of an acceptable level.

Consultation is to be informed by both the Environment Regulations and the findings of relevant Courts, including the Full Federal Court in the *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Tipakalippa Appeal) (see Section 5.2 and 5.5.1) and *Munkara v Santos NA Barossa Pty Ltd (No 3)* [2024] FCA 9 (Munkara Case).

For this EP, Woodside has considered both the Operational Area (OA) and the broader Environment that May Be Affected (EMBA) in undertaking consultation (see further discussion in Section 5.2). The broadest extent of the EMBA has been determined by reference to the highly unlikely event of a hydrocarbon release resulting from the OA (see Section 4).

Woodside's consultation methodology is divided into two parts:

- The first section (Section 5.2 to 5.5) provides an overview of Woodside's consultation methodology for its EPs, including how we apply regulation 25(1) to identify relevant persons.
- The second section (Section 5.6 to Section 5.7) details Woodside's approach to accepting feedback and assessment of the merit of each objection or claim, and engaging in ongoing consultation for this EP.

Woodside's consultation record is at Appendix F and includes a summary of the following:

- assessment and identification of relevant persons
- consultation information provided to relevant persons, feedback received and Woodside's assessment of the merits of objections or claims and Woodside's response to relevant persons and other stakeholders Woodside chose to consult
- engagement with persons or organisations that Woodside chose to contact who are not relevant persons for the purposes of regulation 25(1) (see Section 5.3.4)
- opportunities provided to persons or organisations to participate in consultation.

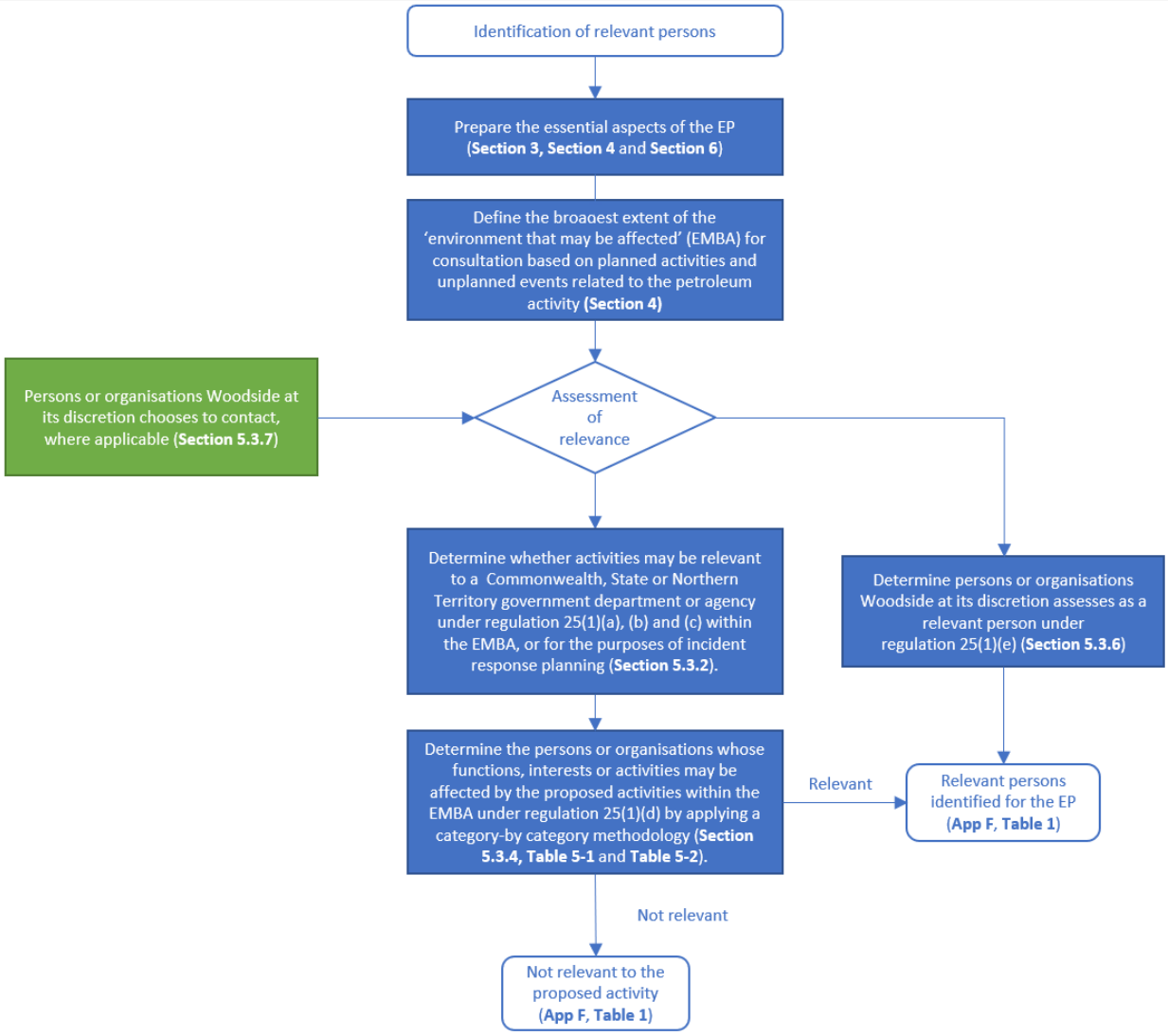


**Figure 5-1: Overview of Woodside's methodology to identify relevant persons**

## 5.2. Consultation – General Context

Woodside has a portfolio of quality oil and gas assets and more than 30 years of operating experience. We have a strong history of working with local communities, the relevant regulators and a broad range of persons and organisations to better understand the potential risks and impacts associated with our proposed activities and to develop appropriate measures to manage them.

The length of time that we have operated in Commonwealth and State waters, and the history of continued engagement with a wide range of persons and organisations enables Woodside to develop an extensive consultation list to inform its consultation process. This consultation list is not used as a definitive list of persons to consult, but rather, assists Woodside as an input to its understanding of relevant persons with whom to consult on a proposed petroleum activity. The information in the consultation list has been captured from years of experience, it contains insights relating to the type of information particular persons or organisations want to receive during consultation, the appropriate method of consultation for relevant persons and includes appropriate contact details, which are reviewed and updated periodically.

Woodside acknowledges NOPSEMA's Guideline on *Consultation in the course of preparing an environment plan* (12 May 2023) as well as judicial guidance in the *Tipakalippa Appeal* on the intent of consultation as follows:

- At paragraph 54 of the appeal decision: *'… provide a basis for NOPSEMA's considerations of the measures, if any, that a titleholder proposes to take or has taken to lessen or avoid the deleterious effect of its proposed activity on the environment, as expansively defined.'*
- At paragraph 89 of the appeal decision: *'…its purpose is to ensure that the titleholder has ascertained, understood and addressed all the environmental impacts and risks that might arise from its proposed activity. Consultation facilitates this outcome because it gives the titleholder an opportunity to receive information that it might not otherwise have received from others affected by its proposed activity. Consultation enables the titleholder to better understand how others with an objective stake in the environment in which it proposes to pursue the activity perceive those environmental impacts and risks. As the Regulations expressly contemplate, it enables the titleholder to refine or change the measures it proposes to address those impacts and risks by taking into account the information acquired through the consultations. Objectively, the scheme intends that this is likely to improve the minimisation of environmental impacts and risks from the activity.'*

The *Tipakalippa Appeal* and *Munkara Case* have also been further considered in the context of specific methods for consultation with First Nations relevant persons (Section 5.5.1).

To undertake consultation, Woodside has developed a methodology for identifying relevant persons, in accordance with regulation 25(1) (Section 5.3). This methodology is consistent with NOPSEMA's Guideline and demonstrates that, to meet the requirements of regulation 34 (criteria for EP acceptance) when preparing the EP, Woodside understands:

- our planned activities in the OA, being the area in which our planned activities are proposed to occur (see Section 3.3)
- the geographical extent to which the environment may be affected (EMBA) by risks and impacts from our activities (unplanned) (identified in Section 4.1 and assessed in Sections 0 and 8.3).

Woodside has undertaken consultation in the course of preparing this EP in compliance with regulation 25, which requires a titleholder to:

- consult with each of the following (a relevant person) in the course of preparing an EP:
  - each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the EP may be relevant
  - if the plan relates to activities in the offshore area of a State – the Department of the responsible State Minister
  - if the plan relates to activities in the Principal Northern Territory offshore area – the Department of the responsible Northern Territory Minister
  - a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP
  - any other person or organisation that the titleholder considers relevant (regulation 25(1)).
- give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on their functions, interests or activities (regulation 25(2))
- allow a relevant person a reasonable period for the consultation (regulation 25(3))
- tell each relevant person that the titleholder consults with, that the relevant person may request that particular information it provides in the consultation not be published and any information subject to such a request is not to be published (regulation 25(4)).

Further, Woodside seeks to carry out consultation in a manner that:

- is consistent with the principles of ecologically sustainable development (ESD) set out in section 3A of the EPBC Act – see Section 2.1.2
- is intended to reduce the environmental impacts and risks from the activity to ALARP and an acceptable level (regulation 4)
- is intended to minimise harm to the relevant person and the environment from the proposed petroleum activities and to enable Woodside to consider measures that may be taken to mitigate the potential adverse environmental impacts from the petroleum activity
- is collaborative. Woodside respects that for a relevant person, consultation is voluntary. Where the relevant person seeks to engage, Woodside engages with the relevant person with the aim of seeking genuine and meaningful two-way dialogue
- provides opportunities for relevant persons to provide feedback throughout the life of the EP through its ongoing consultation process (refer to Section 5.7 and Section 9.9).

An overview of Woodside's consultation approach is outlined at **Figure 5-2**.

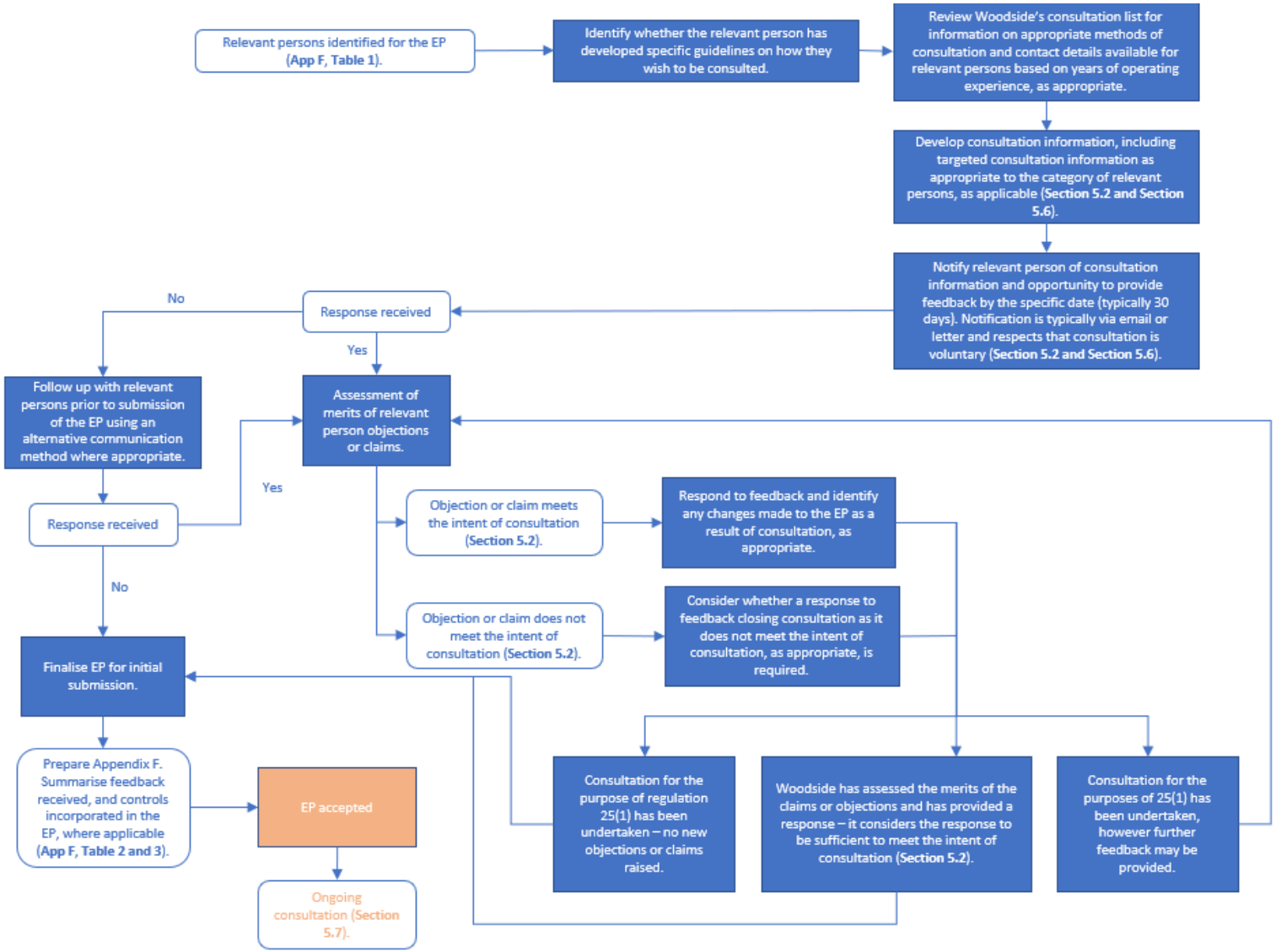


**Figure 5-2: Overview of Woodside's consultation approach.**

The methodology for consultation for this activity has been informed by various guidelines and relevant information for consultation on planned activities, including:

Federal Court:

- Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193
- Munkara v Santos NA Barossa Pty Ltd (No 3) [2024] FCA9

NOPSEMA:

- GL2086 – Consultation in the course of preparing an environment plan – May 2023
- GN1847 – Responding to public comment on environment plans – January 2024
- GN1344 - Environment plan content requirements - September 2020
- GL1721 – Environment Plan decision making – January 2024
- GN1488 - Oil pollution risk management - July 2021
- GN1785 – Petroleum activities and Australian Marine Parks – January 2024
- GL 1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2024
- PL9028 Managing gender-restricted information – December 2023
- Consultation on offshore petroleum environment plans – Information for the community

Department of Energy, Mines, Industry Regulation and Safety (DEMIRS):

- Draft Policy and Guideline — Decommissioning of petroleum and geothermal energy property, equipment and infrastructure in Western Australian onshore areas and State coastal waters (March 2024)

Department of Climate Change, Energy, the Environment and Water (DCCEEW):

- Sea Countries of the North-West; Literature review on Indigenous connection to and uses of the North West Marine Region

Australian Fisheries Management Authority (AFMA):

- Petroleum industry consultation with the commercial fishing industry

Commonwealth Department of Agriculture, Fisheries and Forestry (DAFF):

- Fisheries and the Environment – Offshore Petroleum and Greenhouse Gas Act 2006
- Offshore Installations Biosecurity Guide

WA Department of Primary Industries and Regional Development (DPIRD):

- Guidance statement for oil and gas industry consultation with the Department of Fisheries

WA Department of Transport (DoT):

- Offshore Petroleum Industry Guidance Note

WA Australian Fishing Industry Council (WAFIC)

- Oil and Gas Consultation Framework

Good practice consultation:

- IAP2 Public Participation Spectrum
- Interim Engaging with First Nations People and Communities on Assessments and Approvals under the Environment Protection and Biodiversity Act 1999

## 5.3. Identification of Relevant Persons for Consultation

### 5.3.1. Regulations 25(1)(a), (b) and (c)

The relevant inquiry for determining relevant persons under regulations 25(1)(a) and (b) is whether the activities to be carried out under the EP may be relevant to one of the government departments or agencies in those regulations. The government departments and agencies relevant to the EP are listed in Appendix F,

Table 1. In accordance with regulation 25(1)(b), Woodside consults with the Department of the relevant State Minister.

### 5.3.2. Identification of Relevant Persons under Regulations 25(1)(a), (b) and (c)

Woodside's methodology for identifying relevant persons under regulations 25(1)(a), (b) and (c) is as follows:

- Woodside considers the defined responsibilities of each of the departments and agencies to which the activities to be carried out in the EMBA under the EP may be relevant. This list of relevant department and agencies is formulated by reference to the responsibilities of the government departments as set out on their websites, in NOPSEMA's *GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area* guideline (January 2024), which describes where the Department is a relevant agency under the Environment Regulations, as well as experience and knowledge that Woodside has gained from years of operating. This list is revised from time to time, for example, for the purposes of accommodating government restructures, renaming of departments, shifting portfolios and/or to account for new agencies that might arise.
- Woodside has categorised government department or agency groups as follows:

| | |
|---|---|
| **Government departments / agencies – marine** | Agencies with legislated responsibilities for use of the marine environment. |
| **Government departments / agencies – environment** | Agencies with legislated responsibilities for the protection of the marine environment. |
| **Government departments / agencies – industry** | The legislated Department of the responsible Commonwealth, State or Northern Territory Minister for Industry. |

- Woodside considers each of the responsibilities of the departments and agencies, determining whether those responsibilities overlap with potential risks and impacts specific to the PPA in the EMBA. The assessment is both activity- and location-based.
- Woodside acknowledges the roles and responsibilities of government departments and agencies acting on behalf of various industry participants. For example, AMSA – Marine Safety is responsible for the safety of vessels and the seafarers who are operating in the domestic commercial shipping industry and AHO is responsible for maritime safety and Notices to Mariners. To undertake the OA in a manner that prevents a substantially adverse effect on the potential displacement of marine users, Woodside therefore consults AMSA – Marine Safety and AHO on its proposed activities. Woodside considers each of the responsibilities of the departments and agencies and determines those that would either be involved in the incident response itself or in relation to the regulatory or decision-making capacity with respect to planning for the unlikely event of a worst-case hydrocarbon release incident response specific to the OA. Feedback received, if any, is assessed in accordance with the intended outcome of consultation.
- The list of government departments and agencies assessed as relevant is set out in Appendix F, Table 1.
- Feedback received, if any, is assessed in accordance with the intended outcome of consultation and summarised at Appendix F, Table 2, and Table 3 as appropriate to the relevance assessment.

Woodside does not consult with departments or agencies with interests that do not overlap with risks and impacts specific to the proposed petroleum activity in the EMBA or would not be involved in incident response planning.

### 5.3.3. Regulation 25(1)(d)

To identify a relevant person for the purposes of regulation 25(1)(d), the meaning of "functions, interests or activities" needs to be understood. In regulation 25(1)(d), the phrase "functions, interests or activities" should be construed broadly and consistently with the objects of the Environment Regulations (regulation 4) and the objects of the *EPBC Act* (Section 3A).

In developing its methodology for consultation, Woodside acknowledges that the guidance on the definition of functions, interests and activities is as follows in accordance with NOPSEMA's GL2086 – Consultation in the course of preparing an environment plan guideline (May 2023):

| | |
|---|---|
| **Functions** | Refers to a power or duty to do something. |
| **Interests** | Conforms to the accepted concept of 'interest' in other areas of public administrative law and includes any interest possessed by an individual whether or not the interest amounts to a legal right or is a proprietary or financial interest or relates to reputation. |
| **Activities** | Broader than the definition of 'activity' in Regulation 4 of the Environment Regulations and is likely be directed to what the relevant person is already doing. |

Woodside's methodology for determining 'relevant persons' for the purpose of regulation 25(1)(d) includes consideration of:

- whether a person or organisation has functions interests or activities that overlap with the OA and EMBA
- whether a person or organisation's functions, interests or activities may be affected by Woodside's proposed planned or unplanned activities.

### 5.3.4. Identification of Relevant Persons under Regulation 25(1)(d))

Relevant persons under regulation 25(1)(d) are defined as a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP. In identifying relevant persons, Woodside considers:

- the planned activities to be carried out under this EP (described in Section 3)
- the EMBA by unplanned activities (identified in Section 4 and assessed in Section 8).

To identify relevant persons who fall within regulation 25(1)(d), Woodside adopts the following methodology, and then undertakes consultation with relevant persons.

- As a general proposition, Woodside assesses whether a person or organisation is a relevant person having regard to:
  - whether a person or organisation has functions, interests or activities that overlap with the OA and EMBA
  - whether a person or organisation's functions, interests or activities may be affected by Woodside's proposed planned or unplanned activities to be carried out under the EP.
- This assessment will include applying judgement, knowledge and considering available, relevant literature.
- To assist in identifying the full range of relevant persons, Woodside considers the impacts and risks associated with its proposed activities and considers the broad categories of relevant persons who may be affected by the activities proposed to be carried out under the EP. The broad categories are identified in Table 5-1 below and identification methodology applied as set out in Table 5-2.
- The list of those persons or organisations assessed as relevant persons or organisations Woodside separately chose to contact is set out in Appendix F, Table 1.
- Feedback received, if any, is assessed in accordance with the intended outcome of consultation and applying the categories of relevant persons methodology outlined in Table 5-2, as appropriate.
- Feedback from relevant persons is summarised at Appendix F, Table 2. Feedback from persons assessed as "not relevant" but whom Woodside chose to contact or self-identified and Woodside assessed as "not relevant", are summarised at Appendix F, Table 3.

**Table 5-1: Categories of relevant persons**

| Category | Explanation |
|---|---|
| Commercial fisheries (Commonwealth and State) and peak representative bodies | Commonwealth or State Commercial Fishery with a fishery management plan recognised under the *Commonwealth Fisheries Management Act 1991 (Cth)* and the *Fisheries Act 1995 (Vic)*, which may be amended from time to time.<br>Commonwealth peak fishery representative bodies are identified by AFMA. Seafood Industry Victoria (SIV) is the peak representative body for state fishers in Victoria, excluding abalone fishers who are represented by Abalone Council Victoria (ACV). |
| Recreational marine users and peak representative bodies | Charter boat, tourism and dive operators specific to the location of the proposed activity.<br>Representative bodies are the recognised peak organisation(s) for recreational marine users. There is no peak representative body for recreational marine users in Victoria. |
| Titleholders and Operators | Registered holder of an offshore petroleum title or GHG title under the *OPGGS Act* and associated regulations. |
| Peak industry representative bodies | Recognised peak organisation(s) for the oil and gas sector. |
| Traditional Custodians (individuals and/or groups/entity) | Traditional Custodians are First Nations Australians with cultural rights and interests or who perform cultural activities over particular lands and waters.<br>Where a First Nations person, group or entity self-identifies and asserts cultural rights, functions, interests or activities they will be considered under the definition of Traditional Custodian for the purpose of this EP (as appropriate). |
| Nominated Representative Corporations | Nominated representative corporations are Traditional Custodians' nominated representative institutions, which include, in the Victorian context:<br>▪ Prescribed Body Corporates (PBC) established under the *Native Title Act 1993* by Traditional Custodians to represent their entire Traditional Custodian group (defined broadly by reference to descents from an ancestor set who were known to be the Traditional Custodians at the time of European colonisation) and their interests including, among other things, management and protection of cultural values<br>▪ Traditional Owner Corporations (TOC) established under the *Traditional Owner Settlement Act 2010 (Vic)* by Traditional Custodians to represent their entire Traditional Custodian group (defined broadly by reference to descents from an ancestor set who were known to be the Traditional Custodians at the time of European colonisation) and their interests including, among other things, management and protection of cultural values. The *Traditional Owner Settlement Act 2010 (Vic)* provides an alternative form of recognition to Native Title<br>▪ Registered Aboriginal Parties (RAP) established under the *Aboriginal Heritage Act 2006 (Vic)*. A PBC or TOC will automatically be appointed a RAP under the Act. |
| Native Title Representative Bodies | A Representative Aboriginal/Torres Strait Islander Body (RATSIB) is a regional organisation appointed under the *Native Title Act 1993* with prescribed functions, set out in Part 11 of the *Native Title Act 1993*, which relate to: facilitation and assistance; certification; dispute resolution; notifications; agreement making. They are also known, and referred to here, as Native Title Representative Bodies. |
| Historical heritage groups or organisations | Legislated or government enlisted groups or organisations responsible for the management of marine heritage. |

| Category | Explanation |
|---|---|
| Local government and recognised local community reference/liaison groups or organisations | Local government governed by the *Local Government Act 2020 (VIC)* which is responsible for representing the local community. Recognised local community reference/liaison group or organisation in relation to oil and gas matters. |
| Other non-government groups, organisations or individuals | Non-government organisation with public website material targeting the proposed activity.<br>Individual who demonstrates the proposed activity could potentially impact their interests, functions or activities. |
| Research institutes and local conservation groups or organisations | Research institutes are government or private institutions that conduct marine or terrestrial research.<br>Local conservation groups are local non-government organisation that regularly conduct conservation activities focused on the local environment or wildlife. |

**Table 5-2: Methodology for identifying relevant persons within the EMBA undertaken under subcategory 25(1)(d) – by category**

| Category | Relevant person identification methodology |
|---|---|
| Commercial fisheries (Commonwealth and State) and peak representative bodies | Woodside assesses relevance for commercial fisheries (Commonwealth and State) and their representative bodies using the following steps in its methodology:<br>▪ Defining the parameters having regard to timing, location and duration of the proposed petroleum activity.<br>▪ Confirming whether the EMBA overlaps with the fisheries' management area (i.e., the spatial area the fishery is legally permitted to fish in) (see Section 4.6.2).<br>▪ In this context, there does not appear to be any specific Victorian consultation guidance. Accordingly, Woodside has considered and followed consultation guidance from other jurisdictions, for example, Western Australian Fishing Industry Council's (WAFIC) consultation guidance[4] (accessed on 2 February 2023), which provides that titleholders should develop separate consultation strategies for significant unplanned events (for example oil spill) where titleholders can demonstrate the likelihood of such events occurring is extremely low. WAFIC's guidance is that consultation on unplanned events resulting in an emergency scenario should only be undertaken if an incident occurs (see Appendix E).<br>▪ For Commonwealth and State commercial fisheries, Woodside assesses the potential spatial and temporal extent for interaction with the fishery by reviewing AFMA and VFA fishery catch data within the OA and EMBA (see Section 4.6.2).<br>Assessment of relevance:<br>▪ State commercial fisheries that have been assessed as having a potential for interaction within the OA or EMBA (see Section 4.6.2) are assessed as relevant to the proposed activity.<br>▪ Woodside acknowledges consultation advice from VFA to consult via the relevant fishery representative bodies for relevant fishery licence holders. Woodside applies this by:<br>– consulting fishery licence holders that are assessed as having a potential for interaction in the OA via relevant fishery representative bodies; and<br>– consulting fisheries that are assessed as having a potential for interaction in the EMBA via relevant fishery representative bodies. |

[4] Consultation Approach for Unplanned Events - WAFIC

| Category | Relevant person identification methodology |
|---|---|
| | ▪ Commonwealth commercial fisheries that have been assessed as having a potential for interaction within the OA or EMBA (see Section 4.6.2) are assessed as relevant to the proposed activity.<br>▪ If Woodside has identified that a Commonwealth or State fishery is a relevant person, then Woodside also consults the fishery's relevant representative body. As mentioned above, Woodside acknowledges consultation advice from VFA to consult via the relevant fishery representative bodies for relevant fishery licence holders. Though Seafood Industry Victoria (SIV) has advised Woodside that it does not take responsibility for speaking on behalf of all members, SIV seeks to further the interests of fisheries in Victoria. SIV, Abalone Council Victoria and Victorian Scallop Fishermen's Association are the recognised State fishery peak bodies. Recognised Commonwealth fishery representative bodies are identified by AFMA via its website. |
| Recreational marine users and peak representative bodies | Woodside assesses relevance for recreational marine users and peak representative bodies using the following steps in its methodology:<br>▪ From Woodside knowledge and operating experience, knowledge of recreational marine users in the area. This assessment is both activity and location based.<br>▪ Defining the parameters having regard to timing, location and duration of the proposed petroleum activity.<br>▪ Assessing the potential spatial and temporal extent for interaction with recreational marine users to assess whether there has been activity within the EMBA in the past 5 years.<br>Assessment of relevance:<br>▪ Recreational marine users that have been active within the EMBA in the past 5 years are assessed as relevant to the proposed activity. Woodside obtains the contact details of charter, boat tourism and dive operators specific to the region of the EMBA via website search to consult with the relevant persons.<br>▪ If Woodside has identified recreational marine users as relevant persons, then Woodside also consults identified peak recreational marine user representative bodies. For example, Victorian Recreational Fishers Association (VR Fish) represents the interests of recreational fishers. These representative bodies are identified via website search and Woodside's existing consultation list, which is updated as appropriate via advice from known groups and Government authorities. |
| Titleholders and Operators | Woodside assesses relevance for other Titleholders and Operators using the following steps in its methodology:<br>▪ Using Woodside Titles database to determine overlap with other Titleholders or Operators permit areas within the EMBA.<br>▪ Using Woodside knowledge and operating experience, applying knowledge of other operators in the area.<br>▪ Woodside produces a map showing the outcome of this assessment.<br>Assessment of relevance:<br>▪ Titleholders and Operators whose permit areas are identified as having an overlap within the EMBA are assessed as relevant. |
| Peak industry representative bodies | Woodside assesses relevance for peak industry representative bodies using the following steps in its methodology:<br>▪ Review of peak industry representative bodies responsibilities that Woodside actively participates in, with consideration of overlap between industry focus area and Woodside's proposed activities within the EMBA.<br>▪ Review of Woodside's existing consultation list.<br>▪ Website search to identify whether any additional peak industry representative bodies have been created whose responsibilities may overlap with Woodside's proposed activities within the EMBA. |

| Category | Relevant person identification methodology |
|---|---|
| | Assessment of relevance:<br>▪ Peak industry representative bodies whose responsibilities are identified as having an overlap with Woodside's proposed activities within the EMBA are assessed as relevant. |
| Traditional Custodians (individuals and/or groups/entity) and Nominated Representative Corporations | Consistent with its understanding of the matters discussed in Section 5.5, to identify Traditional Custodian groups or individuals, Woodside:<br>▪ uses existing systems of recognition to identify First Nations groups who overlap or are coastally adjacent to the EMBA (for example, recognition provided under Native Title or cultural heritage legislation, or marine park management plans, or identification by other First Nations groups or entities)<br>▪ notifies and invites consultation with First Nations people through their nominated representative corporation (for example PBCs or RAPs); or, in the case of Native Title and where appropriate, the Native Title Representative Body<br>▪ requests the nominated representative body to forward the notifications and invitations to consult to their members (members are individual communal rights holders)<br>▪ requests advice as to other First Nations groups or individuals that should be consulted<br>▪ advertises widely so as to invite self-identification and consultation by First Nations groups and/or individuals.<br>▪ in Victoria, uses the Victorian Aboriginal Heritage Council data to determine whether there are any Registered Aboriginal Parties (RAP) appointed under the Aboriginal Heritage Act 2006 (Vic), that overlap or are adjacent to the EMBA.<br>Further detail to Woodsides methodology is as follows:<br>Woodside uses the databases of the National Native Title Tribunal:<br>▪ to understand whether there are any Native Title Claims (historical or current) or determinations overlapping or coastally adjacent to the EMBA;<br>▪ to understand whether there are any relevant Indigenous Land Use Agreements (ILUA), registered with the National Native Title Tribunal that overlap or are adjacent to the EMBA that may identify Traditional Custodians or representative bodies to contact regarding potential cultural values.<br>Where there is a positive determination of Native Title, contacting the PBC or, where their representative is a Native Title Representative Body contacting the Native Title Representative Body.<br>Where appropriate, contacting the relevant Native Title Representative Body to request a list of any First Nations groups asserting Traditional Custodianship over an area of coastline adjacent to the EMBA.<br>Review of Commonwealth and State Marine Park Management Plans that overlap the EMBA which may identify Traditional Custodians or representative bodies to contact regarding potential cultural values.<br>First Nations groups or individuals identified by a Traditional Custodian, nominated representative corporation, Native Title Representative Body.<br>Request to the PBC to distribute Woodside consultation materials through its membership. Woodside is unable to contact this membership through any other means.<br>Woodside has a number of public notification and information sharing processes by which individual Traditional Custodians can become aware of the proposed activity, its risks and impacts, and self-identify.<br>Individuals that consider their functions, interests or activities may be affected by a proposed activity are provided an opportunity to self-identify for each EP. Woodside does not presume that self-identification for an activity, covered by another EP, automatically means that an individual/s functions, interests and activities may be affected by other activities where EMBAs overlap. This decision is for the individual to make. The public |

| Category | Relevant person identification methodology |
|---|---|
| | notification, information sharing, and consultation processes Woodside puts in place enables Traditional Custodians to become aware of proposed activities, assess any risks and impacts to their values, and enable individuals to self-identify.<br>Assessment of relevance:<br>▪ Traditional Custodian groups, entities or individuals and Nominated Representative Corporations who are identified through the above methodology and overlap or are coastally adjacent to the EMBA are assessed as relevant. |
| Native Title Representative Bodies | Woodside assesses relevance for Native Title Representative Bodies using the following steps in its methodology:<br>▪ A Representative Aboriginal/Torres Strait Islander Bodies (RATSIB) is a regional organisation appointed under the *Native Title Act 1993* with prescribed functions set out in Part 11 of the *Native Title Act 1993*, which relate to: facilitation and assistance; certification; dispute resolution; notifications; agreement making. They are also known, and referred to here, as Native Title Representative Bodies.<br>▪ Review of National Native Title Tribunal RATSIB areas that overlap or are coastally adjacent to the EMBA.<br>Assessment of relevance:<br>▪ Where the area for which a Native Title Representative Body is recognised under the *Native Title Act 1993*, overlaps with the EMBA or is coastally adjacent to the EMBA, Woodside will assess the Native Title Representative Body as relevant. |
| Historical heritage groups or organisations | Woodside assesses relevance for groups or organisations whose responsibilities are focused on historical heritage using the following steps in its methodology:<br>▪ Using the Australasian Underwater Cultural Heritage Database to assess any known records of Maritime Cultural Heritage sites (shipwrecks, aircraft and relics) within the EMBA (see Section 4.6.1.8).<br>Assessment of relevance:<br>▪ Where there is a known underwater heritage site (shipwrecks, aircraft and relics) within the EMBA, the relevant group or organisation that manages the site will be assessed as relevant. |
| Local government and recognised local community reference/liaison groups or organisations | Woodside assesses relevance for local government and recognised local community reference/liaison groups or organisations using the following steps in its methodology:<br>▪ Review of Woodside maps (developed from data from Local Government Victoria database and Victoria Government Local Government maps) to assess any overlap between the local government's defined area of responsibility and the EMBA.<br>▪ Woodside reviews the community reference/liaison group's terms of reference to determine its area of responsibility and any overlap with the EMBA.<br>Assessment of relevance:<br>▪ The local government whose defined area of responsibility overlaps the EMBA is assessed as relevant.<br>▪ The community reference/liaison group whose defined area of responsibility overlaps the EMBA is assessed as relevant and consulted collectively via the relevant reference/liaison group. |
| Other non-government groups, organisations or individuals | Woodside assesses relevance for other non-government groups, organisations or individuals using the following steps in its methodology:<br>▪ Review of Woodside's existing consultation list.<br>▪ Website search of registered non-government groups or organisations (i.e. registered with an Australian Business Number (ABN) and publicly available contact information) that may have public website material specific to the proposed activity at the time of development of the EP. |

| Category | Relevant person identification methodology |
|---|---|
| | ▪ Organisation has a publicly available mission statement (or purpose) that clearly describes their collective functions, interests or activities.<br>▪ Review of current website material to identify targeted information which demonstrates functions, interests or activities relevant to the potential risks and impacts associated with planned activities.<br>▪ Review of an individual's feedback to consider whether their functions, interests or activities could be impacted.<br>Assessment of relevance:<br>▪ Registered non-government groups or organisations with current targeted public website material specific to the proposed activity at the time of developing the EP and who have demonstrated functions, interests or activities relevant to the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation will be assessed as relevant.<br>▪ Individual who demonstrates their functions, interests or activities could be impacted will be assessed as relevant. |
| Research institutes and local conservation groups or organisations | Woodside assesses relevance for research institutes and local conservation groups or organisations using the following steps in its methodology:<br>▪ Review of Woodside's existing consultation list.<br>▪ Website search for research institutes that may operate within the EMBA. This assessment is both activity- and location-based.<br>▪ Website search for local conservation groups or organisations that regularly conduct conservation activities within the EMBA.<br>Assessment of relevance:<br>▪ Where there is known research being undertaken by a research institute within the EMBA, the research institute that is conducting the research will be assessed as relevant.<br>▪ Local environmental conservation groups who regularly conduct conservation activities or have demonstrated conservation functions, interests or activities within the EMBA are assessed as relevant. This assessment is both activity- and location-based. |

### 5.3.5. Regulation 25(1)(e)

In addition to assessing relevance under regulation 25(1)(d), Woodside has discretion to categorise any other person or organisation as a relevant person under regulation 25(1)(e).

### 5.3.6. Identification of Relevant Persons under Regulation 25(1)(e)

Woodside adopts a case-by-case approach for each EP to assess relevance under regulation 25(1)(e).

### 5.3.7. Persons or Organisations Woodside Chooses to Contact

In addition to undertaking consultation with relevant persons under regulation 25(1), from time to time there are persons or organisations that Woodside chooses to contact in relation to a proposed activity. For example, these are persons or organisations:

- that are 'not relevant' pursuant to regulation 25(1) but that Woodside has chosen to seek additional guidance from, for example, to inform the correct contact person that Woodside should consult, or engage with
- that are 'not relevant' pursuant to regulation 25(1) but have been contacted as a result of consultation requirements changing or updated guidance from the Regulator

- where it is unclear what their functions, interests or activities are, or whether their functions, interests or activities may be affected. In this circumstance, engagement is used to inform relevance under Woodside's methodology. Woodside follows the same methodology for assessing a person or organisations relevance as it does during its initial assessment (as described in Figure 5-1 and Section 5.3). The result of Woodside's assessment of relevance during the development of the EP is outlined at Appendix F, Table 1.

### 5.3.8. Assessment of Relevant Persons for the Proposed Activity

The result of Woodside's assessment of relevant persons in accordance with regulation 25(1) is outlined at Appendix F, Table 1 and Appendix F, Table 2.

Persons or organisations that Woodside assessed as not relevant but chose to contact at its discretion in accordance with Section 5.3.4 or self-identified and Woodside assessed as not relevant, are summarised at Appendix F, Table 1 and Appendix F, Table 3.

## 5.4. Consultation Material and Timing

Regulation 25(2) provides that a Titleholder must give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of the relevant person. Regulation 25(3) provides that the Titleholder must allow a relevant person a reasonable period for the consultation.

As set out in Section 5.2, Woodside notifies relevant persons, of the proposed activities, respecting that consultation is voluntary and collaborates on a consultation approach where further engagement is sought by the relevant person. The consultation process aims to be appropriate for the category of relevant persons and that not all persons or organisations will require the same level of engagement. Woodside recognises that the level of engagement is dependent on the nature and scale of the OA. Woodside acknowledges published guidance for good practice consultation relevant to different sectors and disciplines. Woodside's methodology for providing relevant persons with sufficient information as well as a reasonable period of time to provide feedback is set out in this section.

### 5.4.1. Sufficient Information

Woodside produces a Consultation Information Sheet for each EP. This is provided to relevant persons and organisations and is also available on Woodside's website for interested parties to access and to provide feedback on. The Consultation Information Sheet typically includes:

- a description of the proposed petroleum activity
- the OA or PAA, dependent on the EP
- where the activity will take place
- the timing and duration of the activity
- a location map of the OA or PAA and EMBA
- a description of the EMBA
- relevant exclusion zones
- a summary of relevant risks and mitigation and management control measures relevant to the proposed petroleum activity.

It also sets out contact details to provide feedback to Woodside.

The level of information necessary to assist a person or organisation to understand the impacts of the proposed activity on their functions, interests or activities may vary and may depend on the degree to which a relevant person is affected. For example, Woodside considers that relevant persons who may be impacted by planned activities in the OA, as a result of temporary displacement due to exclusion zones, may require more targeted information relevant to their functions, interests or activities. Sufficient information may have been provided to a relevant person even where all documents requested by a relevant person have not been provided.

Woodside acknowledges NOPSEMA's brochure entitled *Consultation on offshore petroleum environment plans information for the community*, which advises persons being consulted that they may inform titleholders that they only want to be consulted in the very unlikely event of an oil spill.

Woodside places advertisements in selected local, state and national newspapers. This typically includes:

- the name of the EP Woodside is seeking feedback on
- an overview of the activity
- the consultation feedback date
- the ways in which a person or organisation can provide feedback.

Advertising in the local paper in the area of the activity is also consistent with the public notification process under section 66 of the *Native Title Act 1993* for Native Title applications. Woodside typically aligns advertisement feedback timeframes with the timing described below. Feedback received is assessed in accordance with Section 5.3 to determine relevance and evidenced in Appendix F, Table 1 as appropriate.

Woodside utilises a range of tools to provide sufficient information to relevant persons, which may include one or more of the following:

- Consultation Information Sheet available on Woodside's website and shared directly with relevant persons
- Summary Consultation Information Sheet, presentations or summaries specific to a particular relevant person group
- subscription available on Woodside's website to receive notifications of new Consultation Information Sheets for Woodside EPs
- emails
- letters
- phone calls
- face-to-face meetings (virtual or in person) with presentation slides or handouts as appropriate
- maps outlining a persons or organisations defined area of responsibility in relation to the proposed activity, for example a fisheries management area or defence training area
- community meetings, as appropriate.

Woodside recognises that information may be provided to relevant persons in an iterative manner during the consultation process. Woodside considers that genuine two-way engagement may be demonstrated via information on incorporation of controls, where applicable, being provided to the relevant person so that the relevant persons understand how their input has been considered in the development of the EP.

Woodside communicates with relevant persons in different ways. Woodside recognises that as part of genuine two-way dialogue, these forms of communication may evolve, including for example due to changes to organisation representation, as relationships are further established, or a preference for an alternative form of communication is expressed by a person or organisation. There might be limitations in how Woodside can consult with relevant persons.

Typical forms of communications for categories of relevant persons are set out below.

| Category of Relevant Person | Typically Accepted Form of Communication |
|---|---|
| Government departments / agencies – marine | Woodside applies NOPSEMA's guideline for engagement with Commonwealth government departments or agencies *GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023* by using email for its consultation unless another form of communication is requested.<br>Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request. |
| Government departments / agencies – environment | |
| Government departments / agencies – industry | |
| Commercial fisheries and peak representative bodies | **Commonwealth commercial fisheries:** Email is used as the primary form of communication with Commonwealth commercial fisheries in the ordinary course of |

| Category of Relevant Person | Typically Accepted Form of Communication |
|---|---|
| Recreational marine users and peak representative bodies | business. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.<br>**State commercial fisheries:** As advised by the VFA, communication with licence holders is conducted through the relevant fishery representative bodies.<br>**Recreational marine users:** Email is used as the primary form of communication with recreational marine users in the ordinary course of business. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request.<br>**Peak representative bodies:** Email is used as the primary form of communication with commercial fishery and recreational marine user peak representative bodies in the ordinary course of business. Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request. |
| Titleholders and Operators | Email is used as the primary form of communication between Titleholders and Operators in the ordinary course of business. Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request. |
| Peak industry representative bodies | Email is used as the primary form of communication with peak representative bodies in the ordinary course of business. Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request. |
| Traditional Custodians and nominated representative corporations | There are many forms of communication that Woodside uses on a case-by-case basis and as appropriate to or requested by the specific group, such as email, phone calls, meetings and community forums. Other forms of communication are used on request. |
| Native Title Representative Bodies | There are many forms of communication that Woodside uses on a case-by-case basis and as appropriate to or requested by the specific group, such as email, phone calls, meetings and community forums. Other forms of communication are used on request. |
| Historical heritage groups or organisations | NOPSEMA's guideline (*GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023*) for engagement with government departments or agencies is used as a reference for Woodside's approach for communicating with historical heritage groups or organisations. Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request. |
| Local government and recognised local community reference/liaison groups or organisations | **Local government:** NOPSEMA's guideline (*GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023*) for engagement with local government is used as a reference for Woodside's approach for communicating with historical heritage groups or organisations.<br>**Community reference/liaison groups and chambers of commerce:** Email and presentations are used as the primary form of communication with local community reference/liaison groups or organisations in the ordinary course of business. Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request. |
| Other non-government groups or organisations | Email is used as the primary form of communication with Other non-government groups or organisations. Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request. |
| Research Institutes and Local conservation groups or organisations | Email is used as the primary form of communication with research institutes and local conservation groups or organisations. Other forms of communication, such as phone calls, meetings and/or presentation briefings are used on request. |

Information which is provided to relevant persons for the purposes of consultation on this EP is summarised at Appendix F, Table 2.

Appendix F, Table 3 sets out the information which is provided to persons or organisations that are not relevant for the purposes of regulation 25 but which Woodside has chosen to contact.

When engaging in consultation, Woodside notifies relevant persons that, in accordance with regulation 25(4), the relevant person may request that the titleholder notifies NOPSEMA that particular information the person or organisation provides in the consultation not be published, and that information subject to that request will not be published under the Environment Regulations.

### 5.4.2. Reasonable Period for Consultation

Woodside seeks to consult in order to support preparation of its EP. Woodside recognises that what constitutes a reasonable period for consultation should be considered on a case-by-case basis, with reference to the nature, scale and complexity of the activity.

Woodside recognises that information may need to be provided to relevant persons in an iterative manner during the consultation process. Woodside considers that genuine two-way engagement may be demonstrated via information on incorporation of controls, where applicable, being provided to the relevant person so that the relevant person understands how their input has been considered in the development of the EP.

Woodside's methodology allows relevant persons a reasonable period for consultation (regulation 25(3)). A reasonable period for all relevant persons, including Traditional Custodians, to participate in consultation for this EP has been provided.

The consultation period under this EP has satisfied benchmark periods under other relevant legislative processes:

- Regulation 30 sets out a public consultation period of 30 days
- The Department of Mines and Petroleum "Guidelines for Consultation with Indigenous People by Mineral Explorers" directs a period of 21–30 days of consultation with Traditional Owners
- While repealed, guidance taken from the *Aboriginal Cultural Heritage Act 2021—Consultation Guidelines* (Government of Western Australia, 2023) suggests that up to 12 weeks may be a reasonable period of time to allow identification, contact, and response from First Nations peoples (subject to any alternative timeframe being agreed through co-design of consultation).

This period of consultation demonstrates that Woodside has provided a "reasonable period" for relevant persons to consult in accordance with regulation 25(3). Commentary in the *Tipakalippa Appeal* judgment limits consultation to a process that must be capable of being discharged within a reasonable time:

*"it must be taken to be the regulatory intention that the consultation requirement cannot be one that is incapable of being complied with within a reasonable time..."*[5]

Woodside seeks feedback in order to support preparation of its EP. What constitutes a reasonable period for consultation is considered on a case-by-case basis, with reference to the person being consulted and the nature, scale and complexity of the activity.

Woodside's typical approach to providing a reasonable period for consultation is as follows:

- advertising in selected local, state and national newspapers to give persons or organisations the opportunity to understand the activity and identify whether their functions, interests or activities may be affected
- providing consultation materials directly to identified relevant persons as well as persons who are not relevant but Woodside chose to contact, and providing a target date for feedback. Woodside acknowledges that feedback may be received from relevant persons following the target date
- acknowledging that the way in which Woodside provides consultation information may vary depending on the relevant person or organisation and, may depend on the degree to which a relevant person or organisation is affected. Different consultation processes may be required for relevant persons and organisations depending on the information requirements

[5] Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [136].

- following up with relevant persons prior to EP submission. Where possible, Woodside will endeavour to use an alternative method of communication to contact the relevant person
- engaging in two-way dialogue with relevant persons or organisations where feedback is received.

Appendix F, Table 2 and Table 3 sets out a history of ongoing consultation and demonstrates that a reasonable period of consultation has been provided.

Woodside considers that consultation for this EP has closed.

As detailed in Section 5.6, if comments and feedback are received after the EP has been submitted, Woodside will consider those comments and update controls as appropriate and at all stages of life of the EP as per Woodside's ongoing consultation approach described in Section 5.7.

### 5.4.3. Discharge of Regulation 25

The Full Federal Court made clear in the *Tipakalippa Appeal* that consultation should be approached in a "reasonable", "pragmatic" and "not so literal" way, so that consultation obligations were capable of being met by Titleholders (Section 5.5.1).[6] Consultation is a "real world activity" and must be capable of reasonable discharge.[7] The Full Federal Court referred to Native Title cases as an illustration that reasonable limits should be applied to consultation efforts to ensure the process is workable.[8]

When the Titleholder demonstrates that it has provided sufficient information and a reasonable period for consultation, then regulation 25 consultation requirements are met.[9] Meeting these obligations requires evaluative judgment to determine reasonable satisfaction of the consultation obligations, and as such, the Regulator uses its discretion to determine if these criteria are met. The nature of the person being consulted, and their function, interest and activity that may be affected, will inform the manner of consultation and the reasonable period to be afforded.[10]

While a Titleholder is required to provide an opportunity to consult, the Titleholder is not required to obtain consent to engage in the activity from a person being consulted, or confirmation from a person being consulted, that consultation is complete. The Federal Court has commented that a "reasonable opportunity" for consultation must be afforded to relevant persons.[11] A reasonable opportunity may not be every opportunity requested and is limited to reasonable opportunities to consult.

Woodside has completed steps required to discharge its consultation obligations. Woodside has provided sufficient information and a reasonable period of time to enable relevant persons to make an informed assessment of the possible consequences of the activity on their functions, interests or activities, and sufficient time to provide relevant feedback for Woodside to assess relevant persons' objections or claims. Woodside has also provided a reasonable opportunity for there to be genuine two-way dialogue on a person's claims or objections.

Woodside has discharged its duty under regulation 25 and considers that consultation under regulation 25 is complete.

Appendix F, Table 2 and Table 3 of this EP sets out the history of consultation under regulation 25. To the extent a relevant person says that they have further information to share or claims that consultation under regulation 25 has not been completed, Appendix F, Table 2 and Table 3 provide reasons why Woodside considers consultation under regulation 25 has been met in relation to that relevant person.

[6] *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 [89], [98], [103]-[104] and [109].

[7] *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [89].

[8] *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [96] and [103].

[9] Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 29.

[10] Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 30 and *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [153].

[11] *Cooper v National Offshore Petroleum Safety and Environmental Management Authority (No 2)* [2023] FCA 1158 at paragraph [11]; *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [153].

## 5.5. Context of Consultation Approach with First Nations

To comply with regulation 25, Woodside identifies and consults Traditional Custodians whose functions, interests or activities may be affected by the activities under an EP.

### *5.5.1.* Approach to Methodology − Woodside's Interpretation of *Tipakalippa Appeal*

Woodside has implemented a consultation methodology consistent with regulation 25 and guidance provided in the *Tipakalippa Appeal* (Section 5.2). Woodside's consultation methodology allows for a sufficiently broad capture of Traditional Custodian relevant persons, provides for informed consultation, follows cultural protocols and allows a reasonable opportunity for consultation with Traditional Custodians whose functions, interests or activities may be affected by the activity described in this EP (Section 5.5.2.1 to 5.5.2.5).

Woodside notes the Full Federal Court discussed several *Native Title Act 1993* (Cth) cases in response to a submission made in that case that a requirement under regulation 25 to consult "each and every" relevant person would be "unworkable". The reference to native title cases dealt with how decision-making processes under the NTA requiring "all" members of a group to be contacted for communal approval are interpreted by courts in a "reasonable", "pragmatic" and "not so literal" way,[12] and how obligations to consult "each and every" person under regulation 25 should be interpreted in a similarly pragmatic way so that consultation is workable. The reference to NTA authorities was made by analogy:

> *"It can be seen that the terms of [the native title legislation] are somewhat absolute – "all". However, [the native title legislation] has consistently been construed in a way that is not so literal … The cases concerning [the native title legislation] … have reiterated … that [the native title legislation] does not require that "all" of the members of the relevant claim group be involved in the decision. The key question will be whether a reasonable opportunity to participate in the decision-making process has been afforded by the notice for a relevant meeting."* [13]
>
> *"We consider the authorities in relation to processes under the NTA to be* ***illustrative*** *of how a seemingly rigid statutory obligation to consult persons holding a communal interest may operate in a workable manner"*[14] *(emphasis added).*
>
> *"there is no definition of what constitutes "consultation for the purpose of Reg 11A [now regulation 25] ... A titleholder will need to "demonstrate" to NOPSEMA that what it did constituted consultation appropriate and adapted to the nature of the interests of the relevant persons"*[15] *(emphasis added).*

The Judgement in the *Tipakalippa Appeal* makes it clear that a Titleholder will have some decisional choice in identifying which person(s) are to be approached, how the information will be given to allow the "relevant person" to assess the possible consequence of the proposed activities on their functions, interests or activities, and how the requisite consultation is undertaken.[16] Consultation is not fixed to a rigid process and will be adapted so that it is informed by the relevant person or group. Woodside has met its regulation 25 requirements through its consultation methodology (Section 5.2).

Consistent with the *Tipakalippa Appeal*, Woodside considers NTA-style "full group" meetings are not required for there to be compliance with regulation 25. Nominated representative corporations (such PBCs established under the NTA) have a designated role of representing the views of their member Traditional Custodians. They have established methods for engaging with their own members. Woodside will not undermine the purpose and authority of nominated representative corporations by requiring full group meetings where the nominated representative corporations have not requested engagement of members via full group meetings. It is not appropriate for Titleholders to direct or challenge the nominated representative corporations on how to engage with their members.

[12] Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [95], [98], [103]-[104] and [109].
[13] Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [98].
[14] Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [96].
[15] Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [104].
[16] Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [47] and [48].

Woodside's approach, described below, demonstrates that sufficient information and a reasonable opportunity is provided to individual Traditional Custodians to provide feedback on Woodside activities beyond the opportunity provided to nominated representative corporations.

### 5.5.2. Consultation Method

Woodside's First Nations team has experience in engaging and working with First Nations organisations and individuals, including within the Commonwealth Native Title and cultural heritage systems and State and Territory cultural heritage and land rights systems. The team understands the complexities of making information accessible to groups and individuals and engaging in accordance with First Nations groups' established channels of communication and methods of consultation. The First Nations team exercises its professional judgement and is respectful of long-standing relationships (where in place) when considering consultation with First Nations groups. The First Nations team's approach is also informed by the established systems of recognition for First Nations groups and their nominated representative corporations within particular jurisdictions.

For example, the methodology for engaging with First Nations groups in the Northern Territory (not relevant for this EP) tends to centre around engagement through Aboriginal land councils (under the *Aboriginal Land Rights (Northern Territory) Act 1976* (Cth)) as well as community meetings that target clan groups where they do not have PBCs or other nominated representative corporations to represent them.

By contrast, recognition for First Nations groups and their nominated representative corporations in Western Australia falls under the *Native Title Act 1993* (Cth) because the vast majority of the Western Australian coastline is settled under the Native Title regime. This means that the methodology and process for consultation in Western Australia places greater emphasis on, but is not limited to, Native Title Representative Bodies and PBCs. In Victoria, Woodside has consulted with RAPs established under the *Aboriginal Heritage Act 2006* (Vic), where they have been identified as a relevant person through the process described in Section 5.3.4. A PBC or Traditional Owner Corporation will automatically be appointed a RAP under the Act.

Native Title determinations provide certainty about the appropriate Traditional Custodian groups that have the cultural authority to speak for country adjacent to the EMBA and help Woodside to identify Traditional Custodian persons and groups asserting Traditional Custodianship. The Judgment in the *Tipakalippa Appeal* endorses methods of consultation with groups of relevant persons that are appropriate and adapted to the characteristics of groups.[17] Woodside's consultation methodology is adapted and appropriate to the recognised systems of communal interests in Victoria. Woodside has sought to follow the established, effective and respectful means of communication used by Native Title Representative Bodies and nominated representative corporations (including PBCs) with their respective First Nations communities. Woodside follows these processes for the appropriate broad capture of individuals' awareness of our activities, to self-identify (Section 5.5.2.2) and to provide feedback to inform the management of environmental impacts and risks.

Using these processes, Woodside communicates information about EPs by:

- advertising in relevant newspapers. This encourages self-identification, by advertising proposed activities widely through newspapers that have national and intra-state circulation, i.e., The Australian, Herald Sun, Colac Herald, Cobden Times, Warranmbool Standard
- creating carefully considered Consultation Summary Sheets with information developed by an Indigenous member of the First Nations Team to remove jargon and provide relevant information for people to have informed understandings about the activities
- direct contact through nominated representative corporations
- utilising emails as well as social media and texts as required to meet regulation 25. These mediums are the preferred communication methods used by Traditional Custodians and on that basis used by Native Title Representative Bodies and other government agencies and industry, to engage with Traditional Custodians or call meetings. First Nations woman, Professor Bronwyn Castle found, through 10 years of

[17] Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [95], [104], [153].

research, “Social media is an intrinsic part of daily life. The use of Facebook is around 20 per cent higher [among First Nations people] than the national average across all geographical locations” (Social media mob: being Indigenous online, Professor Bronwyn Carlson (2018))

- Woodside has members of its First Nations team who serve as points of contact for First Nations organisations and individuals. These team members have broad local knowledge and well established, on-the-ground relationships within communities
- from the commencement of engagement with Traditional Custodians, Woodside seeks direction on how they prefer to be consulted and has consulted accordingly. Consultation processes that are informed by Traditional Custodians and co-designed on a case-by-case basis and includes their direction as to cultural protocols, structure of consultation and whom to appropriately consult with (such as Elders)
- holding meetings on country at a place and time agreed with the Traditional Custodians and offering and providing financial assistance for meeting expenses (as appropriate)
- attending meetings organised by representative corporations (including RAPs), when invited, and offering and providing financial assistance for meeting expenses (as appropriate)
- providing information specifically designed to be easily understood, to reach all relevant people, and give a reasonable period of time for those people to make an informed assessment of the possible consequences of the proposed activity on them.

The First Nations team’s approach to consultation is also consistent with the Federal Court’s decision in the *Munkara Case*. The *Munkara Case* notes that the word “culture” (and hence the word “cultural”) has a communal aspect to it. To establish cultural features, it is necessary that the beliefs and values are held by the relevant people *as a people*. For values, features or beliefs that are expressed by an individual to be “cultural” they cannot simply be an individual’s belief — the belief must have a communal aspect too, and demonstrate that the “individual beliefs are broadly representative of the beliefs of other members of the group”[18]. The phrase “cultural features”, when applied to “people” as constituent parts of an ecosystem, is not directed to idiosyncratic views or beliefs of an individual.[19] When the First Nations team is told that a particular value is cultural by an individual Traditional Owner, that information is taken back to the relevant cultural authority to test its broad acceptance. In the case of gender sensitive information, that information would be restricted to the specific gender within the community.

#### 5.5.2.1. Identification of Relevant Persons

To undertake consultation, Woodside has developed a methodology for identifying relevant persons, in accordance with regulation 25(1) (Sections 5.2 and 5.3).

Specific to Woodside’s approach for identifying relevant Traditional Custodians, Woodside’s First Nations Communities Policy and consultation approach is guided by Traditional Custodians by directing consultations through their nominated representative corporation. This has been implemented by Woodside through consultation with a nominated representative corporation where that corporation has advised Woodside that it acts as the representative body for a Traditional Custodian group and has requested that Woodside engage with it as the representative body for that Traditional Custodian group.

Woodside asks nominated representative corporations (such as PBCs) and Native Title Representative Bodies to identify individuals that should be consulted, and enables individuals to self-identify in response to national and local advertising, and community engagement opportunities (Section 5.5.2.5). Where there is a nominated representative corporation for an area, unless directed by the nominated representative corporation, Woodside does not directly approach individuals for consultation, because this has the potential to undermine the role of the nominated representative corporations. Approaching individuals directly is a practice that is no longer considered acceptable because of divisions it has been shown to cause in communities. In addition to asking for the identification of individuals, Woodside also asks nominated representative corporations to distribute

[18] *Munkara v Santos NA Barossa Pty Ltd* (No 3) [2024] FCA 9 at [205]

[19] *Munkara v Santos NA Barossa Pty Ltd* (No 3) [2024] FCA 9 at [205]

consultation information to whomever the nominated representative corporations deem appropriate including members of the nominated representative corporations who are communal rights holders.

Having said this, as set out in further detail in Section 5.5.2.5 below, individuals are also given the opportunity to self-identify, consult and provide their own feedback on the proposed activity. When approached in this way, Woodside will engage individuals as relevant persons and will also (subject to any confidentiality or cultural restrictions) advise the nominated representative body of the consultation where it relates to cultural values. These methods of consultation are consistent with requirements for notification under the *Native Title Act 1993 (Cth)*, such as under the future act provisions (section 29), which requires notification of the Native Title Representative Body, the PBC (or nominated representative) and notification through newspapers. The notification process has been selected as a respectful, practical and pragmatic analogue for consultation with First Nations peoples, rather than requiring members to be notified via a formal authorisation process which seeks, from members, authorisation of agreements and Native Title/compensation claims under the *Native Title Act 1993 (Cth)*[20].

In this consultation, Woodside requested nominated representative corporations to identify any potential individual relevant persons for consultation. Woodside requests nominated representative corporations to distribute consultation materials to their members. However, Woodside recognises that the process is voluntary and that it cannot compel nominated representative corporations (such as PBCs) to do so. Woodside also recognises that it would not be appropriate to seek to audit the nominated representative corporations for compliance with any member consultation request.

#### 5.5.2.2. Opportunity to Self-identify and Identifying Other Individuals

Woodside requests nominated representative corporations and Native Title Representative Bodies to identify other individuals to consult with or individuals who may seek to self-identify for a proposed activity. Woodside also advertises broadly through Indigenous, national and local advertising, and community engagement opportunities to provide individuals with an opportunity to consult. Woodside does not directly approach individuals for consultation, as this undermines the role of the nominated representative corporations (Section 5.5.2.1). Woodside's approach to providing individual Traditional Custodians the opportunity to self-identify and consult for an EP is as follows:

- Woodside applies the principles of self-determination when consulting with Traditional Custodians by consulting through the Traditional Owners authorised representative entities.
- Recognising the function of nominated representative corporations (such as PBCs) and Native Title Representative Bodies to represent communal interests and manage cultural values, Woodside requests that the information provided to representative entities is provided to their members but Woodside recognises the process is voluntary and Woodside cannot compel them to do so nor seek to audit the representative entities for compliance with any request.
- Representative entities cannot provide membership details to Woodside due to individual confidentiality requirements.
- Woodside requests advice as to who else Woodside should be consulting but recognises the process is voluntary and cannot compel nominated representative corporations to provide this information.
- Modern Indigenous engagement practises rely on the building and maintaining of respectful relationships. To date, most nominated representative corporations have requested the building of that relationship, where one is not already in place.
- While Woodside has, in some cases, approached individual directors and Elders outside of this process due to requirements imposed in EP consultation, this approach is considered inappropriate by modern Indigenous engagement standards, fundamentally undermining the authority of the authorised representative entity and can be detrimental to the relationship.

For this proposed activity, Woodside requested nominated representative corporations (including PBCs) and Native Title Representative Bodies to identify any potential individual relevant persons for consultation, and to

[20] Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193, at [104]

distribute consultation materials to their member base. However, Woodside recognises the process is voluntary and it cannot compel them to do so nor seek to audit the representative entities for compliance with any request. Woodside has not been directed to engage individual Traditional Custodians by nominated representative corporations for this proposed activity. Woodside has nevertheless provided reasonable opportunity for individual Traditional Custodians to engage in consultation through appropriate and adapted consultation methods.

#### 5.5.2.3. Sufficient Information

Woodside recognises that the information sufficient to allow a person or organisation to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities may vary and may depend on the degree to which a relevant person is potentially affected.

Woodside produces a Consultation Information Sheet for each EP which is provided to relevant persons and organisations for the purpose of seeking feedback on the activity (Section 5.4). In response to Traditional Custodians' feedback on information provisions, Woodside has tailored effective consultation methods for its activities, specifically designed for Traditional Custodians, so that information is provided in a form that is readily accessible and appropriate. The targeted Summary Information Sheet is developed and reviewed by Woodside's First Nations Engagement Team and First Nations staff to ensure that content is appropriate to the intended recipients, and is then provided to relevant Traditional Custodian groups. Phone calls are made to provide context to the consultation.

Where face-to-face consultation meetings are requested, Woodside coordinates engagement at the Traditional Custodians' location of choice (where practicable) and with their nominated attendees. Key project personnel, including environmental and First Nations relations experts, are typically present to enable effective communication and prompt response to questions. Materials for these sessions incorporate visual aids such as photos, maps and videos, and plain language suitable for people with a non-technical background.

During consultation Woodside provides relevant persons with additional information as appropriate in response to requests. There is no requirement to provide relevant persons with all information or documents requested and a titleholder will have provided sufficient information even where it has not provided all documents requested.

Woodside has sought to provide sufficient information to individual members of nominated representative corporations (such as PBCs) by providing information to representative bodies and requesting dissemination with members. However, Woodside recognises consultation is voluntary and it cannot compel them to do so, nor would it be appropriate to seek to audit the representative entities for compliance with any request.

#### 5.5.2.4. Reasonable Period for Consultation

Woodside seeks to consult in order to support preparation of its EP. Woodside recognises that what constitutes a reasonable period for consultation should be considered on a case-by-case basis, with reference to the nature, scale and complexity of the activity (Section 5.4.2).

#### 5.5.2.5. Discharge of Regulation 25

Woodside's consideration and approach to discharging regulation 25 for relevant persons is discussed in Section 5.4.3. In addition to this, Woodside has considered the application of regulation 25 specific to First Nations based on the *Tipakalippa Appeal*.

In relation to Traditional Custodian relevant persons (and all relevant persons), Woodside has discharged its duty under regulation 25. Woodside considers that consultation under regulation 25 is complete (Section 5.4.3).

## 5.6. Providing Feedback and Assessment of Merit of Objections or Claims

There are a number of ways in which feedback can be provided. Feedback can be provided through the Woodside feedback email or via the Woodside feedback toll free phone line as outlined in the Consultation Information Sheet and the Woodside website. Where appropriate, consultation may also be supported by

phone calls or meetings. An EP feedback form is also available on Woodside's website enabling stakeholders to provide feedback on proposed activities, or to request additional information.

Woodside consults widely on its EPs and notes that feedback is received in various forms. Feedback that is considered inappropriate or that puts the environment, health, safety or wellbeing of Woodside employees or operations at risk will not be tolerated. Woodside respects people's rights to protest peacefully and lawfully but actions that put the environment, health, safety or wellbeing of Woodside employees or operations at risk go beyond those boundaries.

Woodside accepts feedback and engages in consultation in order to achieve the aims set out in Section 5.2. Woodside recognises that there are persons and organisations that take a view that Woodside's operations and/or growth projects should be stopped or at least delayed as far as possible. Whilst Woodside assesses the merits of objections or claims received, it acknowledges NOPSEMA's guidance in its brochure entitled Consultation on offshore petroleum environment plans information for the community, which states that relevant persons are free to respond on any matter and raise any concern, however this may not be able to be considered if it is outside the scope or purpose of the environment plan and approval process, for example, statements of fundamental objection to offshore petroleum activities or information containing personal threats or profanities. Under regulation 34(g), there is no requirement for a relevant person to agree or confirm that they have been adequately consulted.

Feedback from relevant persons is reviewed and an assessment of the merits is made of information provided as well as objections or claims about the adverse impact of each activity to which the EP relates. This might, for instance, be done through a review of data and literature and for relevance to the nature and scale of the activity outlined in the EP. Consistent with the aim of consultation in Section 5.2, Woodside will consider information received when reviewing and designing measures to put in place to minimise harm to relevant persons and where reasonable or practical to further manage impacts and risks to ALARP and acceptable levels.

Woodside considers feedback during consultation from relevant persons and other persons Woodside chose to contact (see Section 5.3.4). This information is summarised in Appendix F, Table 1 and Table 2 of the EP and includes a statement of Woodside's response, or proposed response if any, to each objection and claim.

In accordance with regulation 26(8), sensitive information (if any) in an EP, and the full text of any response by a relevant person to consultation under regulation 25, must be contained in the sensitive information part of the plan and not anywhere else in the plan.

## 5.7. Ongoing Consultation

Consultation can continue to occur during the life of an EP, including after an EP has been accepted by NOPSEMA.

As per Woodside's ongoing consultation approach (refer to Section 9.9), feedback and comments received from relevant persons continue to be assessed and responded to, as required, throughout the life of an EP, including during its assessment and, once accepted, in accordance with the intended outcome of consultation.

Should consultation feedback be received following the acceptance of an EP that identifies a measure or control that Woodside considers requires implementation or updates to meet the intended outcome of consultation, Woodside will apply its Management of Change and Review process as appropriate (see Section 9.8.4).

# 6. Environmental Risk Management Framework

Woodside has established a risk management governance framework with supporting processes and performance requirements that provide an overarching and consistent approach for the identification, assessment, and management of risks. Woodside policies have been formulated to comply with the intent of the Risk Management Policy and be consistent with the AS/ISO 31000-2018 Risk Management Principles and Guidance.

An integrated impact and risk assessment process was utilised to identify the most appropriate control measures so that each impact and risk is reduced to ALARP and an acceptable level (Figure 6-1). This process includes the incorporation of consultation, regulatory requirements, industry good practice and environmental monitoring data on the relevant environmental impacts and risks.

## 6.1 Evaluation of Impacts and Risks

A formal impact and risk assessment was completed for each environmental aspect and source of hazard for the activities described in Section 3 using the Environmental Hazard Identification (ENVID) workshop process. The objective of the impact and risk assessment is to demonstrate that the identified impacts and risks associated with the petroleum activity are reduced to ALARP and are of an acceptable level. Impacts, risks and potential consequences were identified based on planned and potential interaction with the activity (based on the description in Section 3), the existing environment (Section 4) and the outcomes of Woodside's consultation process (Section 5).

An ENVID workshop was conducted in September 2021 for the petroleum activities described in this EP. Participants included subsea and production engineering, drilling and well services, risk and HSE. Following the ENVID, impact and risk information was then classified, evaluated, and tabulated for each planned activity and unplanned event. Environmental impacts and risks are recorded in an environmental impacts and risk register. The output of the ENVID is used to present the risk assessment and forms the basis to develop performance outcomes, performance standards and measurement criteria.

The impact and risk assessment process is illustrated in Figure 6-1 and considers planned (routine and non-routine) activities, unplanned (accidents/incidents) events and emergency conditions. The process considered previous risk assessments for similar activities, reviews of relevant studies, reviews of past performance, external stakeholder consultation feedback and a review of the existing environment. The process includes:

- confirming the sources of hazards for the planned activities and unplanned events
- identifying environmental impact and risk receptors
- analysing environmental impact and risk receptors
- identifying potential controls to reduce the impacts and risks
- allocating a likelihood rating for unplanned events
- allocating a severity rating for planned activities and unplanned events
- accepting controls through an ALARP process
- assessing final acceptability of the risks and impacts using the Woodside acceptability criteria.

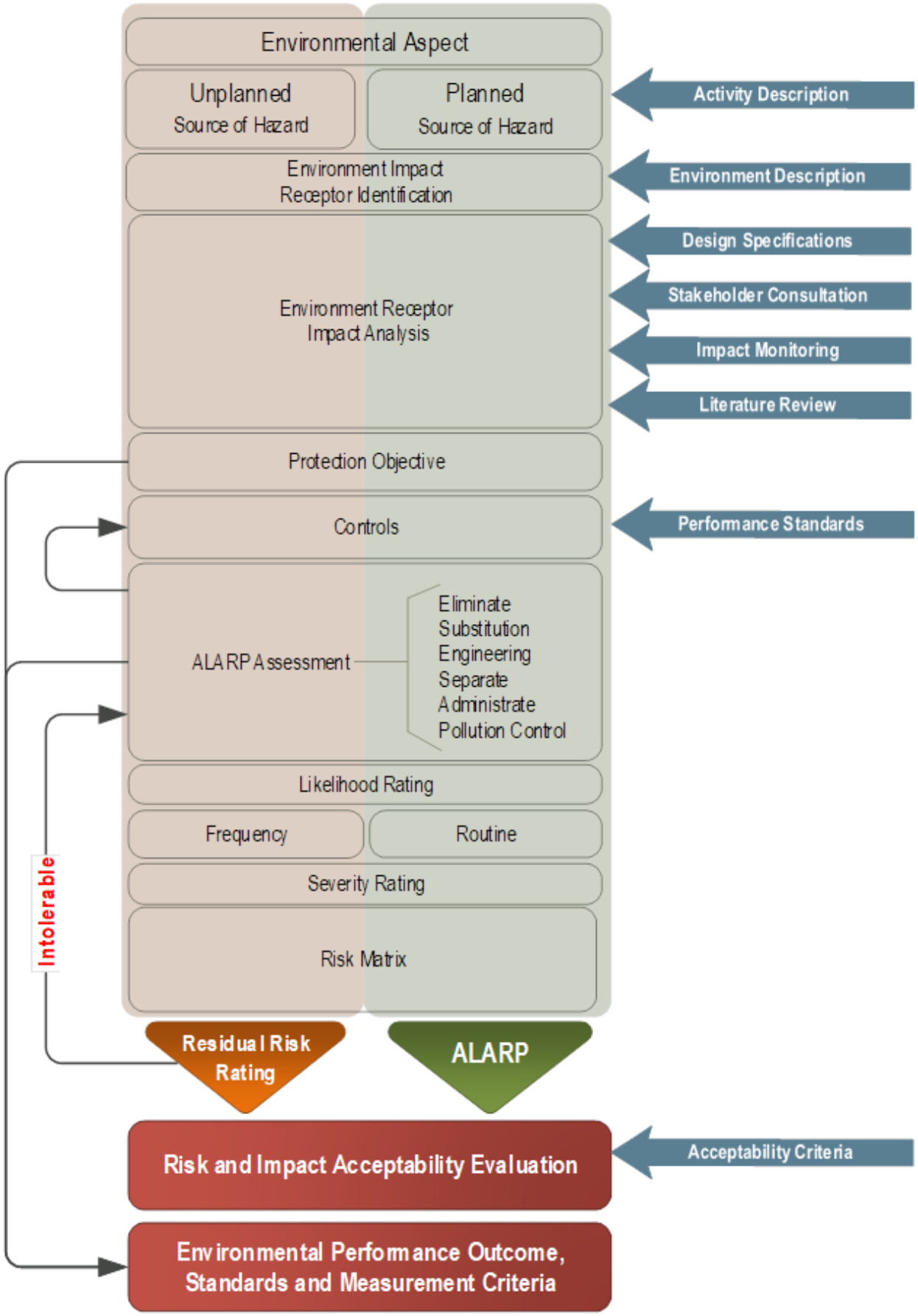


Figure 6-1: Environment Plan integrated impact and risk assessment

### 6.1.1. Decision Context

Consistent with the *Guidance on Risk Related Decision Making* (Oil and Gas UK, 2014), Woodside has applied decision criteria to determine whether impacts and risks created during the petroleum activity constitute 'lower-order' or 'higher-order' impacts and risks, and subsequently how each are managed to ALARP (Section 6.2) and acceptable levels (Section 6.3). This approach implies a level of proportionality wherein the principles of decision-making applied to each particular hazard are proportionate to the acceptability of environmental risk of that hazard.

The decision-making principles described in Table 6-1 are consistent with the precautionary principle (as defined in the EPBC Act) and provide assurance that the environmental impacts and risks are reduced to ALARP and of an acceptable level.

**Table 6-1: Risk related decision making framework**

| Decision Type | Description |
|---|---|
| Decision Type A | Woodside considers lower-order (or 'Type A') impacts or risks as those that are:<br>▪ well understood and established practice, typically derived from standard, non-complex or routine operations familiar to Woodside<br>▪ there are clearly defined regulatory, corporate or industry (good practice) controls to manage the impact or risk<br>▪ have no concerns or objections from relevant stakeholders<br>▪ have a 'severity level' for planned operations (impacts) and unplanned events (risks) that does not exceed '2' based upon the severity level definition (Table 6-3)<br>▪ have a 'likelihood' for unplanned events that is either 'unlikely' or 'highly unlikely' based upon the likelihood definitions (Table 6-4). |
| Decision Type B | Woodside considers higher-order (or 'Type B') impacts or risks as those that are:<br>▪ not well understood or involve a level of uncertainty, typically derived from complex operations not routinely performed by Woodside<br>have regulatory, corporate or industry (good practice) controls that require additional definition or validation<br>▪ have had some concerns or objections raised by relevant stakeholders<br>▪ have a 'severity level' for planned operations (impacts) and unplanned events (risks) that is '3' based upon the severity level definition (Table 6-3)<br>▪ have a 'likelihood' for unplanned events that is considered 'probable' to 'highly likely' based upon the likelihood definitions (Table 6-4). |
| Decision Type C | Woodside considers highest-order (or 'Type C') impacts or risks as those that are:<br>▪ not understood or there is a high degree of uncertainty, typically derived from operations not previously performed by Woodside<br>▪ have corporate or industry (good practice) controls that either do not exist or are insufficient to manage impacts or risks and therefore require adoption of the precautionary approach<br>▪ have had multiple concerns or objections raised by relevant stakeholders or lobby groups<br>▪ have a 'severity level' for planned operations (impacts) and unplanned events (risks) that is equal to or exceeds '4' based upon the severity level definition (Table 6-3)<br>▪ have a 'likelihood' for unplanned events that is considered 'probable' to 'highly likely' based upon the likelihood definitions (Table 6-4). |

### 6.1.2. Environmental Impact and Risk Assessment

The environmental impacts were based on the environmental receptors identified in Section 4 with the impact descriptions developed in an initial screening process that identified the specific receptor that may be impacted. Further quantitative or qualitative definition of the impact was then completed to understand the impact

(planned or unplanned) and to confirm that the severity of the risk and impact was correctly assigned during the evaluation process.

### 6.1.3. Planned Activity Impact Assessment

All planned activities were assessed as being a routine impact and defined as such in the ENVID. The description and degree of impact formed the basis for the severity rating applied with a quantitative assessment of impact conducted where possible to allow the impact to be well understood and clearly categorised on the severity table. Where this was not possible, a robust qualitative assessment was completed and the severity rating assigned during the ENVID process in accordance with the HSE Risk Matrix, which is consistent with the Risk Management Severity Table (Table 6-3) taking into account any of the mitigative controls assigned. Where relevant, the potential for cumulative impacts or potential impacts to the values of World Heritage Properties from planned activities has also been evaluated. Given routine operations are planned, and impacts are mitigated via the application of control measures, likelihood or residual risk ratings were not applied.

### 6.1.4. Unplanned Event Risk Assessment

Risk ranking of unplanned events is the product of the consequence of an event (severity) and the likelihood of that event occurring.

Likelihood and potential severity ratings were assigned in accordance with the Woodside (PetDW) HSE Risk Matrix (Table 6-2), which allowed the risk of individual events to be categorised in a methodical and structured process. This was completed based upon judgement by the ENVID assessment team with detailed potential impact descriptions used to support a robust and comprehensive decision.

The potential severity rating was determined based on the potential impact that may occur once the source of hazard had occurred considering the application of mitigative controls in place to reduce the impact (Table 6-3).

The likelihood rating is based on the frequency of the source of hazard actually occurring with preventative controls taken into consideration (Table 6-4).

**Table 6-2: Woodside (PetDW) risk matrix used for rating planned activities and unplanned events**

| Likelihood | Severity Level | | | | |
|---|---|---|---|---|---|
| | *1* | *2* | *3* | *4* | *5* |
| ***Highly Likely*** | 30 | 90 | 300 | 900 | 3000 |
| ***Likely*** | 10 | 30 | 100 | 300 | 1000 |
| ***Probable*** | 3 | 9 | 30 | 90 | 300 |
| ***Unlikely*** | 1 | 3 | 10 | 30 | 100 |
| ***Highly Unlikely*** | 0.3 | 0.9 | 3 | 9 | 30 |

**Table 6-3: Woodside (PetDW) severity level definitions for environmental and community**

| Severity Level | Descriptor | Severity Factor |
|---|---|---|
| 5 | ▪ Severe impact to the environment and where recovery of ecosystem function takes 10 years or more; or<br>▪ Severe impact on community lasting more than 12 months or a substantiated human rights violation impacting 6 or more people | 1000 |
| 4 | ▪ Serious impact to the environment, where recovery of ecosystem function takes between 3 and up to 10 years; or<br>▪ Serious impact on community lasting 6-12 months or a substantiated human rights violation impacting 1-5 persons | 300 |
| 3 | ▪ Substantial impact to the environment, where recovery of ecosystem function takes between 1 and up to 3 years; or<br>▪ Substantial impact on community lasting 2-6 months | 100 |
| 2 | ▪ Measurable but limited impact to the environment, where recovery of ecosystem function takes less than 1 year; or<br>▪ Measurable but limited community impact lasting less than one month | 30 |
| 1 | ▪ Minor, temporary impact to the environment, where the ecosystem recovers with little intervention; or<br>▪ Minor, temporary community impact that recovers with little intervention | 10 |

**Table 6-4: Woodside (PetDW) likelihood definitions**

| Uncertainty | Frequency | Likelihood Factor |
|---|---|---|
| Highly Likely | Likely to occur within a 1-year period | 3 |
| Likely | Likely to occur within a 1–5-year period | 1 |
| Probable | Likely to occur within a 5-20-year period | 0.3 |
| Unlikely | Likely to occur within a 20-50-year period | 0.1 |
| Highly Unlikely | Not likely to occur within a 50-year period | 0.03 |

## 6.2. Demonstration of ALARP

Regulation 21(5) of the Environment Regulations requires demonstration that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable (ALARP).

### 6.2.1. Planned Activity and Unplanned Event ALARP Evaluation

This section details the process for demonstrating ALARP for both planned routine operations and unplanned events. Table 6-5 provides a description on how Woodside demonstrates different impacts and risks are ALARP based on their Decision Types identified.

**Table 6-5: Summary of the criteria used for ALARP demonstration**

| Decision Type | Demonstration of ALARP Description |
|---|---|
| Decision Type A | Demonstrating ALARP for lower-order ('Type A') impacts or risks<br>Identified regulatory, corporate and industry good practice controls are implemented, Woodside considers the impact or risk to be managed to ALARP and no further detailed engineering evaluation of controls is required.<br>The application of feasible and readily implementable alternate, additional or improved controls may be adopted opportunistically when demonstrated to further reduce potential environmental impacts or risks. |
| Decision Type B | Demonstrating ALARP for higher-order ('Type B') impacts or risks<br>In addition to relevant regulatory, corporate and industry good practice controls being implemented, alternate, additional or improved controls should be proposed and evaluated according to their feasibility, reasonableness and practicability to implement to further reduce the potential for impacts and risks associated with the activities<br>Woodside applies a cost and benefit analysis when evaluating additional controls and applies those that are both feasible and where the cost (safety, time, effort and financial) are not grossly disproportionate to the potential reduction in environmental impact or risk afforded by the control. |
| Decision Type C | Demonstrating ALARP for highest-order ('Type C') impacts or risks<br>Alternate, additional, or improved controls over and above relevant regulatory, corporate and industry good practice must be proposed and evaluated based upon a precautionary approach<br>Woodside applies all feasible controls that have the potential to reduce environmental impacts and risks are implemented, when safe to do so and irrespective of the additional effort, time or financial cost associated with implementing the control. |

When evaluating additional controls for higher order 'Type B' and 'Type C' impacts and risks, Woodside has applied the hierarchy of controls as defined below and illustrated in Figure 6-2:

- Eliminate – Remove the source preventing the impact; in other words, eliminate the hazard.
- Substitution – Replace the source preventing the impact.
- Engineer – Introduce engineering controls to prevent or control the source having an impact.
- Separate – Separate the source from the receptor preventing impact.
- Administrate – Procedures, competency and training implemented to minimise the source causing an impact.
- Pollution Control – Implement a pollution control system to reduce the impact.
- Contingency Planning – Mitigate control reducing the impact.
- Monitor – Program or system used to monitor the impact over time.

The general preference is to accept controls that are ranked in the Tier 1 categories of Eliminate, Substitute, Engineer and Separate as these controls provide a preventive means of reducing the likelihood of the hazard occurring over and above Tier 2 controls.

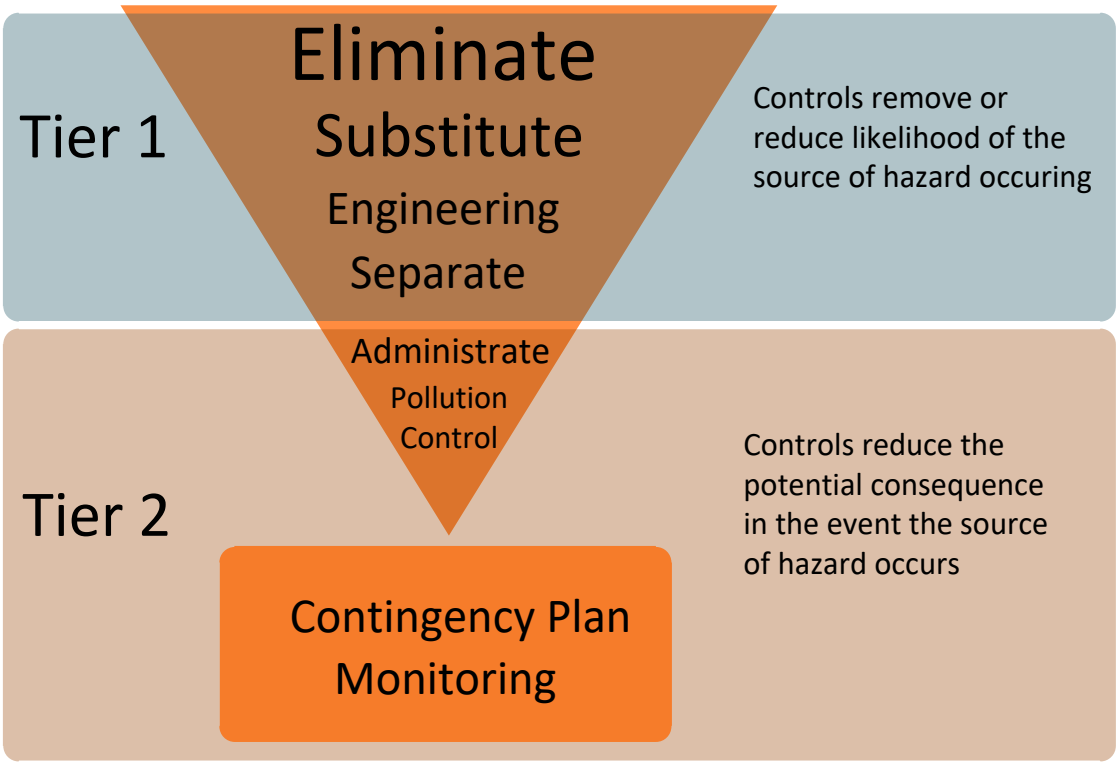


**Figure 6-2: Hierarchy of control framework**

### 6.2.2. Spill Response Strategy Effectiveness and ALARP evaluation

The detailed ALARP assessment of the adequacy of resourcing available to support the identified response spill strategies appropriate for this activity are detailed within Appendix E. In developing the environmental performance standards that apply to each response strategy, Woodside has considered the level of performance that is reasonable to achieve for each control measures and the 'effectiveness' of the control measures.

Each control was then evaluated taking into consideration the environmental benefit gained from implementation compared with its practicability (i.e., control effectiveness, cost, response capacity and implementation time) to determine if the control was either:

- accepted and implemented; or
- rejected.

This traffic light system is used in the ALARP demonstration tables where the 'do nothing' option is rejected, along with a scalable option that generally involves mobilising spill response resources and equipment to site and on standby within the Minerva Field. Accepted controls in all the ALARP demonstration tables indicate those that would be implemented as part of the response.

## 6.3. Demonstration of Acceptability

Regulation 21(5)(c) of the Environment Regulations requires demonstration that the environmental impacts and risks of the activity will be of an acceptable (tolerable) level.

The demonstration of acceptability is completed independently of the ALARP evaluation described above. However, as with the demonstration of ALARP, the demonstration of acceptability detailed below applies the decision-making principles described in Section 6.1, ensuring consistency with the precautionary principle when considering the acceptable levels of impact and risk caused by the activity.

**Demonstrating acceptability for lower-order ('Type A') and higher-order ('Type B') impacts or risks**

When an impact or risk has been evaluated as 'lower-order' or 'higher-order' based upon the Decision Context detailed in Section 6.1.1, acceptability of the impact or risk is evaluated based upon the following criteria:

- Relevant regulatory, corporate and industry good practice controls have been identified and implemented, including consideration of relevant actions prescribed in recovery plans and approved conservation.
- The activity does not contravene any relevant Plan of Management for a World Heritage place, National Heritage place or Ramsar wetland identified within the EMBA.
- Any alternate, additional or improved controls adopted via the detailed engineering risk assessment have been or will be implemented to manage potential impacts and risks to ALARP.
- There are either no objections or claims made by relevant stakeholders for the aspect of the activity being assessed, or any objections or claims received from relevant stakeholders are assessed for merit and controls adopted to address the objections or claims where merited.
- Where industry good practice cannot be adopted, professional judgement made by subject matter experts have been used to evaluate the acceptability of potential environmental impact or risk based upon adoption of alternate, additional or improved controls identified during detailed engineering risk assessment.
- Consideration of relevant actions prescribed in listed species recovery plans, conservation advice and threat abatement plans have informed the development of control measures.
- The application of adopted controls clearly indicates the aspect-specific EPOs can be achieved.
- The proposed impact is consistent with the principles of ESD defined in Section 3A of the EPBC Act (Section 2.1.2), including:
  - Decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations (the integration principle)
  - If there are threat of serious or irreversible damage lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation (the precautionary principle)
  - The principle of intergenerational equity- that the present generation should ensure the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations (the intergenerational principle)
  - The conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making (the biodiversity principle)
  - Improved valuation, pricing and incentive mechanisms should be promoted (the valuation principle)

**Demonstrating acceptability for highest-order ('Type C') impacts or risks**

When an impact or risk has been evaluated as 'highest-order' based upon the Decision Context detailed in Section 6.1.1, the potential environmental impact or risk can only be deemed acceptable once the criteria for 'Type B' demonstration of acceptability detailed above has been met and any alternate, additional or improved controls adopted via implementing a precautionary approach (consistent with the 'Precautionary Principle' as defined within Section 3A of the EPBC Act) can demonstrate residual impacts have been lowered, such that a severity level of '4' becomes 'unlikely' or the severity level of '5' becomes 'highly unlikely' based upon the Woodside (PetDW) Risk Matrix (Table 6-2).

## 6.4. Environmental Performance Outcomes, Environmental Performance Standards and Measurement Criteria

Regulation 21(7) of the Environment Regulations requires the EP provides appropriate environmental performance outcomes (EPOs), environmental performance standards (EPSs) and measurement criteria.

An objective of the EP is to confirm that all activities are carried out in accordance with appropriate EPSs thus ensuring EPOs are achieved. This requires (among other things) that appropriate measurement criteria for demonstrating that the EPSs have been met as defined within the EP.

Establishing outcomes and standards is a process that considers legal requirements, environmental risks (described in risk assessment presented Sections 7 and 8) control measures (Sections 7 and 8), and the views of interested parties (Section 5). The resulting outcomes and standards must be measurable where practicable and consistent with Woodside's Our Values.

### 6.4.1. Environmental Performance Outcomes

EPOs are developed to protect the environment from the impact or risk and to enable ongoing performance and measurability of the controls. These were developed using the below criteria:

- be specific to the source of the hazard
- indicate how the environmental impact will be managed (for example, minimise or prevent)
- contain a statement of measurable performance (where applicable)
- contain a timeframe for action (where applicable)
- be consistent with legislative and HSE requirements.

### 6.4.2. Environmental Performance Standards

An EPS is a statement of performance required of a control measure (a system, an item of equipment, a procedure or functional responsibility which is used as a basis for managing environmental impact and risk, for the duration of the activity.

There is a specific link between the EPOs, the EPSs and control measures; each EPO has one or more standards defining the performance requirement that needs to be met by a control measure to meet the EPO.

EPSs detailed within this EP are specific, measurable, and achievable.

### 6.4.3. Environmental Measurement Criteria

Measurement criteria have been assigned for each EPS as a means of validating that each EPO and EPS will be / has been met throughout the duration of the activity, thus continually reducing environmental impacts and risks to ALARP and acceptable levels.

All measurement criteria are designed to be inspected or audited via compliance assurance activities and enable a traceable record of performance to be maintained.

EPOs, EPSs and Measurement Criteria both in relation to planned activities and unplanned events (and prevention of unplanned events) have been integrated into Sections 7 and 8 of this EP.

EPOs, EPSs, and Measurement Criteria relating to oil spill response preparedness are detailed within Appendix E.

EPOs, EPSs, and Measurement Criteria relating to Corporate Incident Management Team (CIMT) capability and competency are detailed within Appendix E.

EPOs, EPSs, and Measurements Criteria for the effectiveness of the of response strategy implementation are detailed within Appendix E.

# 7. Environmental Impact Assessment: Planned Activities

The purpose of this Section is to address the requirements of Regulations 13(5) and 13(6) by providing an assessment and evaluation of all the identified impacts associated with the petroleum activity and associated control measures that will be applied to reduce the impacts to ALARP and an acceptable level.

This section presents the impact assessed for the planned activities identified for the petroleum activity. Section 8 presents the risk assessment for the unplanned events. Table 7-1 provides a summary of the impact analysis for the aspects associated with the planned activities. The following sub-sections provide a comprehensive impact assessment for each of the planned activities, and subsequent control measures to be implemented to reduce the impacts to ALARP and acceptable levels.

**Table 7-1: Summary of the environmental impact analysis for planned activities**

| Aspect | Value Potentially at Risk / Impact | | | | | | | | | | | | | | Risk Assessment & Evaluation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Environmental | | | | | | | | | Socio-Economic | | | | | | | | |
| | *Marine Mammals* | *Marine Reptiles* | *Fish* | *Seabirds / Shorebirds* | *Seabed / Benthic Habitat* | *Water Quality* | *Air Quality* | *Marine Protected Areas* | *Key Ecological Features* | *Commercial Fisheries* | *Shipping* | *Cultural Features and Heritage Values* | *Tourism / Recreation* | *Onshore (Indirect Impacts)* | *Severity Factor* | *Likelihood Factor* | *Residual Risk* | *Acceptability* |
| ***Physical Presence – Section 7.2*** | | | | | | | | | | | | | | | | | | |
| Presence of MODU and project vessels during petroleum activity | | | | | | | | | | X | X | X | | | 30 | N/A | - | Tolerable |
| Temporary and permanent continued presence of well infrastructure | | | | | | | | | | X | | | | | 10 | N/A | - | Tolerable |
| ***Seabed Disturbance – Section 7.3*** | | | | | | | | | | | | | | | | | | |
| Disturbance to seabed from MODU mooring installation | | | | | X | | | | | | | | | | 10 | N/A | - | Tolerable |
| Installation of the BOP tether system (if required) | | | | | X | | | | | | | | | | 10 | N/A | - | Tolerable |
| Disturbance to seabed from subsea cleaning and preparation for permanent plugging (water jetting, marine growth removal, sediment relocation). | | | | | X | | | | | | | | | | 10 | N/A | - | Tolerable |
| Disturbance to seabed from cutting and removal well infrastructure, including disconnection of ancillary | | | | | X | | | | | | | | | | 10 | N/A | - | Tolerable |

| Aspect | Value Potentially at Risk / Impact | | | | | | | | | | | | | | Risk Assessment & Evaluation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Environmental | | | | | | | | | Socio-Economic | | | | | | | | |
| | *Marine Mammals* | *Marine Reptiles* | *Fish* | *Seabirds / Shorebirds* | *Seabed / Benthic Habitat* | *Water Quality* | *Air Quality* | *Marine Protected Areas* | *Key Ecological Features* | *Commercial Fisheries* | *Shipping* | *Cultural Features and Heritage Values* | *Tourism / Recreation* | *Onshore (Indirect Impacts)* | *Severity Factor* | *Likelihood Factor* | *Residual Risk* | *Acceptability* |
| lines and installation of mud mats for equipment laydown | | | | | | | | | | | | | | | | | | |
| ROV operations | | | | | X | | | | | | | | | | 10 | N/A | - | Tolerable |
| ***Light Emissions – Section 7.4*** | | | | | | | | | | | | | | | | | | |
| Routine light emissions from MODU and project vessels | X | X | X | X | | | | | | | | X | | | 10 | N/A | - | Tolerable |
| Light emissions from non-routine flaring during well P&A | X | X | X | X | | | | | | | | X | | | 10 | N/A | - | Tolerable |
| ***Noise Emissions – Section 7.5*** | | | | | | | | | | | | | | | | | | |
| Routine noise emissions from the MODU and project vessels | X | X | X | | | | | | | | | X | | | 30 | N/A | - | Tolerable |
| Generation of noise from positioning equipment | X | X | X | | | | | | | | | | | | 10 | N/A | - | Tolerable |
| Generation of noise from well infrastructure removal | X | X | X | | | | | | | | | X | | | 10 | N/A | - | Tolerable |
| Routine noise from helicopters | X | X | X | | | | | | | | | X | | | 10 | N/A | - | Tolerable |
| Generation of noise from flaring | X | X | X | | | | | | | | | X | | | 10 | N/A | - | Tolerable |
| ***Atmospheric Emissions – Section 7.6*** | | | | | | | | | | | | | | | | | | |
| Atmospheric emissions from internal combustion engines and | | | | | | | X | | | | | | | | 10 | N/A | - | Tolerable |

| Aspect | Value Potentially at Risk / Impact | | | | | | | | | | | | | | Risk Assessment & Evaluation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Environmental | | | | | | | | | Socio-Economic | | | | | | | | |
| | *Marine Mammals* | *Marine Reptiles* | *Fish* | *Seabirds / Shorebirds* | *Seabed / Benthic Habitat* | *Water Quality* | *Air Quality* | *Marine Protected Areas* | *Key Ecological Features* | *Commercial Fisheries* | *Shipping* | *Cultural Features and Heritage Values* | *Tourism / Recreation* | *Onshore (Indirect Impacts)* | *Severity Factor* | *Likelihood Factor* | *Residual Risk* | *Acceptability* |
| incinerators on MODU, project vessels and helicopters | | | | | | | | | | | | | | | | | | |
| Atmospheric emissions from flaring of residual hydrocarbons from MODU during well P&A | | | | | | | X | | | | | | | | 10 | N/A | - | Tolerable |
| Venting of residual trapped gas | | | | | | | X | | | | | | | | 10 | N/A | - | Tolerable |
| ***MODU and Vessel Discharges – Section 7.7*** | | | | | | | | | | | | | | | | | | |
| Routine discharge of sewage, grey water, and putrescible wastes to marine environment from MODU and project vessels | | | | | | X | | | | | | | | | 10 | N/A | - | Tolerable |
| Routine discharge of deck and bilge water to marine environment from MODU and project vessels | | | | | | X | | | | | | | | | 10 | N/A | - | Tolerable |
| Routine discharge of brine or cooling water to the marine environment from MODU and project vessels | | | | | | X | | | | | | | | | 10 | N/A | - | Tolerable |
| ***Plug and Abandonment Discharges – Section 7.8*** | | | | | | | | | | | | | | | | | | |
| Planned discharges associated with P&A activities (well kill and clean out fluids, residual well fluids, | | | | | X | X | | | | | | | | | 10 | N/A | - | Tolerable |

| Aspect | Value Potentially at Risk / Impact | | | | | | | | | | | | | | Risk Assessment & Evaluation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Environmental | | | | | | | | | Socio-Economic | | | | | | | | |
| | *Marine Mammals* | *Marine Reptiles* | *Fish* | *Seabirds / Shorebirds* | *Seabed / Benthic Habitat* | *Water Quality* | *Air Quality* | *Marine Protected Areas* | *Key Ecological Features* | *Commercial Fisheries* | *Shipping* | *Cultural Features and Heritage Values* | *Tourism / Recreation* | *Onshore (Indirect Impacts)* | *Severity Factor* | *Likelihood Factor* | *Residual Risk* | *Acceptability* |
| cement, cement spacers, chemical additives) | | | | | | | | | | | | | | | | | | |
| Discharges associated with contingent P&A activities (WBM, metal swarf, cement, formation rock cuttings, residual wellbore fluids) | | | | | X | X | | | | | | | | | 10 | N/A | - | Tolerable |
| ***Solid Waste Generation and Management – Section 7.9*** | | | | | | | | | | | | | | | | | | |
| Solid waste generated during MODU and project vessel operations | | | | | | | | | | | | | | X | 10 | N/A | - | Tolerable |
| Recovered well infrastructure | | | | | | | | | | | | | | X | 10 | N/A | - | Tolerable |

## 7.1. Environmental Impacts and Risks Excluded from the Scope of the Environment Plan

This EP covers impacts and risks associated with vessels whilst within the Operational Area. Vessel activities beyond the Operational Area do not constitute the petroleum activity and are beyond the scope of this EP

Helicopter operations within the Operational Area are limited to helicopter take-off and landing on the helideck with no unnecessary or prolonged flight patterns that would impact marine mammals within the vicinity of the Operational Area. Helicopters transiting to and from the Operational Area will be governed by relevant aviation legislation.

## 7.2. Physical Presence

### 7.2.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Physical presence | Presence of the MODU and project vessels during the petroleum activity | Interference with or displacement of other marine users (e.g., commercial shipping, commercial fishing and/ or other third-party vessels). | 30 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | Temporary continued presence of well infrastructure | | | | | | |

### 7.2.2. Source of Risk

#### 7.2.2.1. Presence of MODU and Vessels

A number of vessels and a MODU (outlined in Table 3-3) will be temporarily present within the Operational Area during the petroleum activity to permanently plug the Minerva wells and remove associated well infrastructure above the seabed.

An AHTS will be used to conduct preparatory activities such as marine growth removal and mooring installation, prior to the P&A activity. Preparatory activities are expected to take up to two weeks to complete and will be conducted up to one month prior to the MODU entering the Operational Area. The plug and abandonment activity will be conducted using a moored MODU and supported by up to three subsea support vessels (AHTS or general support vessels). The activities will be short in duration, with the MODU expected to be on location for approximately two months, contingent on weather conditions or unforeseen circumstances. The MODU will be continually operating 24-hours a day, seven days a week for the duration of the activity. Project vessels will be transiting to and from the Operational Area multiple times per week for the duration of the activity, generally one vessel is stationed within the field to service the MODU as required and to prevent unauthorised interactions between the MODU and other marine users. Within one month following MODU demobilisation, an AHTS will be used to recover pre-laid moorings and BOP tether system (if required) which may take up to a week.

The physical presence of the MODU, moorings, and project vessels in the Operational Area has the potential to cause interference with or displacement of other marine users, including commercial shipping and commercial fishing. There are gazetted 500 m radius PSZs around the Minerva-3 and Minerva-4 wellheads,

which prohibit unauthorised entry into the PSZs. Woodside intends to apply for the PSZs to be extinguished following the conclusion of the activities described in this EP and the Minerva Decommissioning and Field Management EP.

#### 7.2.2.2. Presence of Minerva Subsea Infrastructure

The ongoing presence of Minerva subsea infrastructure, and the physical presence aspect of the infrastructure, is managed under the Minerva Cessation EP at the time of EP submission. The physical presence aspect of the infrastructure will then be managed under the Minerva Decommissioning and Field Management EP once this EP comes into effect.

### 7.2.3. Environmental Impact Assessment

#### 7.2.3.1. Commercial Shipping

The main shipping channel for commercial vessels (e.g., cargo tankers) in the region is located south of the Operational Area, about 75 km south of Warrnambool. This shipping channel is used by over 1,000 vessels per year, or about 3-4 vessels per day.

The physical presence of the MODU and vessels undertaking the petroleum activity will be relatively short in duration. The potential for disruption to commercial shipping is negligible given most commercial vessel traffic is beyond the Operational Area. If a commercial vessel did travel through the Operational Area, impacts to the vessel would be limited to a short-term displacement (i.e., deviating around the MODU and vessels undertaking the petroleum activity) when the petroleum activity is being undertaken.

Given the very low levels of commercial shipping in the Operational Area, the relatively short-term presence of MODU and vessels undertaking the petroleum activity, and the negligible consequence to commercial shipping, the impact of the presence of vessels undertaking the petroleum activity on commercial shipping is minor (severity level 1).

#### 7.2.3.2. Commercial Fishing

Several Commonwealth– and Victorian–managed fishery boundaries overlap the Operational Area (Table 4-11); however, only a few have historically been active in the Operational Area and hence may be impacted by the physical presence of the MODU, moorings, and vessels. An analysis of the current fishery spatial and temporals, depth range of activity, historical fishing effort data, fishing methods (Table 4-11) and consultation feedback (Section 5) indicated that there is a low potential for active commercial fisheries in waters where the Operational Area is located.

The physical presence of the MODU, mooring, and vessels during the plug and abandonment activities is relatively short duration, and substantially overlaps existing PSZs. Commercial fishing vessels may be displaced from part the Operational Area when vessels undertaking the petroleum activity are present, however this would credibly affect a very small number of commercial fishers (if any). Consultation with commercial fishers and representative bodies indicated there is little or no commercial fishing activity in the vicinity of the Operational Area. Such a displacement is not expected to cause any impacts to commercial fishers.

#### 7.2.3.3. Oil and Gas

Beach Energy (Operations) Limited (Beach) plans to undertake the Offshore Gas Victoria Geophysical and Geotechnical Seabed Survey, which partially overlaps the Operational Area. The access agreement between Woodside and Beach prevents Beach from undertaking the geophysical and geotechnical survey in the Operational Area when Woodside is undertaking plug and abandonment activities. Woodside and Beach will liaise to ensure Minerva plug and abandonment activities do not result in impacts to Beach's planned survey.

Woodside is not aware of any other petroleum activities that would credibly be impacted by the physical presence of the MODU, mooring, and vessels.

#### 7.2.3.4. Tourism

Consultation indicated no tourism activities (e.g., charter fishing, whale-watching etc.) occur in the Operational Area, hence there is negligible potential for such activities to be displaced from the Operational Area. The

MODU and vessels undertaking the petroleum activity may be observable from shore, including from coastal protected areas where lookouts provide views of aesthetic value. However, the distance of the Operational Area from shore (approximately 8 km) means that the vessel will not be conspicuous and would only be present for relatively short durations. As such, no impacts to tourism are expected to occur.

#### 7.2.3.5. Cultural Features and Heritage Values

The physical presence and movement of project vessels within the Operational Area has the potential to displace other marine users. Vessels undertaking the petroleum activity may be observable from shore, however the distance of the Operational Area from shore (approximately 8 km) means that the vessel will not be conspicuous and would only be present for relatively short durations. Consultation and literature review indicated the importance of connection to coastal and marine areas. The physical presence of project vessels and associated potential for displacement of marine users has the potential to impact cultural features and heritage values through the following ways:

- Cultural obligations to care for Country: Environmental impacts have potential to impact rights and obligations to care for Sea Country. Traditional Custodians may temporarily be unable to access Sea Country. Access to areas within the Operational Area may be limited where exclusion zones are established around vessels for safety purposes.
- Knowledge of Country/customary law and transfer of knowledge: Direct impact to communities practicing these skills will inherently occur when relevant aspects of the environment disappear, are displaced, or suffer a reduction in population. Therefore, the transmission of these skills is expected to be impacted where there are impacts at the species/population level. Limitations on access to sites or disruption/relocation of First Nations communities may have implications for the preservation of First Nations knowledge. Access to areas within the Operational Area may be limited where exclusion zones are established around vessels for safety purposes.
- Connection to Country: Where people are displaced or disrupted (e.g., during colonisation) or where there is a loss of technical skills or environmental knowledge this may damage connection to Country (McDonald and Phillips, 2021). No impacts of this type are anticipated.
- Access to Country: Impacts to access to Country may be classified as temporary (e.g., where exclusion zones exist around activities for safety reasons) or permanent (e.g. where infrastructure obstructs access or navigation). Impacts to access to Country can only occur in areas that were traditionally accessed by Traditional Custodians. As described in Section 4.6.1.5, this is anticipated to be focussed on areas adjacent to the coast. Access to areas within the Operational Area may be limited where exclusion zones are established around vessels for safety purposes.

#### 7.2.3.6. Cumulative Impacts

Several petroleum activities are either underway, or proposed to commence, in the Otway Basin within the next five years. Of the petroleum activities that may occur in the vicinity of the Operational Area (listed in Table 4-12), only two could credibly result in cumulative impacts in conjunction with the plug and abandonment activities described in this EP to other marine users:

- Offshore Gas Victoria Geophysical and Geotechnical Seabed Survey (Beach Energy)
- Otway Offshore Operations (Casino, Netherby & Henry Revision) (Cooper Energy).

Most of the Operational Area for the Beach Energy's geophysical and geotechnical seabed survey lies beyond the Operational Area, with the closest of the candidate well sites being investigated approximately 16 km from the Operational Area. While Beach Energy's survey Operational Area partially overlaps VIC/L22, an access agreement between Beach and Woodside precludes Beach undertaking survey activities in VIC/L22 while Woodside's well plug and abandonment activities are underway.

The petroleum pipeline (VIC/PL37) transporting produced fluids from the Casino, Netherby, and Henry fields is adjacent to part of VIC/PL33. Inspection, maintenance, and repair (IMR) activities on VIC/PL37 (operated by Cooper Energy) could be conducted as required at any time in response to conditions requiring urgent attention (e.g., damage to the pipeline risking structural integrity), however such conditions occur very

infrequently. Consultation with Cooper Energy indicated they did not have any planned IMR activities that overlapped with the plug and abandonment activities described in this EP.

Given the only planned petroleum activity that overlaps the Operational Area is Beach's seabed survey, which will not occur within VIC/L22 simultaneously with plug and abandonment activities, there is negligible potential for cumulative impacts to other users as a result of the petroleum activity.

### 7.2.4. Demonstration of ALARP

The physical presence of the MODU and project vessels for the duration of the petroleum activity is considered a 'Type A' (lower order) impact based upon the Decision Context described in Section 6.1.1 of this EP.

The ALARP process performed for the environmental aspect is summarised in Table 7-2. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable. The result of this ALARP assessment contributes to the overall acceptability of the impact or risk.

**Table 7-2: Physical Presence – ALARP Assessment Summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Separate*** | | | |
| Establishment of a safety exclusion zone around project vessels and communicated to marine users. | Accept | Establishment of a 500 m petroleum safety zone around MODU and project vessel undertaking the petroleum activity reduces the likelihood of interaction with other marine users. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.1 |
| ***Eliminate*** | | | |
| Reduce the exclusion zone around the vessels. | Reject | Reduces the area of displacement of other marine users; however, the exclusion zone is required for safe operation and cannot be reduced, therefore the control is not feasible. | Not applicable |
| ***Administrate*** | | | |
| MODU and project vessel compliant with navigation safety requirements including the *Navigation Act 2012* and any subsequent Marine Orders. | Accept | Legislative requirements to be followed which reduces the risk of third-party vessel interactions due to ensuring safety requirements are fulfilled and other marine users are aware of the presence of the MODU and support vessels.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.2 |
| Notify AHO prior to commencing equipment removal or field management activities. | Accept | Notification to AHO will enable them to generate navigation warnings.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.3 |
| Notify relevant fishing industry government departments, | Accept | Communicating the activities to other marine users ensures they are | PS 1.4 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| representative bodies, and licence holders of activities prior to commencement and upon completion of activities. | | informed and aware, thereby reducing the likelihood of interfering with other marine users.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | |
| Notify DoD prior to commencing equipment removal or field management activities. | Accept | Notification was requested by DoD.<br>during consultation. Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.5 |
| Notify AMSA JRCC prior to commencing equipment removal or field management activities. | Accept | Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.6 |
| Provide updates on the petroleum activity to relevant persons as requested during consultation for the preparation of the EP (refer to Sections 5 and 9.10.2). | Accept | Communicating the petroleum activity to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.<br>Benefits outweigh cost/sacrifice. Control is also Standard Practice. | PS 1.7 |
| Establish and maintain a publicly available interactive map which provides relevant persons with updated information on activities being conducted as part of the petroleum activity. | Accept | Interactive map provides additional alternative method for marine users to obtain information on the timing of activities, thereby reducing the likelihood.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.8 |

#### 7.2.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 7-2) that, when implemented, are considered to manage the impacts of the physical presence of the MODU, moorings, and project vessels on other marine users to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential for interaction with other marine users associated with the physical presence of the MODU, moorings, and project vessels. Additional control measures were identified in Table 7-2 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 7.2.5. Demonstration of Acceptability

Given the adopted controls, the physical presence of the project vessels and subsea infrastructure will not result in potential impacts greater than temporary and minor displacement of other marine users, such as commercial shipping and fisheries. Further opportunities to reduce the impacts have been investigated in Table 7-2.

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding the physical presence of the project vessels and subsea infrastructure within the scope of this EP have been raised by relevant stakeholders. The environmental impacts meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental impacts are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. Woodside's decommissioning strategy integrates long-term and short-term economic, environmental, social, and equitable considerations. The plugging and abandonment of the wells may result in short-term impacts but provides for the long-term safe abandonment of the Minerva wells.
- Precautionary principle: The physical presence aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- Inter-generational principle: The physical presence aspect will not impact upon the environment such that future generations cannot meet their needs. Minerva wells will be made safe, and reasonably foreseeable future uses of the environment will not be precluded.
- Biodiversity principle: The physical presence aspect will not impact upon biodiversity or ecological integrity.

Woodside considers the impact to be managed to an acceptable level.

## 7.2.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 1<br>No unplanned interactions between the MODU or support vessels and other marine users | C 1.1<br>Establishment of a safety exclusion zone around project vessels and communicated to marine users. | PS 1.1<br>A 500 m radius safety exclusion zone established around MODU and vessels undertaking the petroleum activity, to be enforced by vessels undertaking the petroleum activity. | MC 1.1.1<br>Records of breaches by unauthorised vessels within the petroleum safety zone are recorded. |
| | C 1.2<br>MODU and project vessel compliant with navigation safety requirements including the *Navigation Act 2012* and any subsequent Marine Orders. | PS 1.2<br>Project vessel compliant to the navigation safety requirements, including:<br>▪ Marine Order 27 – Safety of navigation and radio equipment, which gives effect to parts of the International Convention for the Safety of Life at Sea, 1974 (SOLAS Convention)<br>▪ Marine Order 30 – Prevention of collisions, which gives effect to parts of the Convention on the International Regulations for Preventing Collisions at Sea,1972 (COLREGS)<br>▪ Marine Order 31 – SOLAS and non-SOLAS certification, which gives effect to parts of the SOLAS Convention<br>▪ Marine Order 63 – Vessel reporting systems, which gives effects to parts of the SOLAS Convention<br>▪ Marine Order 70 – Seafarer certification, which gives effect to parts of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW Convention) | MC 1.2.1<br>Marine assurance inspection records demonstrate compliance with standard maritime safety procedures |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | C 1.3<br>Notify AHO prior to commencing well plug and abandonment activities. | PS 1.3<br>AHO notified at least four weeks prior to undertaking well plug and abandonment activities. | MC 1.3.1<br>Consultation records demonstrate that AHO has been notified at least four weeks prior to commencement of well plug and abandonment activities. |
| | C 1.4<br>Notify relevant fishing industry government departments, representative bodies, and licence holders of activities prior to commencement and upon completion of activities. | PS 1.4<br>The following fishery-related government departments, industry bodies, and licenced fishers notified prior to commencement and upon completion of activities:<br>▪ government departments: AFMA, DAFF, and VFA<br>▪ industry representative bodies: CFA and SIV<br>▪ Commonwealth licenced fishers in the Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery<br>▪ Victorian licenced fishers that have requested notifications during consultation facilitated by SIV | MC 1.4.1<br>Consultation records demonstrate that the following government departments and industry representative bodies have been notified prior to commencement and upon completion of activities:<br>▪ government departments: AFMA, DAFF, and VFA<br>▪ industry representative bodies: CFA and SIV<br>▪ Commonwealth licenced fishers in the Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery<br>▪ Victorian licenced fishers that have requested notifications during consultation facilitated by SIV |
| | C 1.5<br>Notify DoD prior to commencing well plug and abandonment activities. | PS 1.5<br>The DoD is notified at least five weeks prior to commencing well plug and abandonment activities. | MC 1.5.1<br>Records demonstrate DoD were notified at least five weeks prior to commencing well plug and abandonment activities. |
| | C 1.6<br>Notify AMSA JRCC prior to commencing well plug and abandonment activities. | PS 1.6<br>AMSA JRCC notified at least 24-48 hrs prior to undertaking well plug and abandonment activities. | MC 1.6.1<br>Consultation records demonstrate that AMSA JRCC has been notified at least 24-48 hrs prior to commencement of well plug and abandonment activities. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | C 1.7<br>Provide updates on the petroleum activity to relevant persons as requested during consultation for the preparation of the EP (refer to Sections 5 and 9.10.2). | PS 1.7<br>Relevant persons provided updates on the petroleum activity as requested during consultation for the preparation of the EP (refer to Sections 5 and 9.10.2). | MC 1.7.1<br>Consultation records confirm relevant persons provided updates on the petroleum activity as requested. |
| | C 1.8<br>Establish and maintain a publicly available interactive map which provides relevant persons with updated information on activities being conducted as part of the petroleum activity. | PS 1.8<br>Activity interactive map established and maintained throughout activities. | MC 1.8.1<br>Records demonstrate interactive map was provided and available to relevant persons throughout activities. |

# 7.3. Seabed Disturbance

## 7.3.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Seabed disturbance | MODU mooring installation and retrieval (placement within 2 km of well centre) | Disturbance of benthic habitat and associated biota | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | Installation and retrieval of BOP tether system (contingent) | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | Preparatory activities for P&A including marine growth removal and sediment relocation | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | Cutting and recovery of well infrastructure | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | ROV operations | | 10 | N/A | - | Type A Low Order Impact | Tolerable |

## 7.3.2. Source of Risk

### 7.3.2.1. MODU Mooring System

Benthic habitat disturbance will occur during the plug and abandonment program from the installation of the MODU anchor mooring system, including placement of anchors and chain/wire on the seabed, potential dragging during tensioning and recovery of anchors. Anchors and chains from semi-submersible MODUs contact the seabed during the deployment and removal. The MODU will be moored with up to 12 anchors, which can be laid up to approximately 2 km from the MODU. The anchors and catenary of the chain are expected to occupy a total area of approximately 210 $m^2$ each (conservatively allowing for large anchors of 60 $m^2$ for anchor contact plus 300 m x 0.5 m for catenary contact).

The anchors are laid and retrieved by a support vessel, which carries the anchors to position and deploys them directly on the seabed. If the anchors are dragged accidentally during laying or retrieval, a larger localised area may be temporarily disturbed around the anchor locations. Anchor mooring analyses and procedures will be in place during anchor installation and retrieval activities to ensure that it is undertaken in a safe manner. Anchors are tension tested after installation and prior to the commencement of well operations to minimise the potential for the MODU to drag off location (for example, during inclement weather).

The MODU mooring footprint for each well partially overlaps the mooring footprint for other wells. Hence there may be repeated disturbance of the seabed in short succession within the Operational Area from mooring installation and recovery.

Transponder clump weights may be placed on the seabed to inform anchor positioning (if required). Between 8 and 12 clump weights with an approximate footprint of 1 $m^2$ may be deployed on the seabed within 1 km of each well centre.

#### 7.3.2.2. BOP Tethering System (Contingent)

A BOP tether system may be used to manage wellhead fatigue during the plug and abandonment activities. This system is planned to consist of clump weights weighing about 25 tonnes each. There would be around four to eight clump weights used, though this may change once seabed and current conditions are better understood. The clump weights would be placed about 20 to 40 m from the wellhead, then the tether would be connected and tensioned using an ROV. The BOP tether system will result in localised seabed disturbance.

#### 7.3.2.3. Marine Growth Removal and Sediment Relocation Activities

Subsea cleaning activities include removing marine growth from infrastructure such as the Xmas trees and wellheads and relocating sediment that has built up around well infrastructure. Removing marine growth may be done in various ways. Those that have the potential to impact the seabed include use of high-pressure water and/or brushes on ROVs. Sediment removal involves using an ROV-mounted suction pump unit to remove sediment that has built up around the well infrastructure. Sediment may be required to be removed up to about 5 m below the mudline for removal of guide bases and wellheads.

#### 7.3.2.4. Cutting and Removal of the Well Infrastructure (Xmas Trees and Wellheads)

Localised seabed disturbance will occur when cutting and removing the well infrastructure including Xmas tree and wellheads. Wellhead cuts will be made from within the well below the mudline. Removal of the well infrastructure will also require cutting of the concrete skirt that is installed at the time the wells were constructed which may result in localised sediment relocation and temporary increased turbidity.

The well infrastructure may be set down on the seabed in the immediate vicinity of the well for a short period of time to enable safe rigging before recovery.

#### 7.3.2.5. ROV Operations

The use of the ROV during the petroleum activity (e.g., general visual inspections, valve functioning, etc.) may result in seabed disturbance from working close to, or occasionally on, the seabed. The footprint of a typical working class ROV is approximately 2.5 m by 1.7 m (4.25 $m^2$). An ROV basket may be placed on the seabed during ROV activities which may disturb up to 24 $m^2$ per placement activity.

### 7.3.3. Environmental Impact Assessment

#### 7.3.3.1. Benthic Habitat

Benthic habitat throughout the Operational Area is largely unconsolidated sandy sediment with sparse epibenthic biota and infauna. The water depth in the Operational Area is typically > 50 m. There is no evidence of benthic primary producer habitat, such as seagrass, macroalgae, or zooxanthellate corals, in the Operational Area. Such habitat is widely represented in the region and is not particularly unique or sensitive to disturbance. Benthic habitat within the footprint was previously disturbed during the installation of the Minerva subsea infrastructure and drilling of Minerva wells.

Unconsolidated sandy sediment habitat adjacent to the wellheads and below the mooring legs in contact with the seabed will be substantially disturbed, with all benthic habitat in this disturbance footprint likely to be disturbed. Given the widespread nature of similar habitat in the region, ecosystem function will not be substantially altered by this impact to benthic habitat.

Recovery of disturbed unconsolidated sandy sediment habitat within the disturbance footprint will occur naturally over time. There is evidence of natural bedload sediment transport (e.g., burial of the pipeline bundle following installation and very low portion of fine sediments), which will infill any depressions in the seabed

over time. Recovery of ecological communities in sandy benthic habitats is expected to occur within one year (e.g., Dernie, 2003 and Dernie et al., 2003).

#### 7.3.3.2. Water Quality

Seabed disturbance may result in the resuspension of sediments, resulting in an increase in turbidity. Sediments in the Minerva field consist almost entirely of sand-sized or larger particles (Figure 4-4), which have relatively high settling velocities compared to silt- and clay-sized particles. Most resuspended sediments will settle within seconds to minutes of being resuspended and within 10's of metres of the resuspension location.

Sediment sampling for potential contaminants found no evidence of sediment contamination in the Minerva field (Section 4.3.2), hence seabed disturbance will not remobilise contaminated sediments.

Benthic communities associated with the unconsolidated sandy habitat in the Minerva field are characterised by filter- and deposit-feeding epifauna and infauna assemblages. Increased turbidity may impact upon these communities by reducing feeding efficiency. These communities are likely to be adapted to natural increases in turbidity, such as those shown near the seabed in Figure 4-8. The widespread nature of similar habitat in the region means such communities are likely to be well-represented. Hence, the impacts to water quality from seabed disturbance will be temporary and localised.

#### 7.3.3.3. Marine Biota

Highly mobile demersal fauna, such as fishes, can move away from areas of disturbance and may be attracted to marine growth removal and sediment relocation activities as prey (e.g., infauna) may be more readily available. Fauna that are not readily mobile, such as sessile benthic epifauna and infauna, will be lost within the disturbance footprint. Most of the disturbance footprint is associated with the mooring anchors and chains in contact with the seabed. There are no active fisheries in the Operational Area that target sessile benthic fauna (e.g., scallops); hence no indirect impacts to fisheries will occur due to any loss of sessile benthic fauna.

Marine fauna assemblages associated with disturbed habitat are expected to recover through natural processes over time. Based on the changes in benthic habitat and burial status of the pipeline in the Minerva field between inspections in 2014 and 2021, the timeframe for recovery of fauna from benthic habitat disturbance is expected to be less than seven years.

The removal of the Xmas trees, which provide relatively complex relief habitat, may displace site-attached fauna such as fishes and crustaceans. Complex hard substrate habitat, such as that provided by the Minerva Xmas trees, is uncommon in the Operational Area. There will be a reduction in biodiversity because of the removal of the Minerva subsea infrastructure, with the footprint returning to a natural, pre-construction state over time.

#### 7.3.3.4. Cultural features and heritage values

***Archaeological Sites***

As described in Section 4.6.1.5, there is overlap between the Operational Area and the ancient landscape between the mainland and ~130 m water depth and thus there is the potential that Indigenous cultural features may exist on the seabed. These may potentially be disturbed by removal of infrastructure and placement of supporting equipment on the seabed. While no cultural features have been identified in the Operational Area, Woodside engaged a maritime archaeologist to undertake a UCH desktop assessment. This assessment found that "There are no documented or protected First Nations underwater cultural heritage sites or objects within or near the Minerva operational area… the risk of impact to First Nations UCH is very low" (Cosmos Archaeology, 2024). This study also found that "there are no known or located maritime underwater cultural heritage sites or objects - be it historical shipwrecks, aircraft wrecks, maritime infrastructure, or sea dumping - within, or in close proximity to, the Minerva operational area… for maritime heritage the risk of impact ranges from very low to medium, the higher rating relating to the removal of cultural debris around the fixed seabed structures as part of the site clean up" (Cosmos Archaeology, 2024). Woodside will implement relevant controls identified in the report to reduce the risk of impact to UCH, and has captured these in EPO 3 in Section 7.3.6.

There are no Aboriginal cultural heritage places within the Operational Area (Section 4.6.1.5).

***Benthic Habitats and Marine Fauna***

Through consultation and review of available literature (Section 4.6.1.5), Woodside understands that benthic habitats (e.g., seagrass) and marine fauna (e.g. whales, eels) that may be affected by seabed disturbance, are culturally important to Traditional Custodians. Traditional Custodians value these habitats and species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact dugong or turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (Delisle et al., 2018). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes results in reduced sightings (e.g., through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO, 2003).

As described in the environmental impact assessment (Section 7.3.3), potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to significant proportions of the populations of the species, nor result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Seagrass was identified as culturally important during consultation, there is no evidence of seagrass occurrence in the Operational Area (Section 4.4.1). Impacts to benthic habitats are localised, as described in Section 7.3.3.

***Intangible Cultural Heritage***

- Songlines: Songlines can become lost, fragmented, or broken when there is a loss of Country or forced removal from Country (Neale and Kelly, 2020). Physical sites that have been identified as comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. It is noted that oil and gas infrastructure exists in many areas of the Otway Basin, and that songlines are still acknowledged and recognised. It is inferred that if there were to be any impacts to surviving songlines these would be significantly more likely to be described as qualitative (i.e., "weaken" a songline) rather than binary or absolute (i.e., destroy a songline).
- Management of intangible cultural heritage can include reducing impacts and risks to environmental features that are associated with intangible cultural heritage (UNESCO 2003; ICOMOS 2013). Impacts to marine plants, animals and other cultural features associated with songlines might impact the intergenerational transmission of knowledge of songlines when individuals can no longer witness or interact with the cultural features tied to songlines on Country. Therefore, managing songlines may require environmental controls protecting species at a population level, including migratory routes.
- Physical features comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. Songlines can become lost, fragmented, or broken when there is a loss of Country or impact to culturally important physical features (Neale and Kelly 2020:30). No specific details of songlines within the EMBA have been provided by relevant persons during consultation for this Activity, and no landforms typical of songlines (e.g., mountains, rivers, caves, and hills (Higgins 2021)) are anticipated to be impacted by the seabed disturbance associated with the petroleum activity.
- Creation/dreaming sites; sacred sites; ancestral beings: Activities that physically alter landscape features may be assumed to potentially impact values of creation/dreaming sites, sacred sites, or ancestral beings. The literature review (Table 1) identified multiple sites within the EMBA as creating and dreaming sites, as listed in Section 4.6.1.6. A review of relevant literature has been undertaken (Section 4.6.1.5) which has identified other creation, dreaming and ancestral narratives related to the sea more broadly without confirming where (if anywhere) these overlap the EMBA. These references are of a general nature, and

do not identify any features or values requiring specific protection or management from seabed disturbance.

- Ceremonial sites: Activities that prevent the performance of ceremony at these sites will directly impact its values. No direct impacts to ceremonial sites are anticipated from seabed disturbance. However, indirect impacts may occur where ceremonies cannot be performed due to limitations on access, loss of knowledge or impacts to the environment, which are further described below.
- Kinship systems and totemic species: It is assumed that marine species may have kinship/totemic relationships to Traditional Custodians, but it is understood that these relationships do not prohibit people outside of that "skin group" from hunting or eating that same species (Juluwarlu 2004). It is therefore inferred that the management of totemic or kinship species applies at the species/population level and not to individual plants and animals. Individuals may have kinship to specific species (Smyth 2008, Juluwarlu 2004) and/or a responsibility to care for species (Muller 2008). These relationships are understood to impose obligations on Traditional Custodians. It is understood that these obligations do not impose restrictions on other people generally, but it is considered that impacts to species at a population level may inhibit Traditional Custodians with kinship relationships' ability to perform their obligations where this results in reduced or displaced populations. It is therefore considered that the management of totemic or kinship species applies at the species/population level and not to individual plants and animals. Impacts from seabed disturbance on marine fauna are described in Section 7.3.3. Impacts to individual marine fauna is not expected to impact on the totemic or kinship cultural connection.
- Resource collection: A suite of marine species have been identified through consultation and literature as important resources, particularly as food sources. In addition to their immediate value as sustenance, the gathering and preparation of these resources are informed by cultural knowledge, and an inability to use these resources may result in a temporary loss of ability to transfer that knowledge to future generations. Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced, or suffers a reduction in population. Therefore, these communities may be impacted where there is an impact at the species/population level. Impacts from seabed disturbance on marine resources are described in Section 7.3.3. Impacts that result in population effects (e.g., population decline, changes in migration routes, etc) are not expected.

### 7.3.4. Demonstration of ALARP

The benthic habitat disturbance created by the retrieval of subsea infrastructure within the Operational Area during the petroleum activity is considered a 'Type A' (lower order) impact based upon the decision context described in Section 6.1.1.

The ALARP process performed for the environmental aspect is summarised in Table 7-3. This process was completed as outlined in Section 6.1.1 and included consideration of the controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable. The result of this ALARP assessment contributes to the overall acceptability of the impact or risk.

**Table 7-3: Seabed disturbance – ALARP assessment summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Eliminate*** | | | |
| Only use DP MODU (no anchoring required). | Reject | It is feasible to use a DP MODU and would eliminate seabed disturbance and associated impacts to benthic communities from anchor placement and movement. Impacts of anchoring are assessed as low.<br>Using a DP MODU would introduce additional underwater noise emissions, which may result in impacts to marine fauna such as cetaceans. | Not applicable |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | Flexibility is required to meet General Direction obligations and other contractual and operational constraints. Cost of implementation is considered grossly disproportionate to the benefit gained. | |
| Abandon Xmas trees and wellheads in situ. | Reject | General Direction 831 required removal of the Minerva subsea infrastructure. Engineering studies indicate removal of the infrastructure is feasible and practicable using well-proven methods.<br>Abandonment in situ may result in additional environmental impacts, such as ongoing displacement of other users.<br>Abandonment in situ would preserve benthic habitats associated with the Minerva subsea infrastructure, which some stakeholders may perceive as beneficial due to the increase in biodiversity and abundance.<br>Abandonment in situ requires substantial time and effort to secure regulatory approval. Approvals required to abandon subsea infrastructure in situ cannot reasonably be achieved in time to comply with General Direction 831.<br>Cost is grossly disproportionate to the environmental benefit. | Not applicable |
| No planned anchoring or installation of temporary moorings for support vessels. | Accept | Anchoring support vessels in water depths of the Operational Area would require substantial anchor chain to be deployed, resulting in disturbance to benthic habitats. Installation of temporary moorings for support vessels would also result in seabed disturbance. | PS 2.1 |
| ***Substitute*** | | | |
| Use jack-up MODU. | Reject | The control is not feasible. A jack-up drilling rig may reduce seabed disturbance footprint, as the spud cans would disturb a smaller footprint of seabed than mooring anchors and chains. However, the geotechnical and metocean characteristics of the Operational Area are not consistent with safe use of a jack-up MODU. | Not applicable |
| ***Engineering*** | | | |
| Undertake project-specific mooring design analysis for MODU | Accept | The mooring design analysis determines the number and spread of anchors required based on sediment type and seabed topography, reducing the likelihood of anchor drag leading to seabed disturbance.<br>Mooring analysis is common practice and cost of implementing control is proportionate to the potential environmental benefit. | PS 2.2 |
| All equipment recovered from the seabed. | Accept | Equipment such as moorings will be deployed to the seabed. Additionally, Xmas trees, guidebases, and wellheads are intended to be recovered from the seabed during the petroleum activity. Verifying that all equipment deployed to the seabed or intended to be | PS 2.3 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | removed will result in a clear seabed. This provides for unimpeded future use of the Operational Area. | |
| ***Separate*** | | | |
| Do not use ROV close to, or on, the seabed. | Reject | Control is not considered feasible. The use of ROV (including working close and landing on the seabed) is critical as the ROV is the main tool used to guide and manipulate equipment during plug and abandonment activities. ROV usage is already limited to only that required to conduct the work effectively and safely. Due to visibility and operational issues ROV work on or close to the seabed is avoided unless necessary. | Not applicable |
| ***Administrate*** | | | |
| Review of existing survey data by a suitably qualified marine archaeologist to inform areas for laydown of supporting equipment to avoid or where not possible, minimise physical impacts to cultural features and prospective areas. | Accept | Review of data by suitably qualified marine archaeologist will inform potential exclusion or avoidance areas for seabed disturbance.<br>Implementing this process will protect and minimise any physical impacts to underwater cultural heritage. Additionally, this process is not inconsistent with the Assessing and Managing Impacts to Underwater Cultural Heritage in Australian Waters Guidelines on the application of the Underwater Cultural Heritage Act 2018 (DCCEEW, 2024) | PS 3.1 |
| Reporting of any new suspected underwater cultural heritage sites identified through the archaeological review to the Australasian Underwater Cultural Heritage Database (AUCHD) within 21 days of the discovery. | Accept | Meets legislative requirements and community expectations. | PS 3.2 |
| Unexpected finds of potential Underwater Cultural Heritage[21] sites/ features, including First Nations UCH, are managed in accordance with the Unexpected Finds Procedure set out in Section 9.4. | Accept | Allows management of new finds in accordance with legislative requirements, expert advice, and community expectations. | PS 3.3 |
| ***Monitoring*** | | | |
| Additional environmental monitoring of the | Reject | An environmental survey has been completed in 2021, with results summarised in Sections 4.3. Concentrations of potential contaminants in the Minerva | - |

[21] Underwater Cultural Heritage is defined as any trace of human existence that has a cultural, historical, or archaeological character and is located under water, in accordance with the UCH Act.

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| seabed before the petroleum activity to assess any impacts to the seabed. | | field were low and consistent with reference sites. Further environmental monitoring prior to removal of subsea infrastructure is unlikely to identify significant difference from the Advisian (2021) results.<br>Monitoring will not reduce the consequence of any impacts to the seabed, and the costs associated with the level of monitoring required to accurately assess any impacts greatly outweighs the benefits.<br>Note that an environmental monitoring program will be undertaken as described in the Minerva Decommissioning and Field Management EP (Section 3.5); refer to this EP for additional information.<br>Cost is grossly disproportionate to the environmental benefit. | |

#### 7.3.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 7-3) that, when implemented, are considered to manage the impacts of seabed disturbance to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts of seabed disturbance on benthic habitats, water quality, marine fauna, and cultural heritage. Additional control measures were identified in Table 7-3 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 7.3.5. Demonstration of Acceptability

Given the adopted controls, the seabed disturbance aspect of the petroleum activity will not result in potential impacts greater than minor, temporary impact to the environment that will recovery naturally without intervention. Further opportunities to reduce the impacts have been investigated in Table 7-3.

The adopted controls are considered good oil-field practice/industry best practice. During consultation, EMAC raised concerns regarding seabed disturbance, in particular the lack of consultation with EMAC prior to issuing of the General Direction by NOPSEMA (refer Appendix F). During consultation, GMTOAC expressed concern regarding “trauma to the seabed” from the Minerva decommissioning activities (refer Appendix F). No other concerns or objections regarding the seabed disturbance aspect of the petroleum activity have been raised by relevant stakeholders. The environmental impacts meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental impacts are consistent with the relevant principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside’s deliberations. Woodside’s decommissioning strategy integrates long-term and short-term economic, environmental, social, and equitable considerations.
- Precautionary principle: The seabed disturbance aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- Inter-generational principle: The seabed disturbance aspect will not impact upon the environment such that future generations cannot meet their needs. All Minerva subsea infrastructure will be removed, and reasonably foreseeable future uses of the environment will not be precluded.
- Biodiversity principle: The seabed disturbance aspect will not impact upon biodiversity or ecological integrity such that ecosystem functions are substantially affected.

Woodside considers the impact to be managed to an acceptable level.

## 7.3.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 2<br>No impacts to the seabed greater than a severity level of 2 within the Operational Area during the petroleum activity. | C 2.1<br>No planned anchoring or installation of temporary moorings for support vessels. | PS 2.2<br>No planned anchoring or use of temporary moorings by support vessels undertaking the petroleum activity within the Operational Area. | MC 2.1.1<br>Any planned anchoring or installation of moorings for support vessels within the Operational Area is recorded as an environmental incident. |
| | C 2.2<br>Undertake Project-specific Mooring Design Analysis. | PS 2.2<br>Seabed disturbance from MODU mooring limited to that required to ensure adequate MODU station holding capacity. | MC 2.2.1<br>Records demonstrate Mooring Design Analysis completed and implemented during anchor deployment. |
| | C 2.3<br>All equipment recovered from the seabed. | PS 2.3<br>All equipment deployed to the seabed, along with all Xmas trees, guidebases and wellheads, described in Section 3 recovered from the seabed. | PS 2.3.1<br>Records demonstrate that all equipment intended to be recovered during the petroleum activity has been accounted for and recovered. |
| EPO 3<br>Avoid, or where not possible, minimise impacts to cultural features. | C 3.1<br>Review of existing survey data by a suitably qualified maritime archaeologist to inform areas for laydown of supporting equipment to avoid or where not possible, minimise physical impacts to cultural features and prospective areas. | PS 3.1<br>Existing survey data reviewed by a suitably qualified maritime archaeologist to identify cultural features and prospective areas. | MC 3.1.1<br>Records demonstrate review undertaken by a suitably qualified maritime archaeologist. |
| | C 3.2<br>Reporting of any new suspected underwater cultural heritage sites identified through the archaeological review to the Australasian Underwater Cultural Heritage Database (AUCHD) within 21 days of the discovery. | PS 3.2<br>New suspected underwater cultural heritage sites identified through the archaeological review reported to the AUCHD within 21 days of the discovery | MC 3.2.1<br>Records demonstrate any new suspected underwater cultural heritage sites identified through the archaeological review reported to the AUCHD within 21 days of the discovery. |
| | C 3.3<br>Unexpected finds of potential Underwater Cultural Heritage[21] sites/ features, including | PS 3.3<br>In the event that an Underwater Cultural Heritage[21] site/ feature is identified, implement | MC 3.3.1<br>No non-compliance with the Unexpected Finds Procedure. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | First Nations UCH, are managed in accordance with the Unexpected Finds Procedure set out in Section 9.4. | the Unexpected Finds Procedure set out in Section 9.4. | |
| | C 3.4<br>Project inductions to all relevant marine crew, prior to the individual commencing the activity, will include information on cultural features and heritage values, including tangible and intangible heritage. | PS 3.4<br>All relevant marine crew have completed Project inductions that include information on cultural values, including tangible and intangible cultural heritage for awareness. | MC 3.4.1<br>Records demonstrate all relevant marine crew have completed inductions that include cultural material. |

[1] Defined as 'Measurable but limited impact (< 1 year) on marine environment, limited community impact (< 1 month)'

# 7.4. Light Emissions

## 7.4.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Light emissions | Routine light emissions from MODU and project vessels. | Light emissions (light spill and glow) from external lighting on the MODU and support vessels causing alterations to normal marine fauna behaviour. | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | Light emissions from non-routine flaring during P&A activities. | Light emissions generated from non-routine flaring activities causing alterations to normal marine fauna behaviour. | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |

## 7.4.2. Source of Risk

During the activity, artificial lighting on the MODU and project vessels will be required on a 24-hour basis. This safety and navigational lighting on the MODU and project vessels will generate light glow and direct illumination of surrounding surface waters. Most external lighting aboard both the MODU and project vessels is directed towards working areas such as the main decks, although spot lighting may also be used on an as-needed basis. Lighting is required for safety and navigational purposes and cannot be eliminated.

The MODU and project vessels that will undertake the petroleum activity within the Operational Area are outlined in Section 3.4. The main external lighting is around the working areas on the main decks which are typically < 20 m above sea level for vessels, and ~ 30 m for the MODU. External lighting for deck operations typically consists of bright white (metal halide, halogen, fluorescent) lights. Lighting is designed to ensure adequate illumination for safe working conditions. Typical light intensity values are 5 to 10 lux for walkways, 50 lux for working areas and approximately 100 lux for high intensity light areas.

If small volumes (approx. 30 $m^3$ for each of the two production wells) of reservoir gas are flared during well re-entry, light emissions may be produced from the flare-boom aboard the MODU. Flaring of these volumes would short-duration (likely taking several minutes to complete the operation) and contingent if reservoir gas cannot be bull-headed back to formation. Light emissions would be more pronounced if flaring is undertaken at night.

Light intensity diminishes with inverse of distance squared (I received = I/r2). Figure 7-1 presents a simple calculation of diminishment of received light with distance assuming 100 lamps on the MODU and/or project vessels of low, medium, and high intensity each acting additively. Light received is diminished to about the equivalent of light that would be received from a full moon within about 200 m from the light source and to that of a moonless clear night within about 1,500 m for low intensity lights and 3,000 m for high intensity lights.

The extent of potential impact from artificial lighting generated during the Petroleum Activities Program is restricted to the line of sight for each activity emitting light. To inform the impact assessment, the following light exposure areas have been defined:

- The extent of impact from MODU and support vessel light emissions is based on the National Light Pollution Guidelines for Wildlife (Commonwealth of Australia, 2023). The guideline recommends undertaking light impact assessment where important habitat for listed threatened and migratory species sensitive to light are located within 20 km of the light source.
- For flaring, the distance at which the flare will be visible is expected to be less than 50 km from the source (Woodside, 2014). Additional light modelling conducted by Xodus Group for ConocoPhillips Australia calculated that ambient light intensity levels from flaring reach up to 49 km from a MODU located 45 m above sea level (Xodus, 2023)

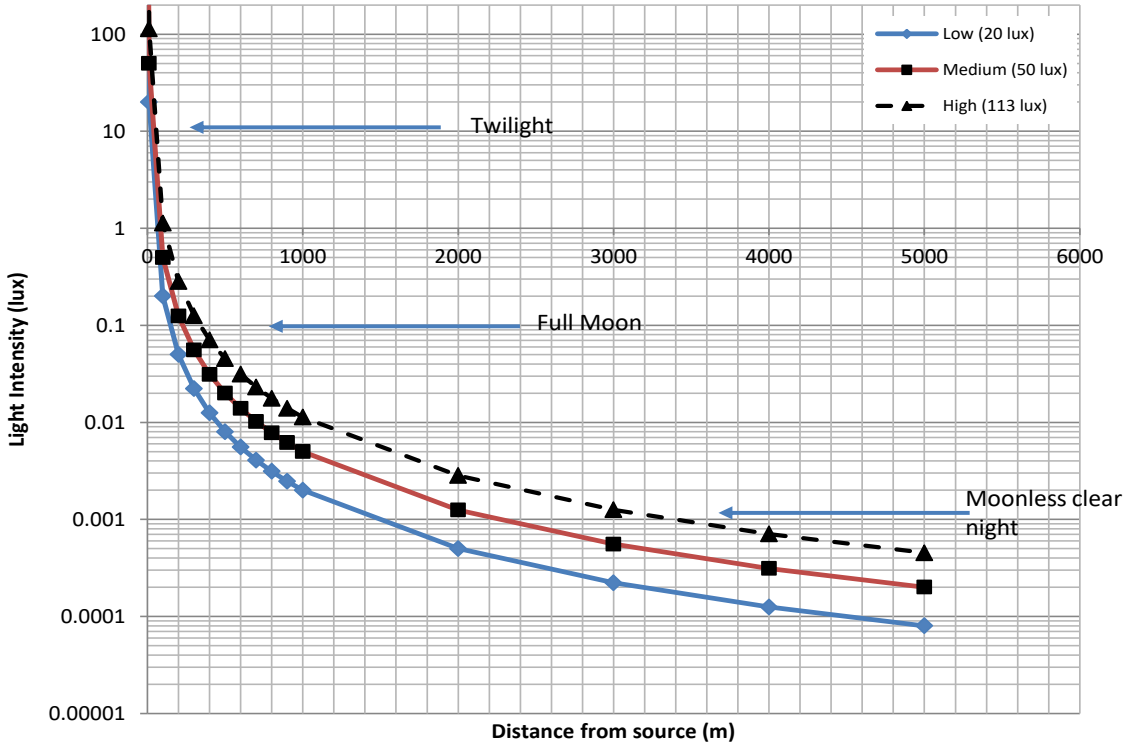


**Figure 7-1: Diminishment of light with distance from source assuming 100 lamps of low, medium, and high intensity**

### 7.4.3. Environmental Impact Assessment

Receptors that have important habitats within a 20 km buffer of the Operational Area are considered for impact assessment within this section, based on recommendations of the *National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds* (NLPG) (Commonwealth of Australia, 2023). The 20 km threshold provides a precautionary limit based on observed effects of sky glow on marine turtle hatchlings demonstrated to occur at 15 to 18 km and fledgling seabirds grounded in response to artificial light 15 km away (Commonwealth of Australia, 2023).

Artificial lighting has the potential to affect marine fauna that use visual cues for orientation, navigation, or other purposes, resulting in behavioural responses that can alter foraging and breeding activity. The species with greatest sensitivity to light are marine turtles, seabirds, and fish.

Potential impacts to marine fauna from artificial lighting may include:

- disorientation, or attraction or repulsion to the light
- disruption to natural behaviour patterns and cycles
- indirect impacts such as increased predation risks through attraction of predators.

These potential impacts are dependent on:

- wavelength and intensity of the lighting, and the extent to which the light spills into important wildlife habitat

(e.g., foraging, breeding and nesting)

- the timing of light spill relative to the timing of habitat use by marine fauna sensitive to lighting effects
- the physiological sensitivity and resilience of the fauna populations that are at risk of potential effects.

The fauna within the area that may be impacted by artificial light emissions are predominantly pelagic fish, zooplankton, and seabirds. There is no known critical habitat or threatened ecological communities that may be impacted by artificial light emissions from the petroleum activity. Artificial light emissions overlap several BIAs for cetaceans, seabirds, and the white shark (Section 4.4.3).

#### 7.4.3.1. Cetaceans

Southern right whales and pygmy blue whales may occur in proximity to the Operational Area. Both are seasonally present (Section 4.4.2) and may undertake biologically important behaviours. Cetaceans in general are not recognised as being impacted by artificial light emissions, and artificial light emissions are not recognised as a threat for either pygmy blue whales or southern right whales. As such, impacts from artificial light emissions from the petroleum activity are not expected to result in impacts to these species.

#### 7.4.3.2. Fish and Zooplankton

Fish and zooplankton may be directly or indirectly attracted to light. Experiments using light traps have found that some fish and zooplankton species are attracted to light sources (Meekan et al., 2001), with traps drawing catches from up to 90 m (Milicich, 1992). Lindquist et al. (2005) concluded from a study that light fields around oil and gas activities resulted in an enhanced abundance of clupeids (herring and sardines) and engraulids (anchovies), both of which are known to be highly photopositive.

The concentration of organisms attracted to light results in an increase in food source for predatory species and marine predators are known to aggregate at the edges of artificial light halos. Shaw et al. (2002), in a similar light study, noted that juvenile tunas (Scombridae) and jacks (Carangidae), which are highly predatory, may have been preying upon concentrations of zooplankton attracted to the light fields around oil and gas activities. This could potentially lead to increased predation rates compared to unlit areas.

Short-finned eels are an important cultural value of Traditional Owners, with both GMTOAC and EMAC describing their importance during consultation. Short-finned eels may migrate through the Operational Area when moving between freshwater environments where they feed and mature and oceanic environments (e.g., Coral Sea) where they spawn (Koster et al., 2021).

Short-finned eels undertake diel migrations in the water column, spending daylight hours in deep water, and night hours near the sea surface. Short-finned eels do not feed during migration, so the diel migration is not in response to movements of prey. Koster et al. (2021) suggested such movements may be predator avoidance. Predatory fishes may be attracted to artificial lighting at night due to the increase in prey abundance (due to light attraction of prey species); given short-finned eels do not feed during migration, the increased prey abundance around artificial light from vessels and night should not attract them. Studies of behavioural responses to artificial light in another species of anguillid eel showed eels avoided artificial light when foraging (Matsushige and Hibino, 2023). This suggests that short-finned eels may also avoid artificial light, however the work by Matsushige and Hibino (2023) related to foraging in freshwater environments, which is a different life history phase than migration in the sea.

Short-finned eels occur throughout south-eastern Australia, hence only a small portion of the total population would credibly occur within the Operational Area. Tagging by Koster et al. (2021) observed eel migration during April, which is outside the planned execution period for Minerva subsea infrastructure removal. On this basis, negligible impacts to short-finned eels from artificial light emissions from the petroleum activity are expected to occur.

Light spill from the project vessels onto the surrounding surface waters, particularly during night-time activities, is likely to result in aggregations of fish around the project vessels as they are attracted to the light and increased food availability. However, the Operational Area does not contain any significant feeding, breeding, or aggregation areas for important fish species and the light emissions will only occur while vessels are undertaking the petroleum activity. No impacts to white sharks are expected to occur from light emissions. The potential for increased predation activity and impact to fish and zooplankton is anticipated to be temporary and

minor.

#### 7.4.3.3. Seabirds and Migratory Shorebirds

Negative potential impacts to seabirds and migratory shorebirds attracted by artificial lighting can include disorientation causing collision, entrapment, stranding, grounding, and interference with navigation (being drawn off course from usual migration routes). Migratory shorebirds may use less preferable roosting sites to avoid lights and may be exposed to increased predation where lighting makes them visible at night (DoEE, 2020). These behavioural responses may cause injury and/or death. Seabird mortalities from collisions have been found to be correlated to conditions of poor visibility (cloud, fog, or rain) and proximity to nearby seabird colonies (Black, 2005).

Seabirds may either be attracted by the light source itself or indirectly as structures in deep water environments tend to attract marine life at all trophic levels, creating food sources and shelter for seabirds (Surman, 2002; Wiese *et al*., 2001). Availability of roosting refuge at sea and increased food availability may be the most important reasons why seabirds are attracted to offshore oil and gas infrastructure (Wiese *et al*., 2001).

Foraging BIAs for several species of seabirds overlap the Operational Area, however there are no nesting BIAs overlapping the Operational Area or EMBA. During the petroleum activities, a small number of seabirds and migratory shorebirds may be attracted to the project vessel within the Operational Area. However, as this is not expected to result in impacts to birds beyond a temporary change in behaviour, any impact is anticipated to be temporary and minor. Any collision between the birds and project vessels because of the attraction are highly unlikely due to the lack of aggregation areas for birds over the Operational Area.

The most vulnerable life stages for seabirds and migratory shorebirds are nesting adults or fledglings. Nesting or fledgling seabirds and migratory shorebirds are vulnerable to artificial lighting within 20 km of the nesting location (Commonwealth of Australia, 2023). Seabirds typically nest on isolated islands, and there are no known nesting locations for threatened or migratory seabirds within 20 km of the Operational Area. Hence impacts to fledgling seabirds listed as threatened or migratory under the EPBC Act are not predicted to occur.

A migratory BIA for the critically endangered orange-bellied parrot (*Neophema chrysogaster*) overlaps the Operational Area. Habitat loss and predation are identified as major threats in the National Recovery Plan for the Orange-bellied Parrot, *Neophema chrysogaster*, with barriers to migration and movement (including potentially from illuminated structures and boats) also identified as a possible threat. The Recovery Plan classifies that the evidence for the impact of barriers to migration and movement on the species as “weak” and consisting of little more than anecdotal evidence (Department of Environment, Land, Water and Planning, 2016). This species prefers saltmarsh habitat, such as that surrounding estuaries. The nearest such habitat is the Curdies River estuary near Peterborough, approximately 30 km from the operational area, outside of the 20 km threshold as referenced in the National Light Pollution Guidelines (Commonwealth of Australia, 2023). Given the species migrates during winter months and P&A activities may occur into the 2025 winter season, the MODU and vessels may be present in the operational area during the orange-bellied parrot migration period. Given the short duration of the activity, nature and scale of artificial light emissions, limited evidence of behavioural disturbance from illuminated structures/ vessels and the distance of saltmarsh habitat from the operational area, potential impacts to orange-bellied parrots would be limited to possible short-term behavioural disturbance at an individual level, not affecting population viability.

Based on the detailed evaluation, the magnitude of impacts to birds from light emissions during the petroleum activity are anticipated to be temporary and minor.

#### 7.4.3.4. Marine Turtles

The impacts of light on nesting and hatchling marine turtles has been well documented. Adult marine turtles may avoid nesting on beaches that are brightly light (Witherington, 1992; Price *et al*., 2018) and adult and hatchling turtles can be disorientated and unable to find the ocean in the presence of direct light or sky glow (Witherington, 1992; Lorne & Salmon, 2007; Thums *et al*., 2016; Price *et al*., 2018).

The PMST search identified three EPBC Act listed marine reptile species with potential to occur or have habitat within the Operational Area and EMBA (the loggerhead, leatherback, and green turtle). However, neither the green nor loggerhead turtle are expected to occur within the EMBA with both species rarely seen off the

Victorian coast, preferring warmer climates in northern and eastern Australia. Whilst breeding behaviour for the leatherback turtle was identified as likely to occur within the EMBA, these waters do not represent critical habitat for the species and breeding for the leatherback turtle has not been recorded in Victoria (Limpus, 2009).

It is possible that individual turtles may be encountered traversing the EMBA during the proposed activity. However, only very low numbers of marine turtles would be encountered given the habitat preferences for marine turtles. Impacts of artificial light emissions on marine turtles will be limited to temporary behavioural impacts (e.g., attraction) of individual animals. Localised behavioural impacts to individual marine turtles from light emissions are considered negligible, with no impact predicted at a community or population level.

#### 7.4.3.5. Cultural Features and Heritage Values

Through consultation and review of available literature (Section 4.6.1.5), Woodside understands that marine fauna that may be affected by light emissions, such as turtles, fish, and cetaceans, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (Delisle et al., 2018). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes results in reduced sightings (e.g., through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO, 2003).

As described in the environmental impact assessment (Section 7.4.3), potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to significant proportions of the populations of the species, nor result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

During consultation and review of literature (Section 4.6.1.5), sky country was raised as a potential cultural value. No direct or indirect impacts to the cultural values of sky country have been identified through consultation. Potential direct or indirect impacts to the cultural values of sky country from the atmospheric emissions associated with this activity (given the nature of the atmospheric emissions as described in Section 7.4.2) are expected to be minor and temporary, consistent with the above assessment of atmospheric emissions.

Artificial light emissions from the petroleum activity may be visible from the Great Ocean Road and Scenic Environs National Heritage Place, Twelve Apostles Marine National Park, and The Arches Marine Sanctuary, and the (Sections 4.5.3 and 4.5.6, Appendix D).

Environmental values of the Great Ocean Road and Scenic Environs National Heritage Place include:

- Historic values, as the road itself was constructed as a memorial to First World War servicemen by returned servicemen.
- Aesthetic value of the natural landscapes and seascapes along the Great Ocean Road's 242 km length

These values support nature-based tourism activities, which in turn supports towns along the Great Ocean Road, such as Lorne and Port Campbell.

Environmental values of the Twelve Apostles Marine National Park, and The Arches Marine Sanctuary include:

- Unique limestone rock formations
- A range of marine habitats representative of the region
- Indigenous culture based on spiritual connection to sea country
- Wreck of the *Loch Ard*
- Opportunities to view scenery and marine life, including a renowned scuba diving site.

The well plug and abandonment activities will be visible from part of the Great Ocean Road and Scenic Environs National Heritage Place, Twelve Apostles Marine National Park, and The Arches Marine Sanctuary. Aesthetic values from these environmental values are typically appreciated during daylight hours when they are readily observable. Watching the sunset at the Twelve Apostles is recognised as a nature-based tourism experience; people undertaking this experience may observe the petroleum activity. However, given artificial light emissions will not be readily observable until after sunset, artificial light emissions from the petroleum activity would have a negligible impact on the aesthetical values of the Great Ocean Road and Scenic Environs National Heritage Place, Twelve Apostles Marine National Park, and The Arches Marine Sanctuary given appreciation of such values occurs primarily during daylight hours.

The Twelve Apostles Marine National Park, and The Arches Marine Sanctuary also contain biological values and sensitivities, however these are not expected to be impacted by artificial light emissions given the distance from the Operational Area (7 km at the closest point for both).

#### 7.4.3.6. Cumulative Impacts

Several petroleum activities are either underway, or proposed to commence, in the Otway Basin within the next five years. Of the petroleum activities that may occur in the vicinity of the Operational Area (listed in Table 4-12), only two are expected to occur at the same time as the well plug and abandonment activities described in this EP:

- Offshore Gas Victoria Geophysical and Geotechnical Seabed Survey (Beach Energy)
- Otway Offshore Operations (Casino, Netherby & Henry Revision) (Cooper Energy).

Most of the Operational Area for the Beach Energy's geophysical and geotechnical seabed survey lies beyond the Operational Area, with the closest of the candidate well sites approximately 16 km from the Operational Area. While Beach Energy's survey Operational Area partially overlaps VIC/L22, an access agreement between Beach and Woodside precludes Beach undertaking survey activities in VIC/L22 while Woodside's well plug and abandonment activities are underway.

The petroleum pipeline (VIC/PL37) transporting produced fluids from the Casino, Netherby, and Henry fields is adjacent to part of VIC/PL33. Inspection, maintenance, and repair (IMR) activities on VIC/PL37 (operated by Cooper Energy) could be conducted as required at any time in response to conditions requiring urgent attention (e.g., damage to the pipeline risking structural integrity), however such conditions occur very infrequently. Consultation with Cooper Energy indicated they did not have any planned IMR activities that overlapped with the well plug and abandonment activities described in this EP.

Woodside does not plan to undertake MODU-based plug and abandonment activities simultaneously with the equipment removal activities described in Section 3. Equipment removal activities are currently planned to occur between 1 September 2024 and 31 March 2025. Current MODU availability indicates that rig-based plug and abandonment activities are expected to commence no sooner than April 2025. On this basis, simultaneous light emissions from equipment removal and MODU (and supporting vessels) are unlikely to occur. However, all schedules are subject to securing environmental approvals and MODU availability. It is possible that concurrent equipment removal and MODU activities may occur. Increased numbers of vessels in VIC/22L during concurrent equipment removal and MODU activities may result in an increase in skyglow. This would be observable from shore, which may reduce the aesthetic value of the landscape and seascape. There are no known shore-based receptors that are known to be particularly vulnerable to increased skyglow (e.g., hatchling turtles or fledgling seabirds) in the vicinity of VIC/L22.

Cumulative artificial lighting from concurrent equipment removal and MODU activities may result in behavioural disturbance to fauna (e.g., attraction, avoidance, etc.) occurring over a larger area. The nature of such behavioural disturbance is reasonably expected to be the same as caused by the equipment removal vessel alone. The Bonney Upwelling occurs annually west of VIC/L22 from approximately November to April, which results in increased phytoplankton productivity which in turn supports higher trophic levels.

Artificial light emissions from fishing and shipping activities within the Operational Area are negligible (Section 4.6.2). Historical commercial fishing effort in the Operational Area is very low, and vessel-based activities in fisheries that may be active within the Operational Area are typically restricted to daylight hours.

Commercial shipping activity is concentrated well to the south of the Operational Area. Hence light emissions from commercial fishing and shipping will not credibly result in cumulative impacts.

The coastline near the Operational Area is largely vegetated with little artificial lighting, with the exception of the town of Port Campbell, which lies approximately 8 km from the Operational Area at the closest point. The shoreline near Port Campbell that faces the Operational Area consists of cliffs, hence direct light from Port Campbell is largely obscured from the Operational Area and unlikely to cause cumulative impacts.

Given the nature and scale of artificial light emissions from the petroleum activity and third parties, the potential for cumulative impacts is minor.

### 7.4.4. Demonstration of ALARP

Light emissions generated during the petroleum activity are considered a 'Type A' (lower order) impact based upon the decision context described in Section 6.1.1.

The ALARP process performed for the environmental aspect is summarised in Table 7-4. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable. The result of this ALARP assessment contributes to the overall acceptability of the impact or risk.

**Table 7-4: Light emissions – ALARP assessment summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Eliminate*** | | | |
| Restrict the petroleum activity to daylight hours, eliminating the need for external work lights. | Reject | Components of the petroleum activity cannot safely be completed within a 12-hour day shift. As such, the need for external lighting cannot safely be eliminated. Control is not considered feasible. | Not applicable |
| Eliminate requirement to use the flare | Reject | Unburnt hydrocarbons pose a safety risk, and flaring is a safe way to manage hydrocarbons returned to the MODU during plug and abandonment activities. Eliminating flaring may result in increased methane emissions, which is a more potent GHG compared to carbon dioxide produced by flaring the hydrocarbons.<br>The volumes of hydrocarbons returned to the MODU during plug and abandonment are expected to be relatively small, hence eliminating flaring may be of little benefit in reducing artificial light emissions.<br>Control is not considered feasible. | Not applicable |
| ***Substitute*** | | | |
| Retrofit vessel lighting in accordance with design principles outlined in *National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds* (Commonwealth of Australia, 2023) | Reject | Retrofitting of existing lighting may reduce impacts of artificial light emissions. Retrofitting considerations include:<br>▪ using adaptive light controls to manage light timing, intensity, and colour<br>▪ lighting only the object or area intended – keep lights close to the ground, directed, and shielded to avoid light spill | Not applicable |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | ▪ using lowest intensity lighting appropriate for the task<br>▪ using non-reflective, dark-coloured surfaces<br>▪ using lights with reduced or filtered blue, violet, and ultraviolet wavelengths.<br>External lighting on vessels is often designed to meet specific occupational and navigation safety requirements, and hence may not readily be retrofitted without compromising on these requirements (i.e., the safety cost may be substantial).<br>Retrofitting imposes substantial time and cost to implement.<br>Lighting will be limited to that required for navigational and safety requirements (C 5.1), which meets in part the intent of the best practice light design guidelines. The cost of this control is grossly disproportionate to the environmental benefit especially when considering the short duration of the campaign. | |
| ***Administrate*** | | | |
| Manage timing of the Petroleum Activity to avoid sensitive life cycles for light sensitive marine fauna. | Reject | Limitation on timing of the activity imposes substantial schedule constraints. Also, given the most vulnerable life stages for seabirds and migratory shorebirds are nesting adults or fledglings and there are no there are no known nesting locations for threatened or migratory seabirds within 20 km of the Operational Area, the activity is not expected to have significant impacts on light sensitive marine fauna from light at any time of the year. | Not applicable |
| Lighting will be limited to the minimum required for navigational and safety requirements, with the exception of emergency events | Accept | Limiting light during the petroleum activity will minimise potential for light attraction and vessel interaction with seabirds.<br>Implementation of this control is good practice and not at significant cost. | PS 4.1 |
| Implementation of the Frontline Offshore Seabird Management Plan to minimise potential for light attraction. | Accept | Implementation may result in a reduction in net light emissions from the vessels reducing the likelihood of attracting nocturnal seabirds. Adaptive management framework outlined in the Offshore Seabird Management Plan will prevent population level impacts from occurring, and the care and release protocol will reduce impacts at the individual level.<br>Control is feasible however a minimum level of lighting is required on MODU and project vessels for safety. | PS 4.2 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | Benefit outweighs cost, given the low costs in implementation and potential benefits in providing certainty that population level impacts to nocturnal seabirds will not occur. | |
| Implement the following measures consistent with the National Light Pollution Guidelines (2023):<br>▪ Extinguish outdoor/deck lights not necessary for safety and/or navigation at night.<br>▪ Use available block-out blinds on portholes and windows not necessary for safety and/or navigation at night.<br>▪ Manage seabird landings appropriately and report interactions. | Accept | The control is feasible; however, a minimum level of lighting is required on the vessels for safety.<br>There is negligible benefit in impact reduction for nesting adult seabirds or fledging seabirds as nearest potential nesting site is beyond the 20 km threshold from the Operational Area. However, there is potential for slight reduction in impact to individual foraging and migrating seabirds that may pass through the area, as identified in the National Light Pollution Guidelines.<br>Therefore, the potential benefits of the control outweigh the minimal cost. | PS 4.3 |
| Eliminate potential for cumulative impacts by separating plug and abandonment and equipment removal activities in time or restricting the number of vessels in the Operational Area. | Reject | Concurrent plug and abandonment and equipment removal activities are not planned but may be required to comply with General Direction 831. Potential cumulative impacts of light emissions are minor. The cost of the control is grossly disproportionate to the environmental benefit. | Not applicable |
| Manage timing of the petroleum activity to avoid sensitive life cycles for light sensitive marine fauna. | Reject | Limitation on timing of the activity imposts substantial schedule constraints and risks not complying with the timeframes specified by General Direction 831.<br>Environmental receptors that are particularly vulnerable to artificial light emissions (e.g., nesting and hatchling turtles, fledgling seabirds) do not occur within the area that may be impacted by light emissions from the petroleum activity.<br>Given the nature and scale of impacts from artificial light emissions, the control cost outweighs the environmental benefit. | Not applicable |
| Flaring restricted to a duration necessary to perform the activity for well bleed-off, with the exception of emergency events. | Accept | Reduces unnecessary flared volumes and corresponding light emissions.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 4.4 |

#### 7.4.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 7-4) that, when implemented, are considered to manage the impacts of artificial light emissions from the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts of artificial light emissions on marine fauna. Additional control measures were identified in Table 7-4 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 7.4.5. Demonstration of Acceptability

Artificial lighting is required to provide a safe working environment and comply with Marine Order Part 30: Prevention of Collisions, which gives effect to COLREGS. Given the adopted controls, light emissions will not result in potential impacts greater than temporary and minor behavioural disturbance to marine fauna. Further opportunities to reduce the impacts have been investigated in Table 7-4.

The assessment of impacts and selected controls are consistent with relevant requirements, including:

- National Light Pollution Guidelines for Wildlife (Commonwealth of Australia, 2023)
- Recovery Plan for Marine Turtles in Australia 2017-2027 (Commonwealth of Australia, 2017)
- Wildlife Conservation Plan for Seabirds (Commonwealth of Australia, 2020)
- Wildlife Conservation Plan for Migratory Shorebirds (Commonwealth of Australia, 2015)
- Conservation advice and recovery plans for threatened fauna

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding artificial light emissions have been raised by relevant stakeholders. The environmental impacts meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental impacts are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. Woodside's decommissioning strategy integrates long-term and short-term economic, environmental, social, and equitable considerations.
- Precautionary principle: The artificial light emissions aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- Inter-generational principle: The artificial light aspect will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The artificial light emissions aspect will not impact upon biodiversity or ecological integrity.

Woodside considers the impact to be managed to an acceptable level.

## 7.4.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 4<br>Light emissions managed to limit impacts to marine fauna to short-term behavioural impacts only (severity level ≤ 2)[1]. | C 4.1<br>Limit external lighting to that required for navigational and safety requirements, except for emergencies. | PS 4.1<br>Lighting will be limited to the minimum required for navigation and safety requirements in accordance with the *Navigation Act 2012* and associated Marine Orders 30 and 21. | MC 4.1.1<br>Inspection verifies no excessive light being used beyond that required for safe work/navigation |
| | C 4.2<br>Implementation of the Frontline Offshore Seabird Management Plan to reduce the likelihood and consequence of interactions with nocturnal seabird species. | PS 4.2.1<br>Implement a Frontline Offshore Seabird Management Plan that includes:<br>▪ Standardisation and maintenance of record keeping and reporting of seabird interactions.<br>▪ Procedures on seabird intervention, care, and management.<br>▪ Adaptive management framework<br>▪ Regular reporting requirement for seabirds (unintentional death of, or injury to, seabirds that are MNES). | MC 4.2.1<br>Records demonstrate Frontline Offshore Seabird Management Plan implemented |
| | | PS 4.2.2<br>Extend the application of the Frontline Offshore Seabird Management Plan to include the orange-bellied parrot. | |
| | C 4.3<br>Implement the following measures consistent with the National Light Pollution Guidelines (2023): | PS 4.3.1<br>MODU lighting inspection conducted to identify operational controls to minimise light to safety and/or navigation requirements. | MC 4.3.1<br>MODU lighting inspection records include identification of operational controls to minimise light to safety and/or navigation requirements. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | ▪ Extinguish outdoor/deck lights not necessary for safety and/or navigation at night.<br>▪ Outward facing lighting will be reduced to minimum levels, wherever practicable<br>▪ Directions to minimise non-essential lights (e.g., close blinds, turning lights off when room not in use) will be included in the MODU and vessel inductions.<br>▪ Manage seabird landings appropriately and report interactions. | PS 4.3.2<br>Directions to minimise non-essential lights at nighttime will be communicated to MODU and project vessels crew. | MC 4.3.2<br>MODU and vessel inductions to include directions to minimise non-essential lighting. |
| | | PS 4.3.3<br>Record observed bird trappings and collisions and implement care and release steps recommended in the International Association of Antarctica Tour Operators (IAATO) Guidelines to Minimize Seabirds Landing on Ships, where relevant. | MC 4.3.3<br>Records demonstrate IAATO Guidelines implemented during trapping and collision incidents. |
| | C 4.4<br>Flaring restricted to a duration necessary to perform the activity for well bleed-off, with the exception of emergency events. | PS 3.3<br>Flaring restricted to a duration necessary to perform the activity for well bleed-off, with the exception of emergency events. | MC 4.4.1<br>Records demonstrate flaring was restricted to a duration necessary to perform the activity for well bleed-off, with the exception of emergency events. |

1 Defined as ‘Measurable but limited impact (< 1 year) on marine environment, limited community impact (< 1 month).

# 7.5. Noise Emissions

## 7.5.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Noise emissions | Generation of underwater noise from the MODU, vessels, ROVs, positioning equipment (transponders), subsea cutting and flaring/venting during the activity. | Noise emissions may impact upon fauna by:<br>▪ reducing ability to perceive noise<br>▪ behavioural impacts<br>▪ masking of biologically important sounds. | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | Generation of noise from helicopter operations during take-off and landing aboard the MODU. | | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | Generation of underwater noise from acoustic survey equipment within operational area | | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |

## 7.5.2. Source of Risk

Noise emissions to the environment may occur during the petroleum activity from:

- the operation of the MODU, vessels, ROVs, subsea cutting and flaring/venting during plug and abandonment activities
- helicopter operations
- the operation of survey and positioning equipment

A summary of noise source characteristics for noise sources associated with the petroleum activity are provided in Table 7-5. Further descriptions of noise sources are provided in the sections below.

**Table 7-5: Summary of noise sources generated during the petroleum activity**

| Activity | Estimated Source SPL (dB re 1 µPa rms) | Frequency | Type |
|---|---|---|---|
| AHTS (holding station using DP) | < 194 dB re 1 µPa at 1 m | 10 Hz to 25 kHz | Continuous |
| AHTS (transiting) | < 170 dB re 1 µPa at 1 m | 10 Hz to 25 kHz | Continuous |
| MODU- drilling | < 175 dB re 1 µPa at 1 m | 10 Hz to 31 kHz | Continuous |
| MODU – under DP | < 186.7 dB re 1 µPa at 1 m | 10 Hz to 25 kHz | Continuous |
| Subsea Cutting | 136-141 dB re 1 µPa at 10 m | Around 5 kHz | Continuous |
| Seabed positioning transponders | < 200 dB re 1 µPa at 1 m | 10 kHz to 31 kHz | Impulsive |

#### 7.5.2.1. Vessel Noise

Vessels will generate underwater noise from vessel engines and machinery and propeller cavitation within the Operational Area. The nature of noise emissions depends on the activities being undertaken by the vessel. Up to three AHTS may be active in the Operational Area during MODU mooring and rig move activities. For normal P&A operations, one AHTS acting as a standby vessel will be in field at all times as required by the Safety Case, with a second AHTS in field during resupply activities (typically 6 – 12 hours depending on resupply activity).

Vessel movements using main engines within the Operational Area will be 6 knots or less. Noise emissions of from project vessels using main engines at speeds slower than 6 knots are characterised by continuous engine noise transmitted through the hull, with negligible noise from propellor cavitation.

Vessels installing anchors may generate higher noise levels when tensioning anchors. Noise during anchor tensioning is primarily generated by main engines and propellors for approximately 15 minutes per anchor. Anchor tensioning is required to verify mooring anchors have adequate hold to safely maintain the MODU position.

Vessels will use DP to maintain position when supplying the MODU. Only one vessel will be supplying the MODU at a given time. The DP system will use the thrusters to maintain vessel position. The number of vessels required to facilitate mooring operations is subject to the needs of the selected MODU, though it is expected that up to three AHTS vessels may be required within the Operational Area. It is anticipated that it will take approximately two days to hook up mooring lines and around the same duration to release them for each move between wells. Noise from vessel thrusters is expected to be greatest during anchor tensioning, which is expected to take approximately 15 minutes per anchor.

Noise generated by vessels using DP includes machinery noise from thruster motors and potentially noise generated by cavitation by thruster propellors. Cavitation is undesirable due to the resulting propellor damage and inefficiency, and thrusters are designed to avoid cavitation. The noise generated by DP thrusters depends on the energy required to hold position. DP thruster noise during calm conditions and low current speeds are substantially lower than thruster noise during relatively high energy metocean conditions or strong currents. Noise energy from DP thrusters is concentrated between 100 and 1,000 Hz, with the source sound pressure level (SPL) up to 181 db re 1 µPa at 1 m.

#### 7.5.2.2. MODU Noise

During P&A operations, the MODU will be moored and will generate low-intensity continuous sound from onboard equipment vibrations (e.g. pumps, generators and machinery), and a smaller portion transmitted directly via the drill bit. Sound produced from an active MODU is predominantly below 2 kHz, with peak frequencies below 500 Hz. A range of broadband values, 59 to 185 dB re 1 µPa at 1 m (SPL), have been quoted for various MODUs (Simmonds et al., 2004). McPherson et al. (2021) recorded the source level spectrum of the Ocean Onyx, a column-stabilised moored-MODU. The Ocean Onyx was measured to have a

broadband (10 Hz to 31 kHz) source level of 175.4 dB re 1 µPa m whilst anchored and drilling. This source level is considered representative of the P&A activity for this EP.

The MODU may operate in a thruster assist mode to move between wells and in emergency situations as per the MODU Safety Case. This system generates variable non-impulsive sound during infrequent operation of one up to six thrusters in response to feedback from the mooring system. A review of 33 months of historical operational data from the North Sea indicates thrusters are typically not active (>96% of the time) and utilisation is otherwise limited low loads across a small number of thrusters for short periods, (typically hours) in response to metocean conditions.

During mobilisation, demobilisation and rig move between wells, the MODU may be self-propelled and may enter, and move around within, the Operational Area either by itself or under tow. The MODU will need to move between wells; kedging between wells without disconnecting from the moorings is not feasible. MODU movements between wells may be self-propelled or under tow by AHTS vessel, with the MODU hooking up to pre-laid anchors. Noise generated by the MODU when propelling itself will have similar source levels and power spectral density to vessel noise (Section 7.5.2.1).

#### 7.5.2.3. Remotely Operated Vehicles

Remotely operated vehicles (ROVs) deployed from the MODU or vessels will be used during the petroleum activities program. ROVs generate underwater noise through the operation of machinery on the ROV (e.g., thrusters, hydraulics etc.). Noise levels from ROVs are substantially lower than those generated by the MODU and vessel thrusters. Given the noise generated from the ROV operation will not be the primary source of noise emissions during their deployment, the overall contribution of ROV noise is considered negligible.

#### 7.5.2.4. Survey and Positioning Equipment Noise

Acoustic transponders may be deployed on the seabed to assist with positioning of the MODU. Peak source levels of seabed acoustic transponders may be up to approximately 200 dB re 1 µPa at 1 m ($L_{p,rms}$). The frequency range is typically between 10 kHz and 31 kHz, which results in rapid transmission loss in the water column.

#### 7.5.2.5. Helicopter Noise

Helicopter activities may occur in the Operational Area, including the landing and take-off of helicopters on the MODU helideck for routine crew transfers. Vessel crew transfers will typically occur when vessels are in port. Non-routine helicopter activities may occur in the Operational Area, including the landing and take-off of helicopters on vessel helidecks. Sound emitted from helicopter operations is typically below 500 Hz (Richardson et al., 1995). The peak received level diminishes with increasing helicopter altitude, but the duration of audibility often increases with increasing altitude. Richardson et al. (1995) reports that helicopter sound is audible in air for four minutes before it passed over underwater hydrophones, but detectable underwater for only 38 seconds at 3 m depth and 11 seconds at 18 m depth. Noise levels reported for a Bell 212 helicopter during fly-over was reported at 162 dB re 1 µPa and for Sikorsky-61 is 108 dB re 1 µPa at 305 m (Simmonds et al., 2004).

#### 7.5.2.6. Noise Generated by Venting / Flaring Operations

Minimal flaring of gas will be required during the petroleum activity for the Minerva-3 and Minerva-4 wells (refer to Section 7.6.2.2). If flaring is required, it will be for a limited duration as it is constrained by the volume of gas in the wellbore. In addition, any flaring will be carried out at low flow rates, unlike flaring during standard operations.

Given flaring is a contingent operation, potential flare noise is limited in both duration and intensity and would be expected to attenuate rapidly from source. Flaring noise is released to the atmosphere. The sea surface is an excellent reflector of noise, hence relatively little underwater noise will result from flaring. The volumes of hydrocarbons that may be produced are relatively small compared to exploration or development drilling, and may not be sufficient to sustain a flare; refer to Section 7.6.2 for additional information on flaring.

Potential noise from flaring operations would be considered a secondary additive source of noise emissions given the primary (noisiest) source would be generated by the operation of the MODU, therefore flaring would

make a limited contribution to overall noise emissions from the proposed activity and as such is not evaluated further.

#### 7.5.2.7. Removal of Well Infrastructure

During wellhead removal, additional noise from the cutting of the surface casing and conductors is likely to be generated. The casings and conductors will be cut below the mudline to enable wellhead recovery using either abrasive water jet cutting method, or mechanical cutting method. Both cutting methods will generate underwater noise at the seabed, however the noise levels will be negligible compared to other noise sources (e.g., DP thrusters).

#### 7.5.2.8. Underwater Sound Transmission Loss Modelling

Woodside commissioned JASCO to undertake underwater noise sound transmission loss modelling for the Minerva decommissioning activities (Connell et al., 2024). The modelling study considered several sound sources in the Minerva field, including simultaneous noise from multiple sources to inform cumulative impact assessment. The following sound-producing activities were considered by Connell et al. (2024):

- Drilling noise from an anchored Mobile Offshore Drilling Unit (MODU),
- Vessel noise from MODU under dynamic positioning (DP),
- Vessel noise from two Anchor Handling Tug Supply (AHTS) vessels on slow transit on mooring operations, modelled as following a random track in a 4x4 km box centred around Minerva-3,
- Vessel noise from an AHTS on slow transit in standby operation, modelled as following a random track in a 2x4 km box approximately 2 km east of Minerva Well 3,
- Vessel noise from an AHTS conducting resupply operations under DP,
- Vessel noise from a multi-purpose support vessel (MPSV) removing subsea infrastructure, including pipelines, following a track and making headway at a rate 240 m/day.

The five noise scenarios modelled by JASCO (Connell et al., 2024) are summarised in Table 7-6. Noise source spectra for these noise sources are shown in Figure 7-2.

**Table 7-6: Description of modelled scenarios**

| Scenario | Site(s) | Location | Operation Name | Operation Description | Operation Time |
|---|---|---|---|---|---|
| 1 | 2,3,4 | Minerva Well-3 | Mooring | ▪ Moored MODU idle (no noise)<br>▪ 1x Anchor Handler on bridle<br>▪ 2x Anchor Handler within 2 km of location (hooking up anchors) | 24 hr |
| 1a | 1a, 2, 3, 4 | Minerva Well-3 | Mooring w DP MODU | ▪ MODU on DP<br>▪ 1x Anchor Handler on bridle<br>▪ 2x Anchor Handler within 2 km of location (hooking up anchors) | 24 hr |
| 2 | 1,5 | Minerva Well-3 | MODU Drilling with AHTS on Standby | ▪ Anchored MODU Drilling<br>▪ 1x Anchor Handler on standby 2<br>▪ km east (under minimal thrust) | 24 hr |
| 3 | 1,5,6 | Minerva Well-3 | MODU Drilling with AHTS on standby and resupply | ▪ Anchored MODU Drilling<br>▪ 1x Anchor Handler on standby within 2km (under minimal thrust)<br>▪ 1x Anchor Handler at MODU doing resupply (under DP) | MODU: 24 hr<br>OSV Standby: 24 hr<br>OSV Resupply: 8 hr |
| 4 | 7 | 500 m from Minerva Well-3 | MPSV Subsea infrastructure removal | ▪ MPSV removing subsea infrastructure and pipeline – 240 m/day | 24 hr |
| 5† | 1,5,6,7 | Minerva Well-3 | MODU Drilling with Standby AHTS, resupply and<br>MPSV Subsea infrastructure removal † | ▪ Anchored MODU Drilling<br>▪ 1x Anchor Handler on standby within 2km (under minimal thrust)<br>▪ 1x Anchor Handler at MODU doing resupply (under DP)<br>▪ MPSV removing subsea infrastructure and pipeline – 240 m/day | MODU: 24 hr<br>AHTS Standby: 24 hr<br>AHTS Resupply: 8 hr<br>MPSV Removal: 24 hr |

† This scenario is a combination of Scenario 3 and 4 to represent concurrent operations.

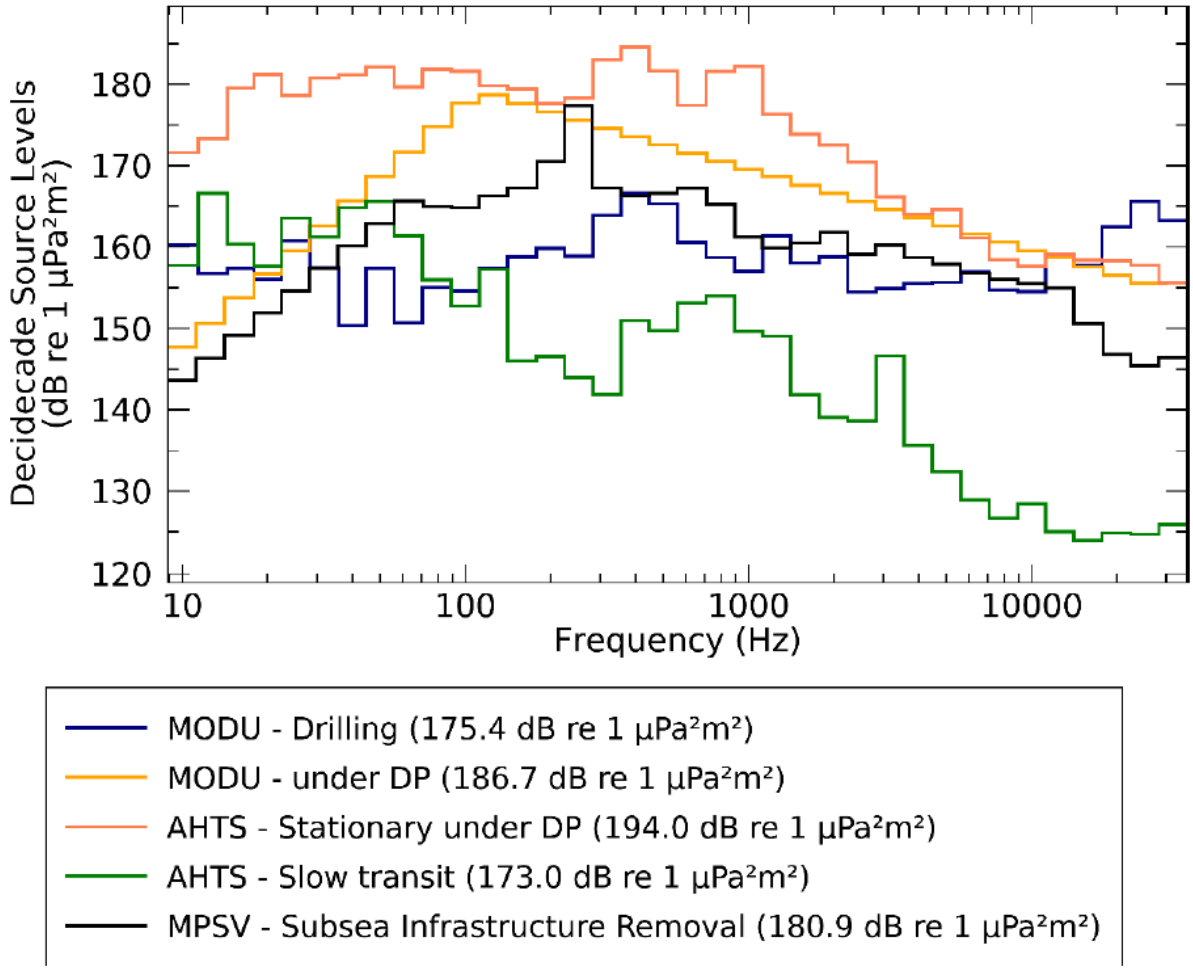


**Figure 7-2: Energy source level spectra (in decidecade frequency-band) for all sound sources (from Jasco, 2024)**

The JASCO study (Connell et al., 2024) assessed distances from operations where underwater sound levels reached thresholds corresponding to various levels of potential impact to marine fauna. The animals considered included marine mammals, turtles, and fish. Due to the variety of species considered, several different thresholds were used for evaluating effects, including mortality, injury, temporary reduction in hearing sensitivity, and behavioural disturbance.

The modelling methodology considered scenario-specific source levels and range-dependent environmental properties. Estimated underwater acoustic levels for non-impulsive (continuous) noise sources presented as peak sound pressure levels (SPL, $L_p$), and as accumulated sound exposure levels (SEL, $L_E$) as appropriate for different noise effect criteria. The duration of the SEL accumulation is defined as integrated over a 24-hour period.

The $SEL_{24h}$ is a cumulative metric that reflects the dosimetric impact of noise levels over 24 hours based on the assumption that an animal is consistently exposed to such noise levels at a fixed position. The corresponding $SEL_{24h}$ radii represent an unlikely worst-case scenario. More realistically, mobile fauna (e.g., marine mammals) would not stay in the same location for 24 hours. Therefore, a reported radius for $SEL_{24h}$ criteria does not mean that marine fauna travelling within this radius of the source will be injured, but rather that an animal could be exposed to the sound level associated with impairment if it remained in that location for 24 hours.

## 7.5.3. Environmental Impact Assessment

Several fauna within the Operational Area may be impacted by noise from the petroleum activity, including:

- marine mammals
- fishes
- turtles

Anthropogenic noise has been identified as a threat to these taxa. Relevant actions included in recovery plans for these species are outlined in Section 4.4.3.

### 7.5.3.1. Marine Fauna

***Marine Mammals***

Marine mammals that may occur within the Operational Area are summarised in Section 4.4.2, which predominantly include migratory and threatened cetaceans and the Australian sea-lion (an otariid, or eared, seal).

Marine mammals that may occur within the Operational Area are summarised in Section 4.4.2, which predominantly include migratory and threatened cetaceans and the Australian sea-lion (an otariid, or eared, seal). Anthropogenic noise has been identified as a threat to several cetaceans that may occur within the Operational Area, including the pygmy blue whales and southern right whales – both of which have BIAs overlapping and in proximity to the Operational Area (Section 4.4.3 and Table 4-6).

Marine mammals rely on sound for critical life functions such as detecting predators, navigation and identifying prey (Erbe, 2012; Erbe et al., 2016; Weilgart, 2007). Underwater noise can affect these life functions, cause behaviour changes and/or cause injury through TTS and PTS. The continuous noise impact threshold levels shown in Table 7-7 are derived from relevant literature and have been used to determine the likelihood of marine mammals experiencing behaviour responses, TTS, or PTS from the petroleum activity. Thresholds are defined by functional hearing groups.

**Table 7-7: Continuous noise impact thresholds for acoustic effects on marine mammals**

| Hearing Group | Behavioural Change[1] SPL (dB re 1 µPa) | TTS Onset[2] Weighted $SEL_{24h}$ (dB re 1 $\mu Pa^2.s$) | PTS Onset[2] Weighted $SEL_{24h}$ (dB re 1 $\mu Pa^2.s$) |
|---|---|---|---|
| Low-frequency cetaceans | 120 | 179 | 199 |
| High-frequency cetaceans | 120 | 178 | 198 |
| Very high-frequency cetaceans | 120 | 153 | 173 |
| Otariid seals | - | 199 | 219 |

[1] ESA Section 7 Consultation Tools for Marine Mammals on the West Coast (National Oceanic and Atmospheric Administration, 2019)

[2] Southall et al. (2019)

The Operational Area overlaps part of the pygmy blue whale foraging BIA associated with the Bonney Upwelling (Table 4-6). Migrating pygmy blue whales may be exposed to underwater noise generated by vessels and the MODU.

The *Conservation Management Plan for the Blue Whale* (Commonwealth of Australia, 2015b), a recovery plan made under the EPBC Act, defines BIAs for pygmy blue whales, with particular emphasis placed on foraging areas and migration corridors. As noted above, the Operational Area partially overlaps the foraging BIA associated with the Bonney Upwelling. The *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (DAWE, 2021) elaborates on the recovery plan and makes a number of points that relate to the assessment of underwater noise impacts to pygmy blue whales in this EP (Table 7-8).

**Table 7-8: Selected definitions from DAWE (2021) for elements of the Conservation Management Plan for the Blue Whale (Commonwealth of Australia, 2015a) relevant to the Petroleum Activity**

| Recovery Plan Element | Definition |
|---|---|
| "Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area" | The intent of this requirement is to ensure that any blue whale can continue to forage with a high degree of certainty in a foraging area, and that any blue whale is not displaced from a foraging area. In instances where a threat of environmental harm exists and there is scientific uncertainty as to the outcome, a precautionary approach must be taken.<br>A precautionary approach should be taken to the management of industry activities proposed to occur in or adjacent to designated BIAs (foraging areas) due to the increased likelihood of whales foraging in those locations at critically important times.<br>Activities proposed to occur outside designated foraging areas must adopt best practice adaptive management approaches in the event that indicators of whale foraging (such as aggregating in a particular area) are evident to ensure that impacts to whales are not unacceptable e.g., injury or displacement. |
| Definition of 'a foraging area' | Foraging – verb (i) to wander in search of supplies. (Macquarie Dictionary 8th ed. 2020)<br>Feeding – verb (i) to take food; eat; graze. (Macquarie Dictionary 8th ed. 2020)<br>Noting the potential for whale foraging and feeding to occur in areas of high primary productivity outside of designated Foraging Areas, consideration also needs to be given to management of industry activities and underwater anthropogenic noise where opportunistic foraging potential exists.<br>In areas other than those identified in the CMP or NCVA (described in points (i) and (ii) above), where it can be reasonably predicted that blue whale foraging is probable, known or whale presence is detected, adaptive management should be used during industry activities to prevent unacceptable impacts (i.e., no injury or biologically significant behavioural disturbance) to blue whales from underwater anthropogenic noise. In-field observations of actual whale feeding are difficult to detect, so indicators of probable foraging should be used as a proxy. |
| Definition of 'displaced from a foraging area' | The recovery plan requirement, Action A.2.3, applies in relation to BIAs. A whale could be displaced from a foraging area if impact mitigation is not implemented. This means that underwater anthropogenic noise should not:<br>▪ Stop or prevent any blue whale from foraging<br>▪ Cause any blue whale to move on when foraging<br>▪ Stop or prevent any blue whale from entering a foraging area<br>It is considered that a whale is displaced from a foraging area if foraging behaviour is disrupted, regardless of whether the whale can continue to forage elsewhere within that foraging area. Mitigation measures must be implemented to reduce the risk of displacement occurring during operations where modelling indicates that behavioural disturbance within a foraging area may occur. |
| Definition of 'injury to Blue Whales' | For the purpose of interpreting and applying Action Area A.2 of the Blue Whale CMP, injury is both permanent and temporary hearing impairment (Permanent Threshold Shift and Temporary Threshold Shift) and any other form of physical harm arising from anthropogenic sources of underwater noise. |

Based on the *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (DCCEEW, 2021), underwater noise emissions from the petroleum activities program must not:

- result in TTS or PTS to pygmy blue whales
- displace a pygmy blue whale from a foraging BIA.

The National Recovery Plan for the Southern Right Whale (DCCEEW, 2024), a recovery plan made under the EPBC Act, defines BIAs for southern right whales, with particular emphasis placed on reproductive and migration areas. The Operational Area overlaps a small portion of the southern right whale migration BIA.

Other migratory low frequency cetaceans that may occur seasonally in the Operational Area include fin, sei and humpback whales. These species undertake seasonal migrations between subpolar feeding grounds (in summer) and lower latitude breeding grounds (in winter) and may transit through the Operational Area.

The sound transmission loss modelling study by JASCO (Connell et al., 2024) indicated for low frequency cetaceans:

- the $SEL_{24h}$ threshold for PTS threshold (Table 7-9) would:
  - potentially be exceeded within 0.37 km from vessels during anchor tensioning (Figure 7-3)
  - not be exceeded during normal MODU drilling operations (Figure 7-4)
  - potentially be exceeded within 0.18 km of the supply vessel during DP resupply operations (Figure 7-5)
- the $SEL_{24h}$ threshold for TTS would:
  - potentially be exceeded within 3.55 km from vessels during anchor tensioning (Figure 7-3)
  - potentially be exceeded within 2.57 km of the MODU during normal drilling operations (Figure 7-4)
  - potentially be exceeded within 2.09 km of the supply vessel during DP resupply operations (Figure 7-5)

The area ensonified above impact thresholds overlaps the pygmy blue whale foraging BIA and southern right whale migration BIA, but does not overlap the southern right whale reproduction BIA.

Note these exposure levels require an animal to remain within the area ensonified above this threshold continuously for 24 hours. An animal remaining in the area ensonified above impact thresholds is unrealistic as:

- as MODU mooring and resupply activities are shorter (peak thrust during anchor tensioning typically occurs for 15 minutes, MODU resupply typically requires < 8 hrs)
- animals experiencing uncomfortable levels of noise are reasonably expected to move away from or avoid the sound source.

Observation of southern right whales with calves by Nielsen et al. (2019), which are known to move slowly and have long residence times in coastal waters while calving and nursing, recorded a minimum observed speed of 0.18 m/s (approximately 0.6 km/h) and an average movement speed of 0.64 m/s (approximately 2.3 km/h). Southern right whales typically calve and nurse in shallow coastal waters and these behaviours are unlikely to occur in the Operational Area. Other low frequency cetaceans including fin, sei and humpback whales may transit through the Operational Area while undertaking seasonal migrations (Section 4.4.2) though it is not known to represent significant foraging/aggregation habitat (TSSC, 2015a; TSSC, 2015b; TSSC, 2022). Ostensibly, individual fin, sei and humpback whales are not expected to linger in proximity to vessels or the MODU. Consequently, PTS and/or TTS will not credibly occur in any LF marine mammals because of the petroleum activity.

Specifically, no injury – as defined by the *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (DAWE, 2021) – will credibly occur to pygmy blue whales. Similarly, it is not considered credible that southern right whales will be prevented from utilising the migration BIA or experience auditory impairment because of the petroleum activity.

Other marine mammals including Dusky Dolphins, Killer Whales and Australian Sea Lions may also be present in the Operational Area during petroleum activities. The Operational Area is not known to represent significant habitat for foraging or breeding for these mammals, no BIAs are overlapping and their distribution in the broader region is temporally and spatially ubiquitous. Given the broad population distribution of these fauna, the relatively small footprint for audible injury (Table 7-9) and the expectation that these highly mobile fauna would display avoidance behaviours, it is not expected that injury would occur.

**Table 7-9: Vessel scenarios at Minerva, $SEL_{24h}$: Maximum ($R_{max}$) horizontal distances (in km) to frequency-weighted $SEL_{24h}$ PTS and TTS thresholds based on Southall et al. (2019) and Finneran et al. (2017) from most appropriate location for considered sources per scenario and ensonified area ($km^2$) (from Connell et al., 2024). Refer to Table 7-6 for descriptions of modelled scenarios.**

| Hearing Group | Frequency-weighted $SEL_{24h}$ threshold ($L_{e,24h}$; dB re 1 $\mu Pa^2 \cdot s$ | Minerva-3 | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Scenario 1 | | Scenario 1a | | Scenario 2 | | Scenario 3 | |
| | | $R_{max}$ (km) | Area ($km^2$) | $R_{max}$ (km) | Area ($km^2$) | $R_{max}$ (km) | Area ($km^2$) | $R_{max}$ (km) | Area ($km^2$) |
| ***PTS*** | | | | | | | | | |
| LF cetaceans | 199 | 0.37 | 0.33 | 0.37 | 0.36 | – | – | 0.18 | 0.07 |
| HF cetaceans | 198 | – | – | – | – | – | – | – | – |
| VHF cetaceans | 173 | 0.15 | 0.07 | 0.15 | 0.12 | 0.22 | 0.13 | 0.26 | 0.16 |
| Otariid seals | 219 | – | – | – | – | – | – | – | – |
| Sea turtles | 220 | – | – | – | – | – | – | – | – |
| ***TTS*** | | | | | | | | | |
| LF cetaceans | 179 | 3.14 | 18.0 | 3.55 | 27.9 | 2.57 | 1.17 | 2.09 | 7.12 |
| HF cetaceans | 178 | 0.11 | 0.04 | 0.11 | 0.07 | 0.12 | 0.04 | 0.16 | 0.06 |
| VHF cetaceans | 153 | 2.43 | 3.71 | 2.91 | 8.27 | 2.56 | 6.89 | 1.99 | 7.91 |
| Otariid seals | 199 | 0.07 | 0.02 | 0.07 | 0.02 | – | – | 0.07 | 0.01 |
| Sea turtles | 200 | 0.29 | 0.25 | 0.30 | 0.30 | – | – | 0.15 | 0.05 |

A dash (-) indicates the level was not reached within the limits of the modelled resolution (20 m).

A slash (/) indicates that the area is less than an area associated with the modelled resolution (0.0013 $km^2$).

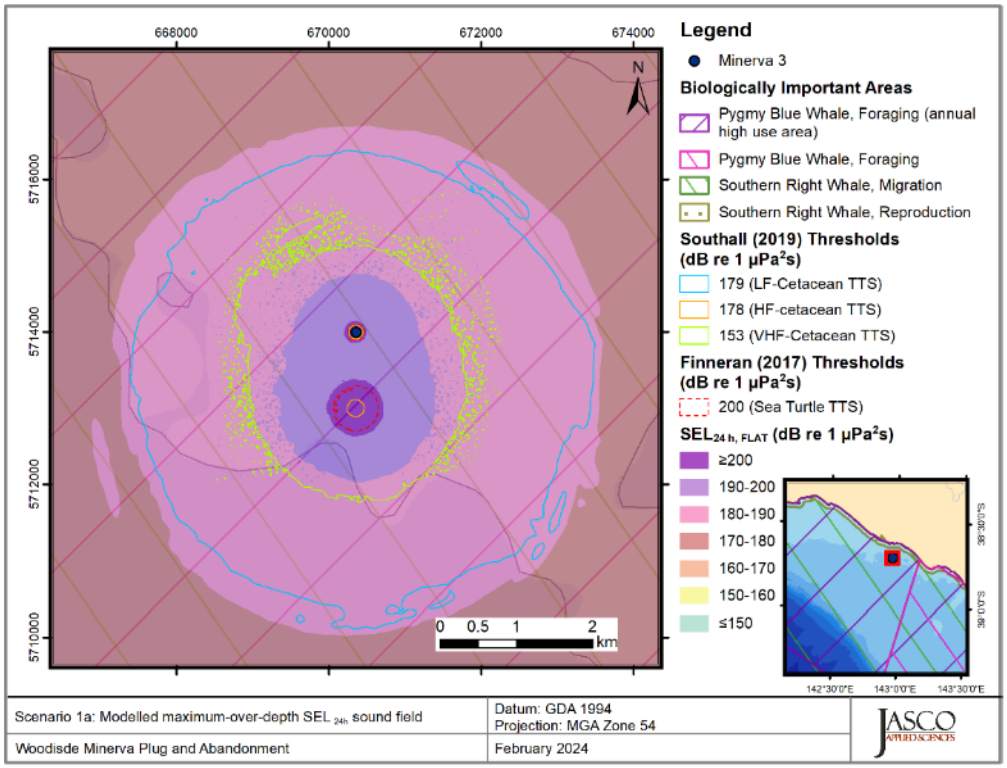


**Figure 7-3: Scenario 1a, Mooring with DP MODU, accumulated SEL24h: Sound level contour map showing maximum-over-depth SEL24h results (unweighted/flat), along with frequency weighted isopleths for TTS in low, high, and very-high- frequency cetaceans. Thresholds omitted here were not reached or not long enough to display graphically (from Connell et al., 2024).**

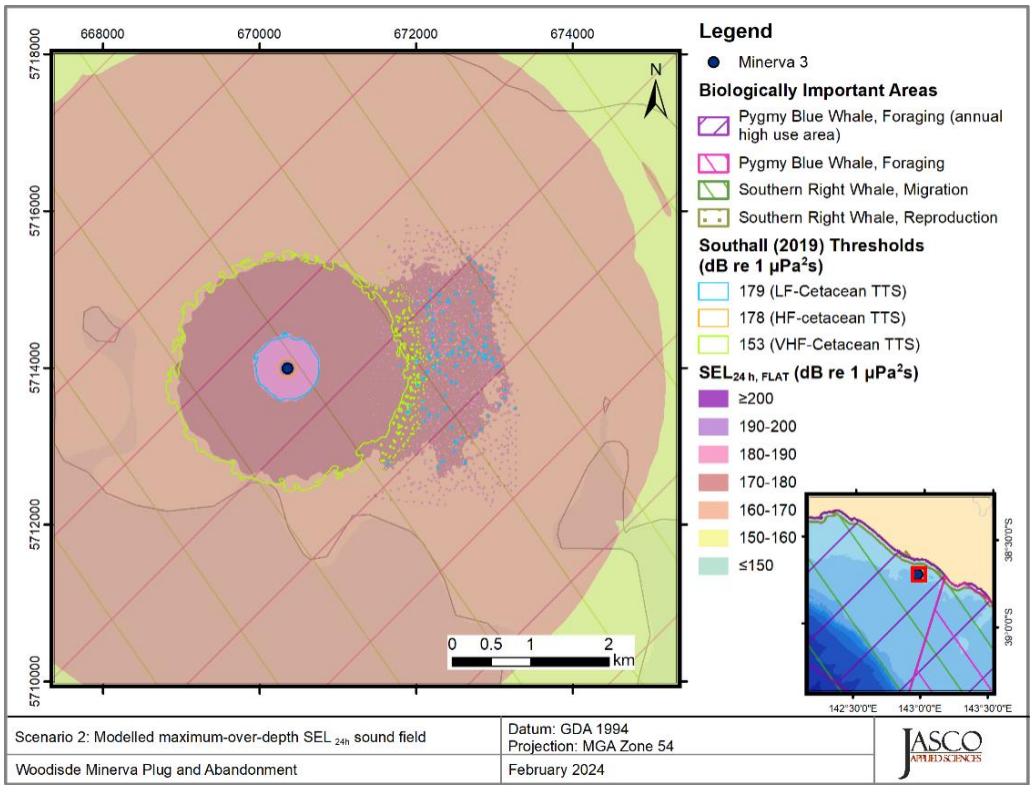


**Figure 7-4: Scenario 2, MODU drilling with AHTS on standby, accumulated SEL24h: Sound level contour map showing maximum-over-depth SEL24h results (unweighted/flat), along with frequency weighted isopleths for TTS in low, high, and very-high-frequency cetaceans. Thresholds omitted here were not reached or not long enough to display graphically (from Connell et al., 2024).**

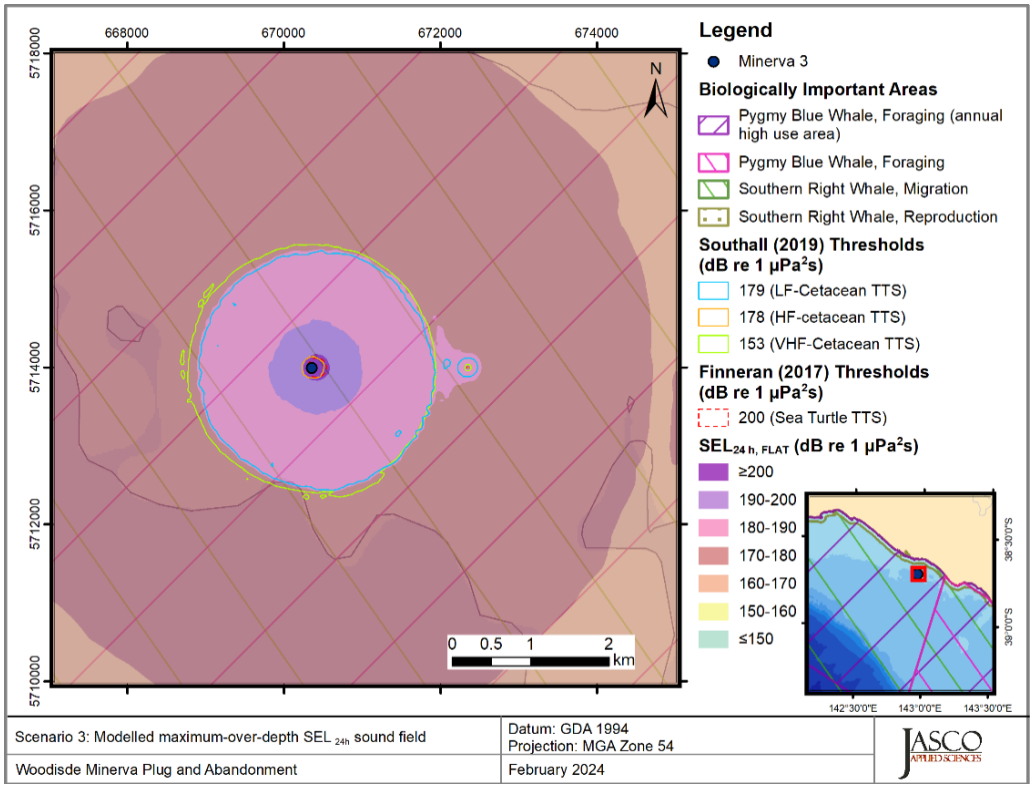


**Figure 7-5: Scenario 3, MODU drilling with AHTS on standby and resupply, accumulated SEL24h: Sound level contour map showing maximum-over-depth SEL24h results (unweighted/flat), along with frequency weighted isopleths for TTS in low, high, and very-high-frequency cetaceans. Thresholds omitted here were not reached or not long enough to display graphically (from Connell et al., 2024).**

The modelling study by JASCO (Connell et al., 2024) predicted that behavioural impacts for low-, high-, and very high-frequency cetaceans could occur at a maximum range ($R_{max}$) of up to (Table 7-10):

- 10.2 km during anchor tensioning (Figure 7-6)
- 2.54 km during normal MODU drilling operations (Figure 7-7)
- 9.57 km during MODU resupply (Figure 7-8).

The areas ensonified above the behavioural impact thresholds overlap the pygmy blue whale foraging BIA and southern right whale migration BIA. The anchor tensioning (Scenario 1a) and MODU resupply (Scenario 3) activities also partially overlap the southern right whale reproduction BIA. As such, there is the potential for pygmy blue whales and southern right whales to experience behavioural disturbance. Behavioural responses are hard to predict, but the received level of sound intensity contributes to such responses (NOAA, 2019).

Studies of foraging blue whales in proximity to large ships showed no observable behavioural effects until the range between whales and large ships was < 900 m (McKenna, 2011); substantially less than the10.2 km $R_{max}$ range for the 120 dB SPL $L_p$ behavioural disturbance threshold predicted by the JASCO study (Connell et al., 2024). This suggests the 120 dB SPL $L_p$ threshold may be overly conservative for foraging blue whales.

McKenna (2011) observed apparent changes in behaviour in feeding blue whales that experienced close passes (i.e., < 900 m separation) with large ships, such as:

- increased time on the surface between feeding dives after a close pass by a large ship
- reduced number of feeding lunges during dives after a close pass by a large ship.

McKenna (2011) noted substantial variation between individual blue whales in response to close passes with large ships and suggested habituation to noise may explain such variation. Of note, McKenna (2011) did not observe any blue whales cease foraging activity in response to close passes with large vessels. This suggests that the noise levels produced during the petroleum activity may not be sufficient to displace pygmy blue whales from a foraging area as defined in Table 7-8.

Southern right whales are expected to occur in proximity the Operational Area during migration periods given the overlap with the migration BIA. As such, migrating southern right whales may experience behavioural impacts. These are expected limited to short-term impacts, such as attraction or avoidance, and be localised to within ~10 km from the source, which would not prevent southern right whales from utilising the migration corridor.

The results of the modelling study by JASCO (Connell et al., 2024) indicate the 120 dB SPL $L_p$ behavioural impact threshold may be exceeded within a very small portion of the southern right whale reproduction BIA during anchor tensioning (Figure 7-6) and MODU resupply (Figure 7-8), which are not continuous activities. Hence, behavioural impacts to southern right whales within the reproduction BIA are unlikely to occur.

Other marine mammals including Dusky Dolphins, Killer Whales and Australian Sea Lions, occurring ubiquitously in the region, could potentially experience behavioural disturbance. Behavioural impacts would be limited to short-term impacts, such as attraction or avoidance, and be localised to within ~10 km from the source.

**Table 7-10: Minerva, SPL: Maximum ($R_{max}$) and 95% ($R_{95\%}$) horizontal distances (in km) to sound pressure level (SPL) from most appropriate location for considered sources per scenario. Scenario descriptions are given in Table 3 (from Connell et al., 2024). Refer to Table 7-6 for descriptions of modelled scenarios.**

| SPL ($L_p$, dB re 1 µPa | Minerva-3 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Scenario 1 | | Scenario 1a | | Scenario 2 | | Scenario 3 | |
| | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) | $R_{max}$ (km) | $R_{95\%}$ (km) |
| 180 | – | – | – | – | – | – | – | – |
| 170[a] | – | – | – | – | – | – | – | – |
| 160 | – | – | 0.10 | 0.10 | – | – | 0.13 | 0.12 |
| 158[b] | 0.12 | 0.12 | 0.12 | 0.12 | – | – | 0.15 | 0.14 |
| 150 | 0.38 | 0.37 | 0.40 | 0.38 | 0.02 | 0.02 | 0.43 | 0.39 |
| 140 | 1.00 | 0.93 | 1.71 | 1.51 | 0.11 | 0.11 | 1.09 | 0.96 |
| 130 | 3.41 | 3.00 | 4.27 | 3.73 | 0.50 | 0.44 | 3.61 | 3.06 |
| 120[c] | 9.93 | 9.01 | 10.2 | 9.42 | 2.54 | 2.27 | 9.57 | 8.36 |

* $R_{max}$ is the maximum range from the sound source predicted by the modelling at which the threshold value occurs.

** $R_{95\%}$ is the range within which the threshold value is reached 95% of the time.

[a] 48 hr threshold for recoverable injury for fish with a swim bladder involved in hearing (Popper et al., 2014).

[b] 12 h threshold for TTS for fish with a swim bladder involved in hearing (Popper et al., 2014).

[c] Threshold for LF, HF & VHF-cetacean and Otariid Seal behavioural response to non-impulsive noise (NOAA, 2019).

A dash (-) indicates the level was not reached within the limits of the modelled resolution (20 m).

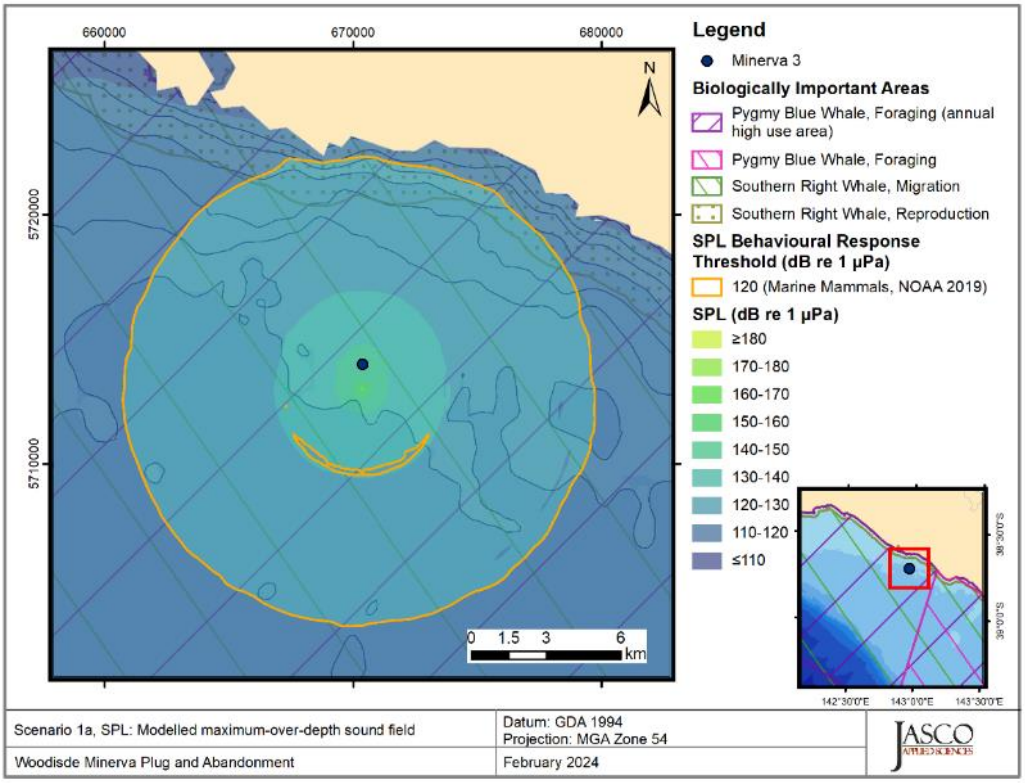


**Figure 7-6: Scenario 1a, Mooring with DP MODU, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals (from Connell et al., 2024).**

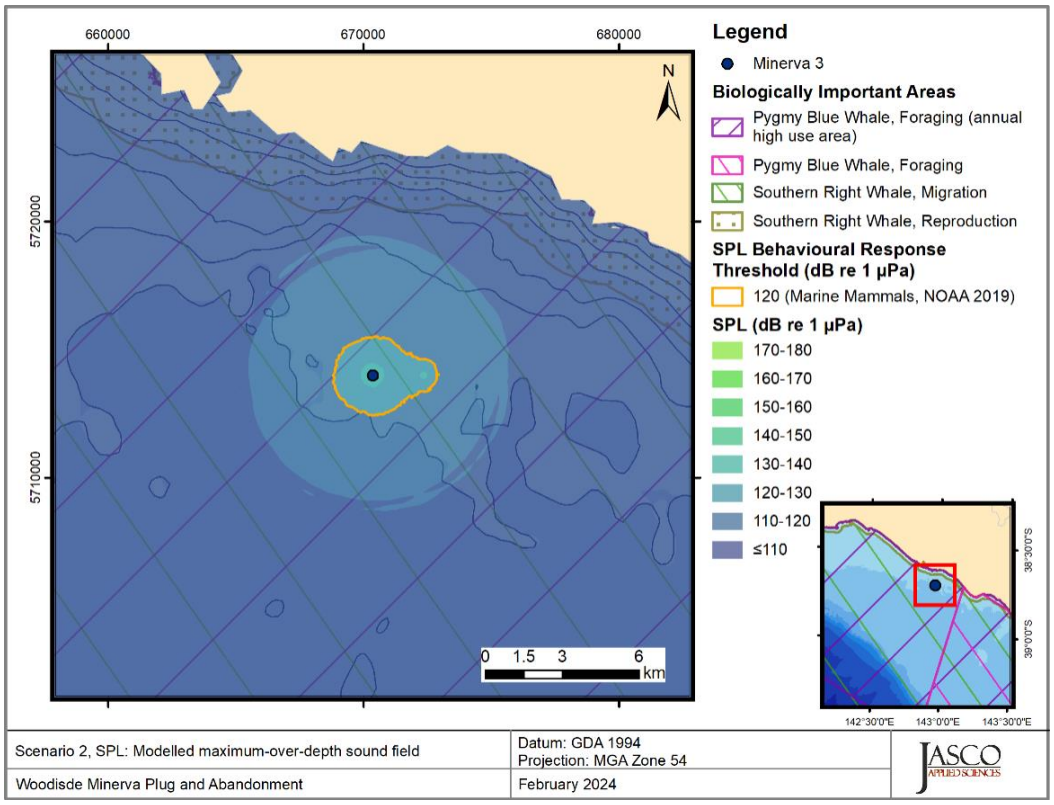


**Figure 7-7: Scenario 2, MODU drilling with AHTS on standby, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals (from Connell et al., 2024).**

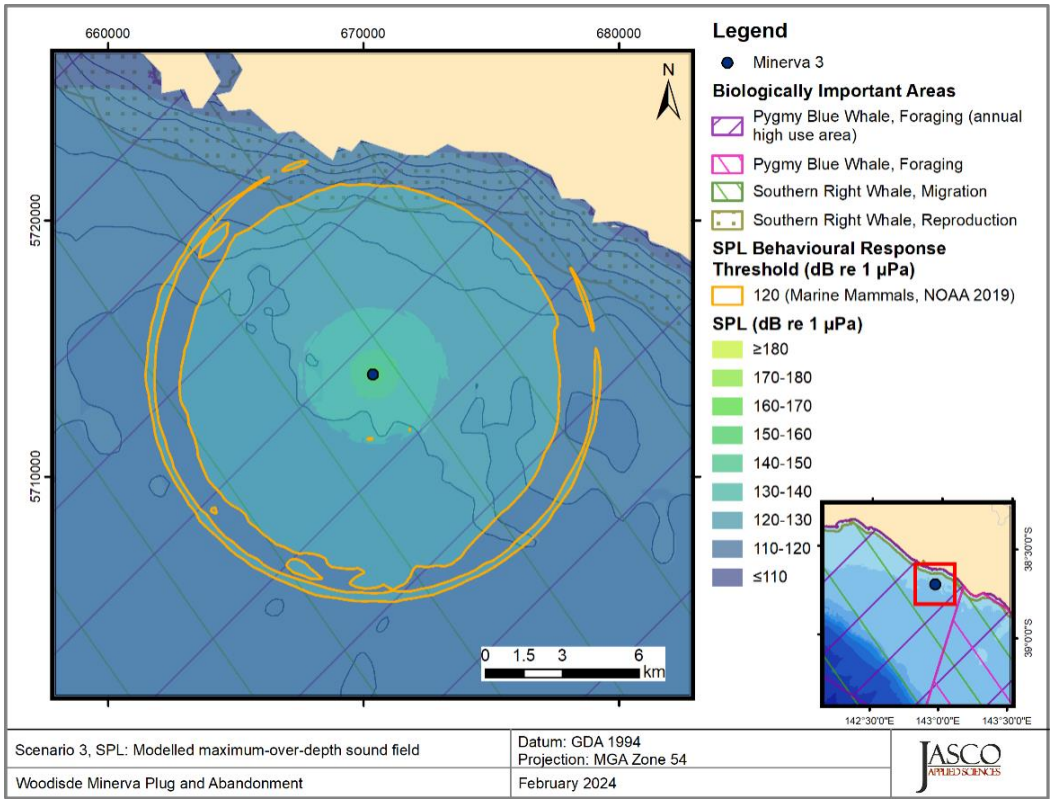


**Figure 7-8: Scenario 3, MODU drilling with AHTS on standby and resupply, SPL: Sound level contour map showing the unweighted maximum-over-depth sound field in 10 dB steps, and the isopleths for behavioural response threshold for marine mammals (from Connell et al., 2024).**

### *Marine Turtles*

Marine turtles are at low risk of mortality or permanent injury from continuous anthropogenic noise sources, such as project vessels (Popper et al., 2014). Marine turtles have also been shown to avoid low-frequency sounds (DeRuiter and Doukara, 2012).

The JASCO modelling study (Connell et al., 2024) used the impact thresholds listed in Table 7-11 and Table 7-12 to assess the potential for impacts to marine turtles (and fishes, considered below). The modelling study results indicated the $SEL_{24h}$ threshold for PTS in marine turtles would not be exceeded in any scenario. The $SEL_{24h}$ threshold for TTS in marine turtles would occur to $R_{max}$ of 290 m during anchor tensioning and $R_{max}$ of 150 m during routine drilling (Scenario 2) and MODU resupply (Scenario 3). It is not credible that a marine turtle would remain within the area ensonified for 24 hours and the anchor tensioning and MODU resupply activities are substantially shorter than 24 hrs. Hence TTS in marine turtles will not credibly occur because of the petroleum activity.

While more qualitative than the PST and TTS thresholds, the exposure criteria in Table 7-11 suggest that impacts to marine turtles from underwater noise will be limited to masking and behavioural disturbance within hundreds of metres of the noise sources. Given the lack of important turtle habitat and the low number of turtles in the region, such impacts will be limited to individual turtles. Functional hearing in marine turtles is adapted to low frequencies, hence impacts from positioning equipment are unlikely to occur.

**Table 7-11: Criteria for vessel noise exposure for fish and marine turtles, adapted from Popper et al. (2014).**

| Type of Animal | Mortality and Potential Mortal Injury | Impairment | | | Behaviour |
|---|---|---|---|---|---|
| | | *Recoverable Injury* | *TTS* | *Masking* | |
| Fish:<br>No swim bladder (particle motion detection) | (N) Low<br>(I) Low<br>(F) Low | (N) Low<br>(I) Low<br>(F) Low | (N) Moderate<br>(I) Low<br>(F) Low | (N) High<br>(I) High<br>(F) Moderate | (N) Moderate<br>(I) Moderate<br>(F) Low |
| Fish:<br>Swim bladder not involved in hearing (particle motion detection) | (N) Low<br>(I) Low<br>(F) Low | (N) Low<br>(I) Low<br>(F) Low | (N) Moderate<br>(I) Low<br>(F) Low | (N) High<br>(I) High<br>(F) Moderate | (N) Moderate<br>(I) Moderate<br>(F) Low |
| Fish:<br>Swim bladder involved in hearing (primarily pressure detection) | (N) Low<br>(I) Low<br>(F) Low | 170 dB SPL for 48 h | 158 dB SPL for 12 h | (N) High<br>(I) High<br>(F) High | (N) High<br>(I) Moderate<br>(F) Low |
| Turtles | (N) Low<br>(I) Low<br>(F) Low | (N) Low<br>(I) Low<br>(F) Low | (N) Moderate<br>(I) Low<br>(F) Low | (N) High<br>(I) High<br>(F) Moderate | (N) High<br>(I) Moderate<br>(F) Low |
| Fish eggs and fish larvae | (N) Low<br>(I) Low<br>(F) Low | (N) Low<br>(I) Low<br>(F) Low | (N) Low<br>(I) Low<br>(F) Low | (N) High<br>(I) Moderate<br>(F) Low | (N) Moderate<br>(I) Moderate<br>(F) Low |

*Sound pressure level dB re 1 µPa.*

*Relative risk (high, moderate, low) is given for animals at three distances from the source defined in relative terms as near (N) – tens of metres, intermediate (I) – hundreds of metres, and far (F) – thousands of metres.*

**Table 7-12: Acoustic effects of continuous noise on turtles, weighted $SEL_{24h}$, Finneran et al. (2017)**

| PTS onset thresholds (received level)<br>Weighted $SEL_{24h}$<br>($L_{E,24h}$; dB re 1 µPa$^2$s) | TTS onset thresholds (received level)<br>Weighted $SEL_{24h}$<br>($L_{E,24h}$; dB re 1 µPa$^2$s) |
|---|---|
| 220 | 200 |

### *Fish, Sharks, and Rays*

All fish species can detect noise sources, although hearing ranges and sensitivities vary substantially between species. Sensitivity to sound pressure seems to be functionally correlated in fishes to the presence and absence of gas-filled chambers in the sound transduction system. These enable fishes to detect sound pressure and extend their hearing abilities to lower sound levels and higher frequencies (Popper et al., 2019).

Based on their anatomy, Popper et al. (2014) classified fishes into three animal groups, comprising:

- fishes with swim bladders whose hearing does not involve the swim bladder or other gas volumes
- fishes whose hearing does involve a swim bladder or other gas volume
- fishes without a swim bladder that can sink and settle on the substrate when inactive.

The criteria defined in Popper et al. (2014) for continuous (Table 7-11) noise sources on the above groups have been adopted.

Based on criteria developed by Popper et al. (2014) for noise impacts on fish, project vessel noise has a low risk of resulting in mortality and a moderate risk of TTS impacts when fish are within tens of metres from the source. The most likely impacts to fish from noise will be behavioural responses, reducing any TTS impact. Individual demersal fish may be impacted in the vicinity of the Operational Area and tuna and billfish and other mobile pelagic species may transverse the Operational Area.

Short-finned eels were identified as a cultural value by EMAC and GMTOAC, and traditional owners have a long association with this species. Short-finned eels have a swim bladder not involved in hearing. Using the criteria in Table 7-11, there is negligible risk of mortality, injury or TTS from underwater noise arising from the petroleum activity. Masking and behavioural impacts may occur; however, these will be limited to within hundreds of metres of the noise source. The migration period for short-finned eels is protracted over autumn and summer (Todd, 1980), and the species is distributed across south-eastern Australia. Hence, masking and behavioural impacts to short-finned eels would only affect a small portion of the migrating population of eels, with no impacts on eels in their freshwater environments.

The Operational Area is not known to be an important spawning or aggregation habitat for commercially caught targeted species. Therefore, no impacts to fish stocks from underwater noise are expected.

Any impacts from noise sources to fish, sharks and rays are anticipated to be temporary and minor and relate to behavioural changes only.

***Birds***

Birds are not particularly vulnerable to underwater noise but may be impacted by noise from helicopters or flaring. The Operational Area is not a known seabird aggregation area, although several species of seabirds may forage within the Operational Area (Table 4-6). Seabirds may be attracted to the presence of the vessels and MODU, and hence there may be a higher density of birds in the Operational Area than in the surrounding environment.

Helicopter noise during landing and take-off and noise from flaring may result in behavioural disturbance to seabirds. Seabirds are likely to move away from these noise sources, resulting in in a short-term behavioural disturbance. This impact would only occur during a short period (minutes) when helicopters are landing or taking off or the flare is burning produced hydrocarbons. Seabirds are expected to resume normal behaviour once the noise source is no longer in the Operational Area. As such, impacts to birds from noise emissions are limited to short-term, localised behavioural response, with recovery expected to occur once the noise source is no longer present.

#### 7.5.3.2. Removal of Well Infrastructure

Twachtman et al. (2004) studied the operations and socio-economic impact of non-explosive removal of offshore structures, including noise and concluded that mechanical cutting and abrasive water jetting, are generally considered harmless to marine life and the environment. Similarly, Pangerc et al. (2016) described the underwater sound measurement data during an underwater diamond wire cutting of a 32” conductor (10 m above seabed in ~80 m depth) and found that the sound radiated from the diamond wire cutting of the conductor was not easily discernible above the background noise at the closest recorder located at 100 m from the source. The sound that could be associated with the diamond wire cutting was primarily detectable above the background noise at the higher acoustic frequencies (above around 5 kHz) (Pangerc et. al., 2016) above the hearing range of low frequency cetaceans. Background noise was attributed to surface vessel activity such as dynamic positioning. In another study, the US Navy measured underwater sound levels when the diamond saw was cutting caissons for replacing piles at an old fuel pier at Naval Base Point Loma (Naval Base Point Loma Naval Facilities Engineering Command Southwest 2017). They reported an average SPL for a single cutter at 136.1-141.4 dB SPL at 10 m, as reported in Fairweather Science (2018). Any noise propagating at seabed from either abrasive water jet cutting or mechanical cutting of the wellhead casing and conductors is likely to attenuate to levels at, or close to background ambient levels within <100 m of the source, with ambient levels being significantly elevated by the concurrent presence of vessels above the wellhead location. As such,

noise from the cutting of the casing and conductors will not be cumulative with other noise generated from the petroleum activity.

#### 7.5.3.3. Cultural Values and Heritage Features

Through consultation and review of available literature (Section 4.6.1), Woodside understands that marine fauna that may be affected by noise emissions, such as marine mammals and turtles, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (Delisle et al., 2018).

During consultation, BLCAC identified all specials of whales as important, including in connection to women's stories, and as companion animals to dingoes. BLCAC also identified seals as important to women's stories. EMAC raised concerns about the risks to whales from the activities described in this EP. GMTOAC identified whales as holding deep cultural significance from the Gunditjmara people.

Related intangible cultural heritage may include the transmission of cultural knowledge about whales and whale behaviour, including birthing areas, whale communication and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn, 2021). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes results in reduced sightings (e.g., through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO, 2003).

During consultation, EMAC, GMTOAC and BLCAC identified the cultural importance of eels. EMAC expressed that Eastern Maar people are "the eel people". GMTOAC stated that eels hold an incredibly important place in the culture of Gunditjmara people. The assessment of underwater noise impacts to fishes, including eels, is provided in Section 7.5.3.1 above. Given the nature and scale of underwater noise impacts to eels, no impacts to the cultural values of eels to Traditional Owners are expected to occur.

As described in the environmental impact assessment (Section 7.5.3), potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to ecologically significant proportions of the populations of the species, nor expected to result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

During consultation and review of literature (Section 4.6.1.5), sky country was raised as a potential cultural value. No direct or indirect impacts to the cultural values of sky country have been identified through consultation. Potential direct or indirect impacts to the cultural values of sky country from the noise emissions associated with this activity (given the nature of the noise emissions as described in Section 7.5.2) are expected to be minor and temporary, consistent with the above assessment of noise emissions.

#### 7.5.3.4. Cumulative Impacts

***Minerva Decommissioning Activities***

The planned execution of the plug and abandonment activities described in this EP and equipment removal activities for the Minerva field, as described in the Minerva Decommissioning and Field Management EP, are not expected to overlap. However, scheduling is subject to acceptance of this EP. The Minerva Decommissioning and Field Management EP was accepted on the 14 October 2024 and field activity is scheduled for December 2024 until April 2025. Any unforeseen delays to equipment removal activities may result in concurrent equipment removal and plug and abandonment activities that may be required to meet the timeframes imposed by General Direction 831.

The JASCO study (Connell et al., 2024) modelled a range of scenarios that generate underwater noise, including MODU drilling and a support vessel on standby with simultaneous subsea infrastructure removal by a multipurpose construction vessel (MCV) (Scenario 5 in Table 7-6).

The results of the modelling study by JASCO (Connell et al., 2024) found little evidence of cumulative impacts, with the results of the combined plug and abandonment and subsea infrastructure removal activities (Scenario 5 in Table 7-6) having no material difference than the drilling activity alone (e.g. Scenario 3 in Table 7-6). These results are summarised below in Table 7-13 and Table 7-14. On this basis, the potential for cumulative underwater noise impacts from simultaneous Minerva plug and abandonment and subsea infrastructure removal activities is negligible.

**Table 7-13: Scenarios 3 (drilling with support vessel), 4 (equipment removal) and 5 (simultaneous drilling with support vessel and equipment removal) $SEL_{24h}$: Maximum ($R_{max}$) horizontal distances to frequency-weighted $SEL_{24h}$ PTS and TTS thresholds based on Southall et al. (2019) and Finneran et al. (2017) and area ensonified**

| Hearing Group | Frequency-Weighted $SEL_{24h}$ Threshold ($L_{E,24h}$; dB re 1 $\mu Pa^2 \cdot s$) | Scenario 3 | | Scenario 4 | | Scenario 5 | |
|---|---|---|---|---|---|---|---|
| | | $R_{max}$ (km) | Area ($km^2$) | $R_{max}$ (km) | Area ($km^2$) | $R_{max}$ (km) | Area ($km^2$) |
| ***PTS*** | | | | | | | |
| LF cetaceans | 199 | 0.18 | 0.07 | 0.03 | / | 0.18 | 0.09 |
| HF cetaceans | 198 | – | – | – | – | – | – |
| VHF cetaceans | 173 | 0.26 | 0.16 | 0.03 | / | 0.28 | 0.18 |
| Otariid Seals | 219 | – | – | – | – | – | – |
| Sea turtles | 220 | – | – | – | – | – | – |
| ***TTS*** | | | | | | | |
| LF cetaceans | 179 | 2.09 | 7.12 | 0.67 | 0.37 | 3.37 | 8.92 |
| HF cetaceans | 178 | 0.16 | 0.06 | 0.03 | / | 0.16 | 0.07 |
| VHF cetaceans | 153 | 1.99 | 7.91 | 0.53 | 0.24 | 3.02 | 8.77 |
| Otariid Seals | 199 | 0.07 | 0.01 | 0.03 | / | 0.07 | 0.02 |
| Sea turtles | 200 | 0.15 | 0.05 | 0.03 | / | 0.15 | 0.06 |

A dash (-) indicates the level was not reached within the limits of the modelled resolution (20 m).

A slash (/) indicates that the area is less than an area associated with the modelled resolution (0.0013 $km^2$).

**Table 7-14: Scenarios 3 (drilling with support vessel), 4 (equipment removal) and 5 (simultaneous drilling with support vessel and equipment removal) summary of sound transmission loss modelling results for combined cetacean functional hearing groups behavioural and TTS thresholds**

| SPL ($L_p$; dB re 1 µPa) | Scenario 3 | | Scenario 4 | | Scenario 5 | |
|---|---|---|---|---|---|---|
| | Behavioural Response $R_{max}$* (km) | Behavioural Response $R_{95\%}$** (km) | Behavioural Response $R_{max}$* (km) | Behavioural Response $R_{95\%}$** (km) | Behavioural Response $R_{max}$* (km) | Behavioural Response $R_{95\%}$** (km) |
| 180 | – | – | – | – | – | – |
| 170[a] | – | – | – | – | – | – |
| 160 | 0.13 | 0.12 | 0.02 | 0.02 | 0.13 | 0.12 |
| 158[b] | 0.15 | 0.14 | 0.02 | 0.02 | 0.15 | 0.14 |
| 150 | 0.43 | 0.39 | 0.06 | 0.06 | 0.44 | 0.40 |
| 140 | 1.09 | 0.96 | 0.34 | 0.32 | 1.25 | 1.10 |
| 130 | 3.61 | 3.06 | 0.89 | 0.85 | 3.23 | 2.82 |
| 120[c] | 9.57 | 8.36 | 2.40 | 2.16 | 9.15 | 8.65 |
| 110 | 23.2 | 20.8 | 5.70 | 5.43 | 23.5 | 20.8 |
| 100 | 45.2 | 40.6 | 15.0 | 13.9 | 45.0 | 40.5 |

* $R_{max}$ is the maximum range from the sound source predicted by the modelling at which the threshold value occurs.

** $R_{95\%}$ is the range within which the threshold value is reached 95% of the time.

[a] 48 hr threshold for recoverable injury for fish with a swim bladder involved in hearing (Popper et al., 2014).

[b] 12 h threshold for TTS for fish with a swim bladder involved in hearing (Popper et al., 2014).

[c] Threshold for LF, HF & VHF-cetacean behavioural response to non-impulsive noise (NOAA, 2019).

A dash (-) indicates the level was not reached within the limits of the modelled resolution (20 m).

### *Petroleum Activities by Other Titleholders*

Several petroleum activities are either underway, or proposed to commence, in the Otway Basin within the next five years. Of the petroleum activities that may occur in the vicinity of the Operational Area (listed in Table 4-12), three were identified as potentially resulting in cumulative underwater noise impacts in conjunction with the equipment removal activities described in this EP:

- Offshore Gas Victoria Geophysical and Geotechnical Seabed Survey (Beach Energy)
- Otway Offshore Operations (Casino, Netherby & Henry Revision) (Cooper Energy)
- Regia Marine Seismic Survey (CGG).

Potential cumulative environmental impacts from underwater noise associated with the activities listed above are assessed and evaluated below.

*Offshore Gas Victoria Geophysical and Geotechnical Seabed Survey*

Most of the Operational Area for the Beach Offshore Gas Victoria Geophysical and Geotechnical Seabed Survey lies beyond the Operational Area, with the closest of the candidate well sites being investigated approximately 16 km from the Operational Area. While Beach Energy's survey Operational Area partially overlaps VIC/L22, an access agreement between Beach and Woodside allows for the survey and plug and abandonment activities to be managed such that spatial and/or temporal separation occurs to effectively reduce potential for cumulative impacts.

Ensonification above injury thresholds in low frequency cetaceans from vessel noise associated with Beach's activities may extend to distances of 60 m and 600 m for PTS and TTS, respectively. The distance for TTS to low frequency cetaceans from typical plug and abandonment activities described in Section 3 (anchored

MODU drilling with standby vessel within 2 km) is 2.57 km and the closest well, Minerva-4, is ~3.4 km from the Operational Area boundary, therefore overlap is not expected. However, the behavioural disturbance threshold for low frequency cetaceans may be reached up to 2.71 km from vessels on DP during Beach's activities. On this basis, should the Beach seabed survey occur simultaneously with the plug and abandonment activities described in Section 3, the areas ensonified above behavioural impact thresholds may partially and temporarily overlap.

The timing of Beach's activity is currently uncertain, and may coincide with the plug and abandonment activities described in this EP. However, given the nature of underwater noise from each activity and the ability to manage the separation of the two activities via an access agreement, the potential for cumulative impacts is expected to be limited to short-term behavioural impacts, which will be similar in nature and scale to those described in Section 7.5.3.1.Southern right whales and pygmy blue whales may be impacted, however such impacts would only affect a relatively small portion of the population, as foraging activity for pygmy blue whales is concentrated to the west of the Operational Area and migrating southern right whales are not expected to be prevented from utilising the migration BIA given the relatively small and temporary nature of the behavioural disturbance footprint in relation to the migration BIA.

*Otway Offshore Operations*

The Otway Offshore Operations (Casino, Netherby & Henry Revision) EP includes operation of the petroleum pipeline (VIC/PL37) transporting produced fluids from the Casino, Netherby, and Henry fields. Part of this pipeline is adjacent to part of VIC/PL33 and lies within the Operational Area. Inspection, maintenance, and repair (IMR) activities on VIC/PL37 (operated by Cooper Energy) could be conducted as required at any time in response to conditions requiring urgent attention (e.g., damage to the pipeline risking structural integrity), however such conditions occur very infrequently. Offshore Operations (Casino, Netherby & Henry Revision) EP indicates that IMR activities are typically 2–7 days in duration, which limits the potential for concurrent cumulative impacts. Operational experience with pipelines indicates IMR activities on pipeline are typically visual inspections and acoustic surveys using multibeam echosounders or side-scan sonar.

IMR vessels are typically similar to support vessels used for the plug and abandonment activities described in Section 3; noise emissions from an IMR vessel are reasonably expected to be of low intensity, similar to those of the support vessels used for the plug and abandonment activities in this EP.

The timing of the IMR activities associated with VIC/PL33 is currently uncertain, and may coincide with the plug and abandonment activities described in this EP. However, given the nature of underwater noise from each activity and the typical short duration of IMR activities, the potential for cumulative impacts is limited to short-term behavioural impacts similar in nature and scale to those described in Section 7.5.3.1. Southern right whales and pygmy blue whales may be impacted, however such impacts would only affect a relatively small portion of the population, as foraging activity for pygmy blue whales is concentrated to the west of the Operational Area and migrating southern right whales are not expected to be prevented from utilising the migration BIA given the relatively small and temporary nature of the behavioural disturbance footprint in relation to the migration BIA.

*Regia Marine Seismic Survey*

CGG's Regia Marine Seismic Survey may occur to the west and south-west of the Operational Area. The timing of the survey is uncertain, and the EP for the activity has not been accepted. The active source area (the area in which the seismic source is planned to be discharged) lies approximately 14 km from the Operational Area for the plug and abandonment activities described in Section 3. CGG has committed to not undertaking seismic acquisition between January and March inclusive to reduce impacts to environmental values associated with the Bonney upwelling.

Sound transmission loss modelling presented in the Regia Marine Seismic Survey EP (CGG, 2024) predicted behavioural impacts from a single noise pulse emitted by the seismic source (i.e., SPL) may occur up to 10.3 km from the source. Single pulse TTS and PTS thresholds were predicted to be limited to within hundreds of metres, however 24-hour cumulative PTS and TTS thresholds (i.e., SEL24h) may occur out to 4.89 km and 43.5 km respectively for low frequency cetaceans. These thresholds require an animal to remain within the sound field continuously for 24 hr, which CGG (2024) considers is an unrealistic assumption.

Analysis of the modelling for typical plug and abandonment activities (anchored MODU drilling with standby vessel within 2 km) indicated that PTS in low frequency cetaceans is not reached within 20 m of the source and that TTS extends out to 2.57 km (Section 7.5.3.1). Behavioural impacts for low frequency cetaceans for the Regia Marine Seismic Survey and typical plug and abandonment activities described in Section 3 are predicted to occur up to 10.3 km and 2.54 km, respectively. Given the shortest distance between CGG's active source area and the Operational Area described in Section 3.3 is approximately 14 km, there is no overlap of the areas ensonified during typical plug and abandonment activities above the behavioural impact thresholds. This separation provides an area within which cetaceans (and other marine fauna, which are typically less sensitive to noise than cetaceans) can move unimpeded. However, the areas ensonified above behavioural impact thresholds may partially and temporarily overlap from time to time, such as during MODU resupply.

The timing of the Regia Marine Seismic Survey is currently uncertain, and may coincide with the plug and abandonment activities described in this EP. Given the nature of underwater noise from each activity and the separation in space of the two activities, the potential for cumulative impacts is limited to short-term behavioural impacts, which will be similar in nature and scale to those described in Section 7.5.3.1. Pygmy blue whales may be impacted, however the timing restriction implemented by CGG avoids the peak in blue whale foraging activities and southern right whales are not expected to be prevented from utilising the migration BIA given the relatively small and temporary nature of the behavioural disturbance footprint in relation to the migration BIA.

### 7.5.4. Demonstration of ALARP

Noise emissions generated during the activity are considered a 'Type B' (higher order) impact based upon the Decision Context described in Section 6.1.1 of this EP given the Operational Area overlaps with a pygmy blue whale foraging BIA and southern right whale migration BIA.

The ALARP process performed for the environmental aspect is summarised in Table 7-15. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable. The result of this ALARP assessment contributes to the overall acceptability of the impact or risk.

**Table 7-15: Noise emissions – ALARP assessment summary**

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| ***Eliminate*** | | | |
| Disable DP-assist functionality for moored MODU station-keeping. | Reject | The MODU has DP capability but will use a mooring system instead of DP to maintain position. the MODU implements a DP-assist system when using moorings. The DP-assist system becomes active if the mooring deviates from the desired position beyond a certain tolerance. The DP-assist system enhances the safety of the MODU operations by providing redundancy in station-keeping.<br>The DP-assist feature is a requirement of the MODU classification. It cannot be disabled without requiring recertification of the MODU and introducing additional safety risks.<br>The control is not considered feasible and has not been adopted. | - |
| ***Substitution*** | | | |
| Use a mooring system for primary station keeping. | Accept | The MODU is DP-equipped and can operate either using DP or a mooring system. Using moorings to hold position requires anchor tensioning, which generates underwater noise for a short duration during tensioning (approximately 15 minutes per anchor upon initial anchoring activities). Once moored, the moored MODU (with DP assist) generates relatively little | PS 5.1 |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| | | noise, as the DP system is not involved in routine maintenance of the MODU position unless the MODU deviates substantially from the desired position.<br>In contrast, using the DP system alone instead of a mooring system to maintain the MODU position generates relatively high continuous underwater noise from the DP thrusters while the MODU is in the Operational Area. This results in a much greater duration of underwater noise emissions than using moorings to hold position.<br>This control is reasonable and practicable and reduces the potential for underwater noise impacts. The control is adopted. | |
| ***Engineering*** | | | |
| Limit vessel DP thruster power. | Reject | DP systems typically require any thruster to be available to use up to its maximum power at any time (e.g., for maintaining position in response to large waves or swell). Constraining DP thruster power may not be permissible under vessel classifications, and DP is a safety critical element for the Minerva well plug and abandonment activities. Hence limiting DP thruster power is not feasible.<br>Operational experience with DP systems indicates that thrusters typically run well below their maximum power much of the time, hence limiting DP thruster power would only deliver a reduction in underwater noise for a relatively little portion of time.<br>The nature of DP2 systems, such as those typically used on AHTS vessels and support vessels, is that the total power to the system doesn't exceed 50%. This is a requirement of the DP2 standard to provide redundancy in the event of a failure of a component (or components), with the reserve power above the 50% limit available for emergency use (e.g., due to the loss of a thruster). The DP2 standard allows individual components of the system to exceed 50%, however the total system remains below 50%. Hence, the 50% limitation on the DP2 system is not implemented as an environmental control (i.e., it is not something done to reduce likelihood or consequence of impacts); it is an inherent feature of the DP2 system on the equipment removal vessel.<br>The components in a DP2 system do not emit the same levels of noise at a given level of power. For example, tunnel thrusters (e.g., a bow thruster) emit substantially higher noise than main engines providing the same amount of thrust. The relationship between the level of power applied to DP system components (thrusters, main engines, azipods etc.) may also not have a simple relationship. Limiting power to the system may not result in a reduction in underwater noise source levels; noise from a vessel is highly dependent on the nature of the system components (i.e., tunnel thrusters, azipods, etc.).<br>Based on the points above, limiting the power of the DP2 system does not provide an environmental benefit. The 50% power limitation is an inherent characteristic of the DP2 | - |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| | | system. Hence, this has not been adopted as a control, as it does not reduce environmental impacts or risks. | |
| ***Separate*** | | | |
| Do not undertake activities during pygmy blue whale foraging period. | Reject | Not undertaking plug and abandonment activities during the peak pygmy blue whale foraging period (January to March) would be effective in mitigating the impacts of underwater noise on pygmy blue whales. However, the peak foraging period coincides with suitable weather conditions in the region to complete the work.<br>Works outside the peak pygmy blue whale period may overlap the seasonal migration and calving of southern right whales, which partially transfers the exposure from pygmy blue whales to southern right whales.<br>Woodside has contracted a MODU as part of a drilling consortium and has secured early access to the MODU to prioritise plug and abandonment of the Minerva wells as required by General Direction 831. The timing of the plug and abandonment activities is constrained by MODU availability; Woodside reasonably requires the ability to commence plug and abandonment activities as soon as the MODU is available. Current scheduling indicates the MODU will be available in ~ Q1 or Q2 2025. Excluding work during the peak pygmy blue whale foraging period poses a risk to plugging the Minerva wells before 30 June 2025 as required by General Direction 831.<br>Metocean analysis by Woodside confirms the pygmy blue whale peak foraging period provides the most suitable weather conditions for the petroleum activity. Work during suitable weather conditions is expected to complete the petroleum activity with fewer weather delays, shortening the duration of the underwater noise sources.<br>Working during suitable weather conditions may also reduce the noise emissions vessels holding station with DP as the DP system may not need to work as hard to hold position, resulting in a reduction of underwater noise emissions.<br>The cost of the control is grossly disproportionate to the environmental benefit. The control is rejected. | - |
| Do not undertake activities during southern right whale migration and calving period. | Reject | Not undertaking the petroleum activities during the southern right whale migration and calving period (May to September) would be effective in mitigating the impacts of underwater noise on southern right whales. However, works outside this period may overlap the peak foraging period for pygmy blue whales, which partially transfers the exposure from southern right whales (endangered) to pygmy blue whales (critically endangered).<br>Modelling indicates that there is no potential for PTS and TTS to occur within the southern right whale reproduction BIA, and very limited potential for behavioural disturbance to occur within the reproduction BIA.<br>Woodside has contracted a MODU as part of a drilling consortium and has secured early access to the MODU to | - |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| | | prioritise plug and abandonment of the Minerva wells as required by General Direction 831. The timing of the plug and abandonment activities is constrained by MODU availability; Woodside reasonably requires the ability to commence plug and abandonment activities as soon as the MODU is available. Current scheduling indicates the MODU will be available in ~Q1 or Q2 2025. This planned window for the petroleum activity avoids the peak periods in southern right whale migration and reproduction, which peaks in July and August. Excluding work during the southern right whale migration and calving period poses a risk to plugging the Minerva wells before 30 June 2025 as required by General Direction 831.<br>Committing to not undertake the petroleum activities during the peak southern right whale migration and reproduction period provides little reduction in impacts to southern right whales. Such a commitment may pose a risk to compliance with General Direction 831. The cost of the control is grossly disproportionate to the environmental benefit. The control is rejected. | |
| Prohibit timing overlap between equipment removal and plug and abandonment activities | Reject | Prohibiting overlap of the subsea infrastructure removal and plug and abandonment activities may reduce cumulative impacts from concurrent activities. Received noise levels are not linearly additive (i.e., doubling noise sources of the same source level does not double the decibels received by a whale); the control would make little different to the noise levels received by whales. However, preventing concurrent activities may increase the total area ensonified above impact thresholds.<br>Subsea infrastructure removal and plug and abandonment activities are both weather dependent. Working during late spring, summer and early autumn provides substantially more working days than other times of the year. Removal activities and plug and abandonment activities would benefit substantially in cost and safety by working during the period of good weather conditions.<br>Woodside is currently planning to complete equipment removal activities before commencing MODU-based plug and abandonment activities. On this basis, Woodside does not plan to concurrently undertake equipment removal and MODU-based activities within VIC/L22. However, these timings are subject to securing environmental approvals and availability of the MODU.<br>The timing of MODU-based plug and abandonment activities is less constrained by weather but is dependent on MODU availability. Woodside is in a drilling consortium making use of a shared MODU. Woodside has arranged access to the MODU relatively early compared to other consortium members to complete plug and abandonment as soon as practicable. If the MODU were to become available while equipment removal activities are underway, Woodside would commence plug and abandonment activities as soon as practicable to comply with General Direction 831. Committing | - |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| | | to no concurrent equipment removal and MODU-based activities in such a circumstance would risk compliance with General Direction 831. Woodside is required to comply with General Direction 831, hence preventing concurrent equipment removal activities and MODU-based plug and abandonment activities is not feasible.<br>If concurrent equipment removal activities and MODU-based plug and abandonment activities are required, Woodside has considered scheduling activities to separate these activities. Note that Woodside will implement a 500 m exclusion zone between the MODU and the equipment removal vessel. Equipment removal activities within the 500 m zone would be subject to a simultaneous operations (SIMOPS) plan if such activities are required.<br>Noise modelling by JASCO (Connell et al., 2024) predicted that concurrent equipment removal (removal vessel holding position using dynamic positioning (DP)) and MODU-based activities (MODU supply vessel holding station using DP) in proximity did not increase the radius at which biological impact thresholds were predicted to occur compared to undertaking these activities separately. Hence there is no reduction in the radius at which underwater noise impact thresholds occur by separating noise sources in space.<br>The environmental benefit of this control is grossly disproportionate to the cost as:<br>▪ MODU support vessel activities using DP are typically less than 8 hrs duration, hence any benefit would be of the same duration.<br>▪ The timing of the equipment removal activity does not overlap with the seasonal presence of southern right whales.<br>▪ The Bonney Upwelling, and majority of associated pygmy blue whale sightings associated with the upwelling, are west of the Operational Area.<br>Hence this control has been rejected. | |
| ***Administrate*** | | | |
| All vessels to comply with EPBC Regulations 2000 – Part 8 Division 8.1 interacting with cetaceans in relation to distances to cetaceans. | Accept | Implementation of controls for reduced vessel speed around cetaceans can potentially reduce the underwater noise footprint of MODU/vessels and lower the likelihood of interaction above significant thresholds.<br>Controls adopted based on legislative requirements – must be adopted. | PS 5.2 |
| Engines, compressors, and machinery on the MODU/vessels are maintained via the MODU/vessel preventative maintenance system (PMS) | Accept | Maintenance and inspection completed as scheduled on PMS reduces the generated noise emissions and associated impacts. Machinery maintenance is part of normal operations to ensure operating in accordance with manufacturer's guidelines.<br>Machinery on the MODU/vessels will be operated in accordance with manufacturer's instruction and ongoing maintenance to ensure efficient operation. | PS 5.3 |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| | | The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | |
| Implement Adaptive Management Plan prior to resupply vessel moves alongside MODU. | Accept | Implementation of adaptive management where pygmy blue whales or southern right whales are observed means a new noise source (vessel) is not introduced while these whales are sighted.<br>Restricting the introduction of new noise sources when pygmy blue whale and southern right whales are detected could lower the likelihood of behavioral disturbance.<br>The detection of whales will be implemented by a marine fauna observer (MFO) onboard support vessels (refer to PS 5.9 below).<br>There are additional financial costs associated with the control, however this cost is not grossly disproportionate given the biologically important behaviours of pygmy blue and southern right whales in the vicinity of the Operational Area. The control is adopted. | PS 5.4 |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| Implement Adaptive Management Plan prior to MODU and AHTS vessels (except for MODU resupply) mobilise to the Operational Area. | Accept | Implementation of adaptive management where pygmy blue whales or southern right whales are observed prior to MODU and AHTS vessels (except when conducting MODU resupply) entering the area is considered practicable. The adoption of this control may limit the introduction of noise sources to the Operational Area where pygmy blue whales and or southern right whale presence is detected.<br>Vessels conducting MODU resupply are excepted because other vessel(s) and the MODU are assumed to be active within the Operational Area at the time or entry.<br>There may be costs involved from schedule delays associated with waiting on pygmy blue whale and/or southern right whale activity to cease / move on. However, benefits outweigh cost/sacrifice. | PS 5.5 |
| MODU and AHTS vessels enter the Operational Area during daylight hours (except for MODU resupply activities). | Accept | The ability to detect whales in proximity to the MODU and AHTS vessels during nighttime is severely diminished, as most detection methods (e.g., MFOs) cannot reliably detect whales in darkness. Restricting initial entry to the Operational Area to daylight hours would ensure that new noise sources are introduced only occurs when a reliable detection control is in place, therefore limiting potential behavioural disturbance to pygmy blue whales and southern right whales.<br>Scheduling of most activities so that entry to the Operational Area occurs during daylight hours is considered practicable. MODU resupply activities are excepted because scheduling resupply can be more obstruse owing to the variability between different wells and the dependency on operational requirements. | PS 5.6 |
| Implement Adaptive Management Plan prior to commencing MODU movements within the Operational Area. MODU movements commence during daylight hours only. | Accept | The ability to detect whales in proximity to the MODU and AHTS vessels during nighttime is severely diminished, as most detection methods (e.g., MFOs) cannot reliably detect whales in darkness.<br>Commencement of DP operations for mooring operations and MODU transits within the Operational Area during daylight hours is considered practicable and will improve the ability to detect pygmy blue whales and southern right whales in proximity, thus reducing potential behavioural disturbance where presence is detected.<br>There may be costs involved from schedule delays associated with waiting on daylight hours, which could be in the millions of dollars. However, benefits outweigh cost/sacrifice. | PS 5.7 |
| Limit vessel speeds to 6 knots or less in the Operational Area (excluding emergencies) during seasonal peaks in pygmy blue whale and southern right whale abundance. | Accept | Limiting vessel speeds may reduce machinery noise and cavitation, reducing underwater noise source levels in the Operational Area.<br>Limiting vessel speeds within the Operational Area can readily be done but may result in additional time required to complete some activities. Limiting vessel speeds also reduces the likelihood and consequence of vessel collisions with whales, providing additional benefit. | PS 5.8 |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| Limit DP operations to daylight hours to enable MFOs to detect whales | Reject | The ability to detect whales in proximity to the MODU and AHTS vessels during nighttime is severely diminished, as most detection methods (e.g., MFOs) cannot reliably detect whales in darkness. Restricting DP operations to daylight hours would ensure that this noise-generating activity only occurs when a reliable detection control is in place.<br>DP operations are required to safety undertake removal of subsea equipment, hence preventing DP operations during nighttime would incur substantial additional costs (could be in the tens of millions of dollars) and extend the duration of the activity considerably, prolonging other environmental impacts (e.g., displacement of other users due to physical presence, atmospheric emissions etc.).<br>The cost of limiting DP operations to daylight hours is grossly disproportionate to the environmental benefit. | - |
| MODU/ vessel crew to report opportunistic sightings of whales and dolphins. | Accept | Opportunistic marine fauna observations undertaken by the MODU and vessel crews for the duration of the activity may assist in MFO in detecting cetaceans potentially entering the area where noise levels are above noise thresholds. | PS 5.9 |
| Limit the number of project vessels alongside the MODU at any particular time, except in emergency situations or as required by Safety Case. | Accept | Up to three vessels are permitted within the Operational Area at any one time (AHTS and support vessel(s)) in addition to the MODU. By limiting the number of vessels, this reduces the likelihood of potential disturbance to individuals or aggregations of whales from the activity.<br>This restriction is considered reasonable and practicable during normal operating conditions. A caveat to this control would be during emergency situations or as required by Safety Case to ensure safety protocols can be adequately followed. | PS 5.10 |
| Implement shutdown of DP system if whale observed to move within proximity of a AHTS vessel or MODU whilst operating on DP. | Reject | The MODU and AHTS vessels will use DP to hold position while undertaking activities. These activities require lifting of equipment (e.g. mooring lines and anchors) from the seabed, or between the MODU and AHTS vessel (e.g. cargo) which is a hazardous operation for vessel crew and may not safely be ceased at short notice, depending on the activity being undertaken.<br>The operational area is open water, with no constraints on the movement of whales. If a whale chooses to move within proximity of the vessel while the vessel is holding station using DP, it is reasonable to assume that the whale is not experiencing behavioural impacts that prevent important biological behaviours (e.g., foraging or reproduction behaviours). It is reasonable to assume that whales subjected to harmful behavioural disturbance would move away from the noise source. This assumption is consistent with the findings of Dunlop et al. (2015, 2017), which found that migrating humpback whales exhibited similar avoidance responses to a seismic vessel towing a small airgun whether the airgun was being discharged or not. Dunlop et al. (2015, 2017) concluded that the presence of the vessel itself, rather than the noise emissions, may explain the avoidance behaviour. The | - |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| | | avoidance behaviour did not prevent humpback whales from migrating.<br>Based on the reasonable assumption that whales moving close to the vessel or MODU whilst using DP are not experiencing behavioural disturbance that prevents important biological behaviours, implementing a shutdown procedure for whales in proximity to the vessel or MODU does not reduce the impact of underwater noise emissions on important biological behaviours. Implementing a shutdown may increase the duration and costs of the activities due to the requirement to undertake 30 minutes of observations for whales before recommencing DP operations. A safe shutdown may not be possible, depending on the equipment removal activities being undertaken. As such, the cost of the control is grossly disproportionate to the environmental benefit. | |
| ***Monitoring*** | | | |
| Marine Fauna Observers (MFOs) to detect whales from AHTS vessels. | Accept | MFO are routinely used during seismic surveys to implement reactive source controls (reducing or ceasing acoustic emission from seismic source) when whales are detected within shutdown zones. MFOs may be effective at detecting whales when conditions are suitable. MFOs alone do not reduce underwater noise impacts on whales, as they are a detection control. Upon detection, a reduction in potential impact (if required) would rely on reducing or ceasing the noise emissions, not introducing an additional noise source into the Operational Area where a pygmy blue whale or southern right whale is observed (e.g., not commencing resupply activities), or modifying the path between the noise source and the whale where possible (e.g., moving away from the whale).<br>Determining whale behaviour is important in determining if a foraging pygmy blue whale has been displaced from a foraging area. MFOs provide a reliable method to observe and interpret whale behaviour.<br>MFOs are generally accepted practice on seismic surveys, but increasingly being implemented during other petroleum activities in areas where whales exhibit biologically important behaviours. MFOs would increase costs. Requiring MFOs to conduct observations on AHTS vessels could constrain activities if MFOs were unavailable (e.g., unwell). This could be mitigated by having more than one MFO, or providing for vessel crew to observe for whales of the MFO is temporarily unavailable. | PS 5.11 |
| Thermal imaging cameras available for use during low visibility and nighttime observations as detailed in the Adaptive Management Plan. | Accept | The ability to detect whales in proximity to the MODU and AHTS vessels during nighttime is severely diminished, as most detection methods (e.g., MFOs) cannot reliably detect whales in darkness.<br>There is cost associated with procurement of suitable equipment. However, having thermal imaging equipment available for use may improve the ability to detect whales during nighttime and during low visibility conditions. | PS 512 |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| Passive acoustic monitoring (PAM) to monitor for whales. | Reject | PAM may detect whales by their calls, which may permit whale detections during periods when other detection controls are unavailable or unreliable (e.g., at night when MFOs cannot reliably detect whales).<br>PAM typically works better for whales with high-frequency calls, such as sperm whales, killer whales, and dolphins. PAM may be unreliable for low-frequency cetacean detection (Smith et al., 2020), such as pygmy blue whales and southern right whales. PAM systems require a trained operator and are vulnerable to equipment failure.<br>PAM detections may not reliably determine whale behaviour. Assessing pygmy blue whale behaviour is a requirement to determine in a pygmy blue whale has been displaced from a foraging area.<br>PAM may determine the presence of whales during night hours when MFOs are not effective. However, PAM may not reliably detect the range of a whale; range estimates from PAM typically require two or more receivers separated by several kilometres to reliably triangulate noise sources.<br>The cost of implementing PAM is grossly disproportionate to the environmental benefit. | - |
| Spotter aircraft to observe for whales | Reject | Spotter aircraft can detect whales in a large area relatively quicky. Spotter aircraft may more readily detect whales than observers onboard vessels but are subject to many of the same constraints (e.g., daylight hours only, degraded visibility form fog, smoke etc. inhibits detection, higher sea states inhibits detection).<br>Spotter aircraft are effective for surveying large areas, such as during seismic surveys where the vessel is continuously moving or undertaking population surveys. Spotter aircraft are less suitable for continuously surveying smaller areas, such as around the Operational Area for the plug and abandonment activity.<br>Spotter aircraft are limited by endurance (e.g., fuel), and at least two spotter aircraft would be required to provide continuous detection of whales during daylight hours. Spotter aircraft introduce additional safety risks and may be restricted by weather conditions (e.g., rain, string wind).<br>Spotter aircraft may detect whales at greater range than MFOs onboard AHTS vessels but introduce new safety risks and costs. Cost estimates for suitable single spotter aircraft (twin piston engine with room for two passengers) with observers (two MFOs) are in the order of $15,000 per day.<br>Noting that spotter aircraft and vessel based observers are subject to many of the same constraints (e.g., daylight hours only, degraded visibility form fog, smoke etc. inhibits detection, higher sea states inhibits detection), it is considered that spotter aircraft yield little benefit beyond the observational capability of MFOs on board AHTS vessels, which are mobile, already in the field and contributing to plug and abandonment activities. | - |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| | | The cost of implementing spotter aircraft to detect whales is grossly disproportionate to the environmental benefit. | |
| Drones to observe for whales | Reject | Like spotter aircraft, drones can detect whales in a large area relatively quicky. Drones may more readily detect whales than observers onboard vessels but are subject to many of the same constraints (e.g., daylight hours only, degraded visibility form fog, smoke etc. inhibits detection, higher sea states inhibits detection).<br>Drones are similar in many respects to spotter aircraft. Operational safety risks of drones are lower than spotter aircraft, but endurance and weather limitations are similar or worse. Drones offer little improvement in whale detection in proximity to the MODU and AHTS vessels than MFOs observing for marine fauna onboard the AHTS vessels.<br>The risk and overall limitations of implementing drones to detect whales are grossly disproportionate to the environmental benefit. | - |
| Deploy additional vessel for MFOs | Reject | Deploying an additional vessel as a platform for MFOs may extend the range at which MFOs may make detections. Using an additional vessel introduces an additional noise source, which may result in additional environmental impacts.<br>The nature of the additional vessel substantially influences the ability for MFOs to detect whales, as the range at which detections can be made is directly influenced by the height of the observer (i.e., the greater the height of the observer, the greater the detection range). Local charter vessels (e.g., fishing boats < 20 m length) produce relatively low underwater noise levels, however the MFO can only be stationed 3-4 m above the sea. This is substantially less than the typical 10 m elevation of an MFO onboard the vessels expected to be used for the petroleum activity. Using a larger vessel as an additional MFO platform with a similar elevation to the vessels used during the petroleum activity (e.g., an offshore support vessel) would introduce substantial additional noise.<br>Given the spatial extent at which impacts are predicted to be limited to, MFOs onboard the project vessels (PS 5.9) provide an effective detection method for cetaceans that may be impacted by underwater noise. Using an additional vessel as a MFO platform provides no additional benefit over MFOs onboard the project vessels, however an additional vessel introduces additional environmental impacts, including introducing an additional noise source in the area.<br>On this basis, the cost and additional environmental impacts is grossly disproportionate to the limited environmental benefit that may be provided through an additional vessel. The control is rejected. | - |
| Shore-based observers for whales | Reject | Shore-based observers may be used to detect whales in the vicinity of the shore. This method may be used to survey southern right whales, which come very close to shore.<br>There would be additional cost associated with the deployment, victualling and support for shore-based observers. However, shore-based observers are subject to | - |

| Control Measure | Accept/ Reject | Reason | Associated Performance Standard |
|---|---|---|---|
| | | many of the same constraints (e.g., daylight hours only, degraded visibility form fog, smoke etc. inhibits detection, higher sea states inhibit detection) as MFOs onboard vessels. Shore-based observers are much less mobile and would be exposed to additional health and safety risks when accessing coastal vantage points. Shore-based observers offer little improvement in whale detection in proximity to the MODU and AHTS vessels than MFOs observing for marine fauna onboard AHTS vessels, present additional cost and health and safety risk. On this basis, the environmental benefit is grossly disproportionate. The control is rejected. | |

#### 7.5.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 7-15) that when implemented are considered acceptable to manage the impacts of noise emissions on marine fauna. A conservative (precautionary) approach to assessment of control measures has been adopted given the residual low risk in relation to behavioral distance to Blue Whales and Southern Right Whales within known and emerging BIAs. The precautionary approach aligns with the Blue Whale Conservation Management Plan and Southern Right Whale Conservation Management Plan but differs from the 'precautionary principle' detailed within the EPBC Act (Section 391) given there are no 'threats of serious or irreversible harm' identified. Potential impacts are considered minor and short-term.

As such the above ALARP assessment and evaluation has identified controls (Table 7-15) consistent with those for 'Type B' Decision Criteria as described in Section 6.1.1 and the Conservation Management Plan (CMP) for the Blue Whale and Southern Right Whale.

### 7.5.5. Demonstration of Acceptability

Noise emissions are an unavoidable consequence of the petroleum activity and cannot reasonably be eliminated. Given the adopted controls, noise emissions will not result in potential impacts greater than temporary and minor behavioural disturbance to marine fauna. Further opportunities to reduce the impacts have been investigated in Table 7-15.

The assessment of impacts and selected controls are consistent with relevant requirements, including:

- *Conservation Management Plan for the Blue Whale* (Commonwealth of Australia, 2017)
- *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (Department of Agriculture, Water and the Environment, 2021)
- *Conservation Management Plan for the Southern Right Whale* (Commonwealth of Australia, 2012)
- *National Recovery Plan for the Southern Right Whale* (DCCEEW, 2024)
- *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017)

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding noise emissions have been raised by relevant stakeholders. Environmental values identified by stakeholders (e.g., culturally significant whales and short-finned eels identified by Traditional Owners) have been considered in the impact assessment.

The environmental impacts meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental impacts are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. Woodside's decommissioning strategy integrates long-term and short-term economic, environmental, social, and equitable considerations.

- Precautionary principle: The noise emissions aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect. Woodside commissioned independent noise modelling by subject matter experts Jasco (Connell et al., 2024) to inform the impact assessment.
- Inter-generational principle: The noise emissions aspect will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The noise emissions aspect will not impact upon biodiversity or ecological integrity.

Woodside considers the impact to be managed to an acceptable level.

## 7.5.6. Environmental Performance Outcomes, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 5<br>Noise emissions managed to limit impacts to marine fauna to short-term behavioural impacts only (severity level ≤ 2)[1]. | C 5.1<br>Use a mooring system for primary station keeping. | PS 5.1<br>Mooring system implemented in accordance with project-specific mooring design, which demonstrates the mooring system is the primary station-keeping method for the MODU. | MC 5.1.1<br>Records demonstrate mooring system implemented in accordance with project-specific mooring design. |
| | C 5.2<br>All vessels to comply with EPBC Regulations – Part 8 Division 8.1 interacting with cetaceans in relation to distances to cetaceans. | PS 5.2<br>All project vessels comply with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures[22]:<br>▪ vessels will not travel greater than six knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale.<br>▪ vessels will not approach closer than 50 m for a dolphin or turtle and/or 100 m for a whale (with the exception of animals bow riding).<br>▪ if the cetacean or turtle shows signs of being disturbed, vessels will immediately withdraw from the caution zone at a constant speed of less than six knots. | MC 5.2.1<br>Daily vessel reports and incident reports demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans. |
| | C 5.3<br>Engines, compressors, and machinery on the MODU/vessels are maintained via the MODU/vessel Preventative Maintenance System (PMS). | PS 5.3<br>Whilst undertaking the activity, all engines, compressors and machinery aboard the MODU/vessels shall be maintained in accordance with MODU/Vessel Contractor | MC 5.3.1<br>Records demonstrate vessel equipment is maintained in accordance with MODU/Vessel Contractor PMS requirements. |

[22]For safety reasons, the distance requirements below are not applied for a vessel holding station or with limited maneuverability.

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | | PMS with the aim of limiting unnecessary noise emissions from equipment. | |
| | C 5.4<br>Implement Marine Fauna Adaptive Management Plan prior to resupply vessel moves alongside MODU. | PS 5.4<br>Implement Marine Fauna Adaptive Management Plan prior to resupply vessel moves alongside MODU.<br>Marine Fauna Adaptive Management Plan to include:<br><u>Daylight Hours</u><br>▪ Dedicated MFO monitors for cetaceans (pygmy blue whales and/ or southern right whales) 30 minutes prior to resupply vessel moves alongside the MODU within the Operational Area.<br>▪ Proceed with move only when no cetaceans (pygmy blue and/ or southern right whales) have been sighted, in the observation zone (Figure 9-8), over the 30-minute monitoring period.<br><u>Night-time</u><br>▪ Dedicated MFO monitors for cetaceans (pygmy blue whales and/ or southern right whales) for 3 hours prior to sunset.<br>▪ Proceed with move only when 3 or less cetaceans (pygmy blue and/ or southern right whales) have been sighted, over the monitoring period. | MC 5.4.1<br>Cetacean (pygmy blue whale and southern right whale) sightings records demonstrate dedicated MFO on watch prior to resupply vessel moves alongside the MODU in the Operational Area.<br>MC 5.4.2<br>Records demonstrate when cetacean (pygmy blue whale and southern right whale) presence detected beyond defined limits, resupply vessel activities have not commenced. |
| | C 5.5<br>Implement Marine Fauna Adaptive Management Plan prior to MODU and AHTS | PS 5.5<br>Implement Marine Fauna Adaptive Management Plan prior to MODU and AHTS | MC 5.5.1<br>Cetacean (pygmy blue whale and/ or southern right whale) sightings records demonstrate dedicated MFO on watch prior to MODU and |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | vessels (except for MODU resupply) mobilise to the Operational Area. | vessels (except when conducting MODU resupply) mobilise to the Operational Area.<br>Marine Fauna Adaptive Management Plan to include:<br>▪ Dedicated MFO monitors for cetaceans (pygmy blue whales and/ or southern right whales) 30 minutes prior to mobilisation to the Operational Area.<br>▪ Proceed with mobilisation to the Operational Area when no cetacean (pygmy blue whales and/ or southern right whales) have been sighted, within the observation zone (Figure 9-6), over a 30-minute monitoring period. | vessel mobilisation to the Operational Area (except when conducting MODU resupply).<br>MC 5.5.2<br>Records demonstrate when cetacean (pygmy blue whale and/ or southern right whale) presence detected mobilisation to the Operational Area activities have not commenced. |
| | C 5.6<br>MODU and AHTS vessels enter the Operational Area during daylight hours (except for MODU resupply activities). | PS 5.6.1<br>MODU and AHTS vessels to enter the Operational Area during daylight hours (except when conducting MODU resupply activities). | MC 5.6.1<br>Records demonstrate MODU and AHTS vessels enter the Operational Area during daylight hours (except for MODU resupply). |
| | C 5.7<br>Implement Adaptive Management Plan prior to commencing MODU movements within the Operational Area. MODU movements commence during daylight hours only. | PS 5.7.1<br>Implement Adaptive Management Plan prior to commencing MODU movements within the Operational Area.<br>Marine Fauna Adaptive Management Plan to include:<br>▪ Dedicated MFO monitors for cetaceans (pygmy blue whales and/ or southern right whales) 30 minutes prior to mobilisation to the Operational Area.<br>▪ Commence MODU movement within the Operational Area during daylight hours when no cetacean (pygmy blue whales and/ or southern right whales) have been | MC 5.7.1<br>Cetacean (pygmy blue whale and southern right whale) sightings records demonstrate dedicated MFO on watch prior to commencing MODU movements in the Operational Area.<br>MC 5.7.2<br>Records demonstrate when cetacean (pygmy blue whale and/ or southern right whale) presence detected MODU movements within the Operational Area have not commenced.<br>MC 5.7.3<br>Records demonstrate MODU movements did not commence outside of daylight hours. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | | sighted, within the observation zone (XREF), over a 30-minute monitoring period. | |
| | C 5.8<br>Limit vessel speeds to 6 knots or less in the Operational Area (excluding emergencies) during seasonal peaks in pygmy blue whale and southern right whale abundance. | PS 5.8.1<br>Movements of project vessels within the Operational Area to be 6 knots or less (excluding emergencies) during:<br>▪ January to March (peak pygmy blue whale foraging period)<br>▪ May to October (peak southern right whale migration and reproduction period) | MC 5.8.1<br>Daily vessel reports and incident reports record incidents where 6 knot limit was exceeded. |
| | C 5.9<br>MODU and vessel crew to report opportunistic sightings of whales and dolphins. | PS 5.9.1<br>Process developed for collecting Marine Fauna Sightings data.<br>Whale and dolphin sighting data to be sent to relevant organisations as required (i.e. Australian Marine Mammal Center). | MC 5.9.1<br>Records indicate:<br>▪ Marine Fauna Sighting Data collated and sent to relevant organisations.<br>▪ Environmental awareness induction includes material advising on marine fauna interaction and reporting requirements.<br>▪ Crew attendance at environmental inductions – i.e. environmental awareness induction attendance list. |
| | C 5.10<br>Limit the number of project vessels alongside the MODU at any particular time, except in emergency situations or as required by Safety Case. | PS 5.10<br>No more than one vessel alongside the MODU while in the Operational Area, except in emergency situations or as required by Safety Case. | MC 5.10.1<br>Records indicate no more than one vessel alongside the MODU while in the Operational Area, except in emergency situations or as required by Safety Case. |
| | C 5.11<br>Marine Fauna Observer (MFO) to detect whales from AHTS vessels. | PS 5.11.1<br>Two dedicated competent MFOs (with recognised competencies as outlined below) to be stationed aboard AHTS vessels to | MC 5.11.1<br>Records indicate:<br>▪ MFO training records. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | | undertake marine mammal observations. Dedicated MFO would assist in implementing and informing the Marine Fauna Adaptive Management Plan.<br>• Lead MFO: Completed relevant third party accredited MFO training, previous MFO experience, knowledge of Australian legislative requirements, experience with undertaking distance estimation and MFO reporting.<br>• Supporting MFO: Completed relevant third party accredited MFO training. | ▪ Completed Marine Fauna Sightings Form.<br>▪ Vessel logbooks showing actions taken based on MFO input. |
| | | PS 5.11.2<br>One MFO will be on each 12-hr shift to implement the Marine Fauna Adaptive Management Plan (with the second MFO available to take over the previous shift or assist the MFO on shift as required). Having two competent MFOs onboard is required to ensure observations can be reliably completed. | |
| | | PS 5.11.3<br>MFOs will be contracted through a reputable consultancy that has experience in training and using MFOs in offshore operations throughout Australia. | |
| | C 5.12<br>Thermal imaging cameras available for use during low visibility and night-time observations as detailed in the Adaptive Management Plan. | PS 5.12.1<br>Two thermal imaging cameras will be available for use on each AHTS vessel to aid observations during night-time and low visibility conditions. | MC 5.12.1<br>Records demonstrate thermal imaging cameras are contained in MFO monitoring kits on each AHTS vessel. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| **Environmental Performance Outcomes** | | | |
| EPO 6<br>Undertake the petroleum activity in a manner that does not cause acoustic injuries to or prevent biologically important behaviours of pygmy blue whales and southern right whales | C 6.1<br>Biologically important behaviours can continue while the petroleum activity program is being undertaken. | PS 6.1<br>Anthropogenic noise in biologically important areas will be managed such that the activity:<br>▪ minimises the risk of displacement of any pygmy blue or southern right whale from a foraging area<br>▪ does not prevent any pygmy blue or southern right whale from utilising the area or cause acoustic injuries | MC 6.1.1<br>Records of cetacean behaviour from MFOs do not show distress and/or disturbance that is a clear response to the petroleum activity program. |
| | C 6.2<br>Prohibit timing of Beach seabed survey in VIC/L22 and VIC/PL33 overlapping with the petroleum activity. | PS 6.2<br>No overlapping timing of Beach seabed survey in VIC/L22 and VIC/PL33 with the petroleum activity. | MC 6.2.1<br>Records show that Beach seabed survey was not conducted simultaneously within VIC/L22 or VIC/PL33 with the petroleum activities described in this EP. |

# 7.6. Atmospheric Emissions

## 7.6.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Atmospheric emissions | Exhaust emissions from internal combustion engines and incinerators on MODU, project vessels and helicopters. | Localised and temporary reduction in air quality as a result of greenhouse gas (GHG) emissions, non-GHG emissions, particulates and volatile organic compounds. | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | Flaring and burning of residual hydrocarbons from MODU during well P&A. | | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | Venting of residual trapped gas. | | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |

## 7.6.2. Source of Risk

Atmospheric emissions assessed in this EP have been classified into two categories:

- Atmospheric pollutants (non-greenhouse gas emissions) are gases and particulates from an activity, or piece of machinery, which have a recognised adverse effect on human health and/or flora and fauna. The main emissions responsible for these effects include carbon monoxide (CO), oxides of nitrogen (NOx), sulphur dioxide ($SO_2$), particulate matter less than 10 microns ($PM_{10}$), non-methane volatile organic compounds (VOCs), BTEX (benzene, toluene, ethylbenzene, and xylenes), which are specific VOCs of interest.
- Greenhouse gas (GHG) emissions are those gases within the atmosphere that absorb long-wave radiation and thus trap heat reflected from the Earth's surface. The main gases responsible for this effect include carbon dioxide ($CO_2$), methane ($CH_4$) and nitrous oxide ($N_2O$). Other greenhouse gases include perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF6).

### 7.6.2.1. Exhaust Emissions and Incineration

Atmospheric emissions will be generated by the MODU, project vessels and helicopters from internal combustion engines (including all equipment and generators, which may be diesel powered and/or LNG powered) and incineration activities (including onboard incinerators) during the Petroleum Activities Program.

Emissions generated during these operations will include SOx, NOx, ozone depleting substances, CO2, particulates and volatile organic compounds (VOCs). The MODU and support vessels will use MDO to power vessel engines, waste incinerators, generators, and mobile and fixed plant and equipment for the duration of the Petroleum Activity.

The total of greenhouse gas emissions from these sources is predicted to be approximately 11,934 tCO2-e (Table 7-16).

The average diesel fuel usage during drilling and completions for a typical MODU is in the order of 15,000 L per day and 10,000 L per day per vessel. The atmospheric emissions have been calculated using E&P Forum (1994) methods assuming three vessels in continuous use and are presented in Table 7-16.

**Table 7-16: Estimated GHG emissions for the petroleum activity**

| Source | Estimated GHG emissions ($tCO_2$equivalent) |
|---|---|
| ***MODU Activities*** | |
| MODU operations | 4498 |
| Vessel operations | 7381 |
| Helicopter operations | 55.1 |
| ***Flaring and Venting of Residual Hydrocarbons*** | |
| Flaring | 15 |
| Cold Venting | 112 |
| **Total GHG Emissions** | **12,061** |

#### 7.6.2.2. Flaring or Venting of Hydrocarbon Gas

During the plug and abandonment activity, the base case to kill the well is to bullhead residual wellbore fluids into the reservoir. Depending on the success of bullheading, some hydrocarbons from the well may need to be circulated out of the well and vented or flared from the MODU via a well bleed off package. The volume estimates provided in Table 7-16 are based on existing or planned pressure measurements and well design. The volumes of gas may be insufficient to sustain a flare, hence they will be vented in this circumstance. During well intervention and re-entry / re-completion of the wells, the total volume of residual gas that may require venting is predicted to be < 30 $m^3$ each for the two production wells (Minerva-3 and Minerva-4) assuming the entire annulus and tubing spaces from the tubing hanger to the gas lift valve is full of gas and the gas is unable to be bullheaded into the reservoir.

### 7.6.3. Environmental Impact Assessment

Atmospheric emissions associated with power generation, waste incineration, flaring and venting operations release GHG and non-GHG pollutants resulting in a localised reduction of ambient air quality and a contribution to global greenhouse gas emissions. GHG emissions are a cause of human-induced climate change.

Climate change impacts cannot be attributed to any one activity or one project, including the Minerva plug and abandonment activities, as they are instead the result of global GHG emissions, minus global GHG sinks, that have accumulated in the atmosphere since the industrial revolution started.

The reduction in ambient air quality associated with the release of non-GHG pollutants such as sulphur oxides ($SO_X$) and nitrogen oxides ($NO_X$) has the potential to cause adverse health effects, however a reduction in air quality is highly localised to the source of emissions, such as directly adjacent to exhaust systems and flare booms. Given these pollutants will rapidly disperse within the unimpeded offshore location, the temporary and localised reduction in ambient air quality is not expected to adversely personnel or avifauna should they be transiting the Operational Area.

Given the closest residential area is Port Campbell located approximately 8 km north of the Operational Area and emissions are expected to rapidly dissipate into the surrounding atmosphere, no impacts are predicted for regional communities.

During consultation and review of literature (Section 4.6.1.5), sky country was raised as a potential cultural value. No direct or indirect impacts to the cultural values of sky country have been identified through consultation. Potential direct or indirect impacts to the cultural values of sky country from the atmospheric

emissions associated with this activity (given the nature of the atmospheric emissions as described in Section 7.6) are expected to be minor and temporary, consistent with the above assessment of atmospheric emissions.

### 7.6.4. Demonstration of ALARP

The ALARP process performed for the environmental aspect is summarised in Table 7-17. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable. The result of this ALARP assessment contributes to the overall acceptability of the impact or risk.

**Table 7-17: Atmospheric emissions – ALARP assessment summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Legislation, Codes and Standards*** | | | |
| Marine Order 97 (Marine Pollution Prevention – Air Pollution), which details requirements for:<br>▪ International Air Pollution Prevention (IAPP) Certificate, required by vessel class<br>▪ use of low sulphur fuel when available<br>▪ Ship Energy Efficiency Management Plan, where required by vessel class<br>▪ Ozone depleting substances (ODS Record Book<br>▪ No discharge of ODS<br>▪ Preventive Maintenance System (PMS)<br>▪ onboard incinerator to comply with Marine Order 97. | Accept | Control may slightly reduce the likelihood of air pollution. Control based on legislative requirements and therefore must be adopted. | PS 7.1 |
| OPGGS (Resource Management and Administration) Regulations 2011: Accepted Well Operations Management Plan (WOMP), which describes the well design and barriers to be used to prevent a loss of well integrity and aligns with industry guidance and good practice. | Accept | Compliance with an accepted WOMP that aligns with industry guidance and good practice will ensure a number of barriers are in place and verified, reducing the likelihood of loss of well integrity occurring.<br>Although the consequence would not be reduced, the reduction in likelihood reduces the overall risk. Control based on legislative requirements and therefore must be adopted. | PS 7.2 |
| ***Eliminate*** | | | |
| Do not vent or flare well bleed-off fluids. | Reject | Control is not considered feasible. Venting or flaring of bleed-off fluids is a safety-critical activity. | Not applicable |
| Do not vent gas during removal of tree cap or for verification of well barriers. | Reject | Control is not considered feasible. Gas may be trapped in the subsea trees or control lines and will be vented directly subsea when valves are opened to access tree, verify barriers, and undertake P&A. | Not applicable |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| MODU flare will operate efficiently to maximise combustion. | Accept | Flaring of hydrocarbons will convert methane to carbon dioxide. Methane is a more potent GH than carbon dioxide, hence flaring reduced the $tCO_2$ equivalent released during the petroleum activity.<br>The volumes of hydrocarbons that will credibly be received onboard the MODU are insufficient to sustain a flare. Flaring of hydrocarbons received by the MODU is not feasible. | PS 7.3 |
| ***Engineering*** | | | |
| Re-inject wellbore hydrocarbons into the reservoir prior to well abandonment, where practicable. | Accept | Reduces the likelihood of atmospheric emissions impacting air quality through reducing volume of hydrocarbons required to be flared/vented. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 7.4 |
| Subsea BOP and RWORS installed and function tested during permanent plugging operations. | Accept | BOP testing reduces the volume of influx and therefore the potential volume of gas vented in the event of a well kick. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 7.5 |
| ***Administrate*** | | | |
| Well Control Bridging Document (WCBD) for alignment of Woodside and the MODU contractor to manage the equipment and procedures for preventing and handling a well influx. | Accept | Implementing equipment and procedures in the Well Control Bridging Document will reduce the volume of gas vented in the event of a well influx. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 7.6 |

#### 7.6.4.1. ALARP Summary

The impact assessment and evaluation has identified controls (Table 7-17) that, when implemented, are considered to manage the impacts of atmospheric emissions from the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts of atmospheric emissions. Additional control measures were identified in Table 7-17 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 7.6.5. Demonstration of Acceptability

Given the adopted controls, the atmospheric emissions aspect of the petroleum activity will not result in potential impacts greater than minor, temporary impact to the environment that will recovery naturally without intervention. Further opportunities to reduce the impacts have been investigated in Table 7-17.

The adopted controls are considered good oil-field practice. No concerns or objections regarding the atmospheric emissions aspect of the petroleum activity have been raised by relevant stakeholders. The environmental impacts meet the Woodside environmental risk acceptability criteria (Section 6.3).

Relevant requirements have been met, including:

- Marine Order 97 (Marine Pollution Prevention – Air Pollution), which gives effect to Annex VI of MARPOL.

Several recovery plans and conservations advice identify climate change as a threat (Section 4.4.3). The petroleum activity will make a small contribution to GHG emissions and eliminates the risk of future GHG emissions from the Minerva wells. Hence, the atmospheric emissions aspect of the petroleum activity is not inconsistent with recovery plans and conservation advice made under the EPBC Act.

The environmental impacts are consistent with the principles of ESD:

- Integration principle: The petroleum activity will result in relatively short duration atmospheric emissions; however, the petroleum activity will permanently plug the Minerva wells, eliminating the long-term risk of GHG released from wells. Therefore, the petroleum activity is consistent with the integration principle.
- Precautionary principle: The atmospheric emissions aspect of the petroleum activity is consistent with the precautionary principle. Atmospheric emissions have been reliably quantified using standard methods and will not credibly cause serious or irreversible harm.
- Intergenerational principle: The atmospheric emissions aspect of the petroleum activity is consistent with the intergenerational principle as there are no identified health, diversity, and productivity impacts that may affect the environment for future generations associated with the short-duration, localised, and limited release of atmospheric emissions.
- Biodiversity principle: There are no significant impacts and risks associated with direct atmospheric emissions to matters of MNES. The atmospheric emissions are not inconsistent with the objectives of recovery plans and conservation advice made under the EPBC Act.
- Valuation principle: The valuation principle is not considered relevant given there are no identified costs associated with direct emissions generated whilst undertaking the activity.

Woodside considers the potential impacts and risks to be managed to an acceptable level.

### 7.6.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 7<br>Atmospheric emissions are limited to those necessary to maintain well integrity and complete the petroleum activity. | C 7.1<br>Marine Order 97 (Marine Pollution Prevention – Air Pollution), which details requirements for:<br>▪ International Air Pollution Prevention (IAPP) Certificate, required by vessel class<br>▪ use of low sulphur fuel when available<br>▪ Ship Energy Efficiency Management Plan, where required by vessel class<br>▪ onboard incinerator to comply with Marine Order 97. | PS 7.1.1<br>MODU and project vessels compliant with Marine Order 97 (marine pollution prevention – air pollution) to restrict emissions to those necessary to perform the activity. | MC 7.1.1<br>Marine Assurance inspection records demonstrate compliance with Marine Order 97. |
| | C 7.2<br>OPGGS (Resource Management and Administration) Regulations 2011: Accepted Well Operations Management Plan (WOMP), which describes the well design and barriers to be used to prevent a loss of well integrity and aligns with industry guidance and good practice. | PS 7.2<br>Minerva Field wells to be permanently plugged, in accordance with the accepted WOMP, including implementation of barriers to prevent a loss of well integrity. | MC 7.2.1<br>Acceptance letter from NOPSEMA demonstrates the WOMP was accepted by NOPSEMA before the activity commenced. |
| | C 7.3<br>MODU flare will operate efficiently to maximise combustion. | PS 7.3<br>MODU flare will have combustion efficiency greater than 99%. | MC 7.3.1<br>Records demonstrate that the MODU flare is greater than 99% efficient. |
| | C 7.4<br>Re-inject wellbore hydrocarbons into the reservoir prior to well abandonment, where practicable. | PS 7.4<br>Wellbore hydrocarbons are reinjected into the reservoir, where practicable. | MC 7.4.1<br>Records confirm assessment completed to ensure wellbore hydrocarbons are re-injected where practicable. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | C 7.5<br>Subsea BOP and RWORS installed, and function tested during permanent plugging operations. | PS 7.5<br>Subsea BOP specification, installation and function testing compliant with internal Woodside Standards and international requirements (API Standard 54) as agreed by Woodside and MODU contractor. | MC 7.5.1<br>Records demonstrate that BOP and BOP control system specifications and function testing were in accordance with minimum standards for the expected permanent plugging conditions as agreed by Woodside and MODU contractor. |
| | C 7.6<br>Well Control Bridging Document (WCBD) for alignment of Woodside and the MODU contractor to manage the equipment and procedures for preventing and handling a well influx. | PS 7.6<br>The well is permanently plugged in accordance with the contractor WCBD to ensure no unplanned emissions to air from a well influx, during operations. | MC 7.6.1<br>Records demonstrate well permanently plugged, in accordance with WCBD. |

# 7.7. MODU and Vessel Discharges

## 7.7.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Routine MODU and vessel discharges within the Operational Area. | Routine discharge of sewage, grey water and putrescible wastes to marine environment from MODU and project vessels. | Localised and temporary reduction in water quality adjacent to the discharge point associated with minor increases in nutrients, salinity, temperature and oily water/ chemical residues. | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | Routine discharge of deck and bilge water to marine environment from MODU and project vessels. | | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | | | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |

## 7.7.2. Source of Risk

### 7.7.2.1. Sewage, Grey Water, and Putrescible Waste

The MODU and project vessels will discharge small volumes of treated sewage, putrescible wastes, and grey water to the marine environment (impact assessment based on approximate discharge of 15 $m^3$ per vessel/MODU per day), using an average volume of 75 L/person/day and a maximum of 200 persons on board. However, it is noted that vessels such as support vessels will have considerably less persons on board.

Sewage, greywater, and food waste will be treated aboard the MODU and vessels to relevant MARPOL standards prior to being discharged overboard, or disposed of beyond the Operational Area (e.g., disposed of onshore when vessels are in port). The Operational Area is with 12 nm from land, so only sewage treated by a MARPOL-compliant treatment system can be discharged.

### 7.7.2.2. Deck and Bilge Water

The MODU and project vessels routinely generate/discharge:

- Routine/periodic discharge of relatively small volumes of bilge water. Bilge tanks receive fluids from many parts of the project vessels or MODU. Bilge water can contain water, oil, detergents, solvents, chemicals, particles, biocides, and other liquids, solids, or chemicals.
- Variable water discharge from MODU/vessel decks directly overboard or via deck drainage systems. Sources could include rainfall events and/or deck activities such as cleaning/wash-down of equipment/decks.

No wastes contaminated with hydrocarbons or chemicals will be routinely discharged from the project vessel deck drains. Drainage from areas of a high risk of hydrocarbon or chemical contamination will be managed to ensure it has an oil content of less than 15 ppm before overboard discharge or sent to shore for disposal.

Rainfall and washdown of the decks may result in minor quantities of chemical residues, such as detergent, oil and grease entering the deck drainage system and being possibly discharged overboard.

#### 7.7.2.3. Desalination Brine

Reverse osmosis, distillation, or desalination plants on board vessels and the MODU use seawater to produce potable and demineralised water; resulting in reject brine (i.e., hypersaline water) that is discharged to the marine environment. The potable water produced is stored in tanks on board.

During the distillation process, relatively small volumes of reject brine is produced and discharged. Reject brine discharge is typically 20 to 50 percent higher in salinity than the intake seawater (depending on the desalination process used) and may contain low concentrations of scale inhibitors and biocides, which are used to avoid fouling of pipework.

Models developed by the US EPA (Frick et al., 2001) for temporary brine discharges from vessels assuming no ocean current (i.e., 0 m/s) found brine discharges from the surface dilute 40–fold at 4 m from the source. This modelling can be used as an indicator for predicting horizontal attenuation and diffusion of reject brine; and suggests that the salinity concentration drops below environmental impact thresholds within 4 m of the discharge point.

#### 7.7.2.4. Cooling Water

Seawater is used as a heat exchange medium for cooling machinery engines and other equipment. Seawater is drawn up from the ocean, where it is subsequently de-oxygenated and sterilised by electrolysis (by release of chlorine from the salt solution) and then circulated as coolant for various equipment through the heat exchangers (in the process transferring heat from the machinery), prior to discharge to the ocean. Upon discharge, it will be warmer than the ambient water temperature. Cooling water is often treated with additives including scale inhibitors and biocide to avoid fouling of pipework. Scale inhibitors and biocide are usually used at low dosages, and are usually consumed in the inhibition process, so there is little or no residual chemical concentration remaining upon discharge.

In some instances, fresh water or central cooling systems may be fitted. In these systems, fresh water is used in a closed circuit to cool down the engine room machinery, and then further cooled by sea water in a seawater cooler.

Seawater used for cooling purposes will be routinely discharged at a temperature expected to be less than 70 °C and rates ~50 $m^3$/d.

### 7.7.3. Environmental Impact Assessment

#### 7.7.3.1. Water Quality

Routine MODU and vessel discharges may result in a localised, temporary reduction in water quality. Discharges such as sewage, marine growth, and putrescible waste, may increase the biological oxygen demand in the water column as solids decompose. Given the relatively small volumes and intermittent nature of such discharges, along with the well-mixed and highly oxygenated receiving environment, any decrease in dissolved oxygen will be minor, temporary, and localised.

The Operational Area is an open water environment which is naturally well mixed (as shown by the well-mixed surface layer to approximately 40 m water depth shown in Figure 4-8). Consequently, discharges from the MODU and vessels are expected to dilute rapidly in the receiving water. Discharges of differing density, such as RO brine and relatively warm cooling water, will not result in stratification of the water column as the volumes are relatively small, the differences in salinity and temperature compared to the receiving environment are relatively small, and the receiving environment is well mixed.

Discharges from vessels may also increase turbidity and, if traces of oils are present (e.g., in bilge water treated to MARPOL requirements), result in a surface sheen. Turbidity plumes and any surface sheens will dilute and break up rapidly in the receiving environment, with impacts to water quality expected to be limited to within 10s of metres from the discharge location.

#### 7.7.3.2. Marine Fauna

Given the rapid dilution of routine discharges from the MODU and vessels, the potential impacts to marine fauna will be limited to the mixing zone within 10s of metres of the discharge location. Discharges of treated sewage and food scraps may attract fauna such as fish and birds. Such attraction will be of short duration, with normal behaviours reasonably expected to resume upon cessation and dilution of the discharge.

#### 7.7.3.3. Sediment Quality and Benthic Habitats

Vessel discharges will not credibly impact upon sediment quality and benthic habitats given the discharge location at the sea surface, the water depth of the Operational Area (> 50 m), and the well-mixed open sea receiving environment.

### 7.7.4. Demonstration of ALARP

The routine MODU and vessel discharges aspect of the petroleum activity is considered a 'Type A' (lower order) impact based upon the decision context described in Section 6.1.1.

The ALARP process performed for the environmental aspect is summarised in Table 7-18. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable.

**Table 7-18: MODU and vessel discharges – ALARP assessment summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Legislation, Codes and Standards*** | | | |
| Marine Order 91 (marine pollution prevention – oil) (as appropriate to vessel class), which gives effect to MARPOL Annex I – Oil. | Accept | Controls based on legislative requirements, must be accepted. Reduces potential impacts of inappropriate discharge of potential oily water stream. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 8.1 |
| Marine Order 95 (marine pollution prevention – garbage) (as appropriate to vessel class), which gives effect to MARPOL Annex V – Garbage. | Accept | Controls based on legislative requirements, must be accepted. Reduces potential impacts of inappropriate discharge of putrescible waste. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 8.2 |
| Marine Order 96 (marine pollution prevention – sewage) (as appropriate to vessel class), which gives effect to MARPOL Annex IV – Sewage. | Accept | Controls based on legislative requirements, must be accepted. Reduces potential impacts of sewage discharges. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 8.3 |
| ***Eliminate*** | | | |
| Storage, transport, and treatment/disposal onshore of sewage, greywater, putrescible and bilge wastes. | Reject | This control would present additional safety and hygiene hazards resulting from the storage, loading and transport of the waste material.<br>Distance of activity offshore also makes the implementation of this control not feasible. | - |
| No discharge of sewage during activity | Reject | Health and safety risks associated with storage of sewage on-board. Discharge of treated sewage at sea is permitted maritime practice. Given the offshore location, contaminants will rapidly disperse with offshore currents resulting in minimal risk of | - |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | impacts from temporary and localised decrease in water quality. | |
| No discharge of deck drainage | Reject | Health and safety risks associated with storage on-board. Discharge of oily water once treated (IMO approved oily water separator, and discharge with oi content of <15 ppm) is standard maritime practice. Given the offshore location, contaminants will rapidly disperse with offshore currents resulting in minimal risk of impacts from temporary and localised decrease in water quality. | - |
| No discharge of putrescible waste | Reject | Storage of putrescible waste on-board for treatment / disposal onshore. Reduces potential impacts from waste discharge at sea. Health and safety risks associated with storage on-board. Discharge of macerated food scraps (< 25 mm) is standard maritime practice. Given the offshore location, putrescible waste discharge will rapidly disperse with offshore currents resulting in minimal risk of impacts from temporary and localised decrease in water quality. | - |
| No discharge of bilge water | Reject | Discharge of bilge water is standard maritime practice. Given the offshore location, the excess of salt in the bilge water will rapidly dilute with offshore currents resulting in minimal risk of impacts from temporary and localised increase in salt in the water. | - |
| ***Engineering*** | | | |
| Where there is potential for loss of primary containment of oil and chemicals on the MODU, deck drainage must be collected via a closed drainage system, (e.g., drill floor). | Accept | Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. No change in consequence would occur.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 8.4 |
| ***Administrate*** | | | |
| Chemicals, fluids, and additives planned to be used and intended or likely to be discharged to the marine environment will have an environmental assessment completed before use. | Accept | Environmental assessment of chemicals will reduce the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability.<br>Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur. | PS 8.5 |

#### 7.7.4.1. ALARP Summary

The risk assessment and evaluation has identified controls (Table 7-18) that, when implemented, are considered to manage the impacts of vessel and subsea discharges from the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts of vessel and subsea discharges. Additional control measures were identified in Table 7-18 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 7.7.5. Demonstration of Acceptability

Given the adopted controls, the MODU and vessel discharges during the petroleum activity will not result in potential impacts greater than temporary and minor reduction in water quality and localised, short-term behavioural disturbance to fauna. Further opportunities to reduce the impacts have been investigated in Table 7-18.

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding the planned MODU and vessel discharges during the petroleum activity have been raised by relevant stakeholders. The environmental impacts meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental impacts are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- Precautionary principle: The MODU and vessel discharges aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- Inter-generational principle: The MODU and vessel discharges aspect will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The MODU and vessel discharges aspect will not impact upon biodiversity or ecological integrity.

Woodside considers the impact to be managed to an acceptable level.

## 7.7.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 8<br>Routine MODU and Project Vessel discharges comply with Marine Order requirements to restrict discharges to those necessary to perform the Petroleum Activity | C 8.1<br>Marine Order 91 (marine pollution prevention – oil) (as appropriate to vessel class), which gives effect to MARPOL Annex I – Oil. | C 8.1<br>Marine Order 91 – Oil (as relevant to vessel class) requirements, which include mandatory measures for the processing of oily water prior to discharge:<br>▪ Machinery space bilge/oily water shall have International Maritime Organisation (IMO) approved oil filtering equipment (oil/water separator) with an online monitoring device to measure Oil in Water (OIW) content to be less than 15 ppm prior to discharge.<br>▪ IMO approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capably of recirculating in the event that OIW concentration >15 ppm.<br>▪ A deck drainage system shall be capable of controlling the content of discharges for areas of high risk of fuel/oil/grease or hazardous chemical contamination.<br>▪ There shall be a waste oil storage tank available, to restrict oil discharges.<br>▪ In the event that machinery space bilge discharges cannot meet the oil content standard of <15 ppm without dilution or be treated by an IMO approved oil/water separator, they will be contained onboard and disposed of onshore.<br>▪ Valid International Oil Pollution Prevention Certificate | MC 8.1.1<br>Records demonstrate MODU and Project Vessels are compliant with Marine Order 91 (as appropriate to vessel class).<br><br>MC 8.1.2<br>Records demonstrate discharge specification from the machinery space bilge/oily water management system met for MODU and Project Vessels |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | C 8.2<br>Marine Order 95 (marine pollution prevention – garbage) (as appropriate to vessel class), which gives effect to MARPOL Annex V – Garbage. | C 8.2<br>Marine Order 95 – Pollution Prevention – Garbage (as appropriate to vessel class) which requires putrescible waste and food scraps are passed through a macerator so that it is capable of passing through a screen with no opening wider than 25 mm. | MC 8.2.1<br>Records demonstrate MODU and Project Vessels are compliant with Marine Order 95 (as appropriate to vessel class). |
| | C 8.3<br>Marine Order 96 (marine pollution prevention – sewage) (as appropriate to vessel class), which gives effect to MARPOL Annex IV – Sewage. | C 8.3<br>Marine Order 96 – Pollution Prevention – Sewage (as appropriate to vessel class) which include the following requirements:<br>▪ Valid International Sewage Pollution Prevention (ISPP) Certificate<br>▪ Sewage systems that comply with Regulation 9 of Annex IV including a sewage treatment plant, sewage comminuting and disinfecting system and a sewage holding tank<br>▪ discharge of non-treated sewage will only occur > 12 nm from the nearest land<br>▪ discharge of treated sewage using a certified sewage treatment plant will only occur at > 3 nm from the nearest land<br>▪ discharge of sewage will occur at a moderate rate while vessel is in transit at speed greater than 4 knots. | MC 8.3.1<br>Records demonstrate MODU and Project Vessels are compliant with Marine Order 91 (as appropriate to vessel class). |
| | C 8.4<br>Where there is potential for loss of primary containment of oil and chemicals on the MODU, deck drainage must be collected via a closed drainage system, (e.g., drill floor). | PS 8.4<br>Contaminated drainage contained, treated and/or separated before discharge. | MC 8.4.1<br>Records demonstrate MODU has a functioning closed drainage system which contains, treats and/or separates contaminated drainage before discharge. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | C 8.5<br>Chemicals, fluids, and additives planned to be used and intended or likely to be discharged to the marine environment will have an environmental assessment completed before use. | PS 8.5<br>All chemicals intended or likely to be discharged to the marine environment selected in accordance with the chemical assessment process (refer to Section 3.12). | MC 8.5.1<br>Records demonstrate chemical selection, assessment and approval process for chemicals intended, or likely, to be discharged to the marine environment is followed. |

## 7.8. Plug and Abandonment Discharges

### 7.8.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Planned subsea discharges associated with P&A | Discharge of cleaning acid (scale dissolver). | Localised and temporary reduction in water and sediment quality | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | Discharge control fluids (valve actuation, pressure testing and BOP function testing. | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | Discharge of grit, flocculant, metal swarf and cement during wellhead removal. | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| Planned MODU discharges associated with P&A | Discharge of well kill and clean out fluids (brine, additives, MEG, LCM). | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | Discharge of residual well fluids (formation water, inhibited seawater and WBM) during well kill and clean out. | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | Discharge of cement, cement spacers, and additives from cementing activities. | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| Planned MODU discharges associated with P&A (contingent) | Discharge of WBM, metal swarf, cement, and formation rock cuttings from milling. | | 10 | N/A | - | Type A Low Order Impact | Tolerable |
| | Discharge of WBM and cement cuttings from drilling out cement plugs. | | 10 | N/A | - | Type A Low Order Impact | Tolerable |

### 7.8.2. Source of Risk

The operational discharges associated with the well plug and abandonment, including discharges associated with preparatory activities, the MODU based plug and abandonment, and the removal of well infrastructure are summarised in Table 7-19.

**Table 7-19: Summary of discharges associated with the Minerva Well P&A activity**

| Activity | Discharge Description | Discharge Location and Control | Indicative Volume |
|---|---|---|---|
| ***Preparatory Activities for P&A*** | | | |
| Marine growth removal and cleaning | Scale dissolver (acid based) | Subsea | 100 L per well |
| Function and pressure testing (actuation of valves) | Hydraulic control fluid[23] | Subsea | 30 L per well |
| ***Plug and Abandonment Activities*** | | | |
| Cement unit test | Cement slurry (mainly cement and water, with small volume of cement additives and stabilisers) | Discharged from MODU through cement discharge line, which may be up to 10m above sea surface | Up to 10 $m^3$ |
| Function testing BOP | Small volume of BOP control fluid released during BOP installation and routine testing (every 7 days). | Subsea Discharge | 90 L per BOP test |
| Well kill[24] (fluid returned to well bleed-off package) | Well kill fluid (weighted brine) mixed with residual wellbore fluids (formation water, inhibited seawater, WBM) | Processed through MODU well bleed-off package. Discharged from MODU below sea surface, if OIW < 30 ppm. | Discharge volume determined by success of bullheading. Estimate volume ~ 30–150 $m^3$ per well |
| Drilling fluid and additives | Well clean-out fluid (weighted brine, surfactants, high viscosity gel pills, loss circulation material) mixed with residual fluid in the tubing and annular spaces (WBM, completion fluid, inhibited seawater) | Processed through MODU mud system and discharged below sea surface. | ~ 400–700 $m^3$ (per well) |
| Mud pit and tank washing | Wash fluids mixed with residual drilling fluids and brines, cement fluids and dry bulk chemicals | From MODU, below sea surface where oil content is less than 1% by volume. | Variable based on operations |
| Installing cement plugs | Small volume of cement spacer fluid and cement slurry (cement and cement additives) will be circulated back to MODU for discharge after each cement job. | Discharged from MODU below sea surface | 10 $m^3$ per cement job |

[23] Activity and associated discharge may be conducted during preparatory activities and may also be required during rig-based P&A activities.

[24] Base case for well kill is to bullhead residual fluids in the reservoir. Fluids will only be circulated out of the well and processed through the well bleed off package as a contingency if bullheading is unsuccessful.

| Activity | Discharge Description | Discharge Location and Control | Indicative Volume |
|---|---|---|---|
| | Excess cement slurry in the cement pump unit and surface lines will be flushed and discharged after each cement job | Discharged from MODU below sea surface | 5 $m^3$ per cement job |
| Dry bulks | Dry cement may be vented and blown overboard during the pneumatic transfer process (onboard transfer operations) | Vented from tank and blown overboard as dry bulk. | 10 tonnes per well |
| ***Plug and Abandonment Activities – Contingent*** | | | |
| Milling | WBM, metal swarf, cement, and formation rock | Processed through MODU solids control system.<br>Discharged from MODU below sea surface where oil content is less than 1% by volume. | 1,600 $m^3$ of WBM<br>14 $m^3$ of metal swarf<br>6 $m^3$ of cement<br>8 $m^3$ of formation rock |
| Drilling out cement plugs | WBM (brine and high viscosity sweeps) used to drill out the cement plugs will be circulated back to MODU with cement cuttings for treatment prior to discharge | Processed through MODU mud system.<br>Discharged from MODU below sea surface where oil content is less than 1% by volume. | 250 $m^3$ of WBM<br>25 $m^3$ of cement cuttings |
| ***Wellhead Removal*** | | | |
| Abrasive water jet cutting of wellhead | Flocculant and grit | Flocculant and grit discharged within the wellbore below mudline. Small volumes may be released to the seabed depending on the depth of the cut. A small volume may be released to the seabed if the cut is made at or near the mudline. | Grit: 4 tonnes per well<br>Flocculant: 250 L per well |

#### 7.8.2.1. Subsea discharges associated with preparatory activities for P&A

Small planned chemical discharges may occur during preparation of the plug and abandonment and during well infrastructure removal activities. These subsea discharges are associated with typical inspection, maintenance, and repair (IMR) activities and can include:

- Discharges of water-glycol based control fluids from valve functioning activities (note: valve functioning can occur during MODU-based plug and abandonment)
- Discharges of cleaning acid (scale dissolver) to clean wellhead connector and remove marine growth and carbonate scale from subsea trees prior to plug and abandonment
- Small volumes of chemicals may be discharged intermittently and for short durations as part of the preparatory activities for P&A. These fluids will be discharged subsea, directly to the marine environment.

#### 7.8.2.2. Well Kill and Cleanout Fluids and Residual Wellbore Fluids

During P&A activities, fluids will be circulated back to the MODU for treatment, prior to either being discharged or sent to shore for onshore disposal. Depending on the operation, returned fluids may include reservoir fluids, residual tubing and annulus fluids, brine, WBM or solids. There are a number of chemicals that are already present in the well from either the time of drilling or injected during operations.

***Fluids Returned to the Bleed off Package***

If well kill fluid fails to be bullhead pumped into the well, reservoir fluids may need to be bled off at the MODU through the bleed off package. The bleed off package will be used to separate water-based components from the hydrocarbons and direct the hydrocarbons to be vented or retained for onshore disposal, depending on a number of factors including the volume, weather conditions, and safety requirements as documented in relevant procedures for this activity.

All well kill fluids and produced formation water received to the MODU during well kill will be treated via the water filtration package component of the bleed off package to less than 30 ppm oil in water content and discharged overboard or sent for onshore disposal. The bleed-off package is designed to handle fluids and cannot handle solids. It will be used for well kill operation only where the well status allows line-up to the bleed-off package.

***Fluids and Solids returned to the Mud System***

During well clean out, the wellbore will be circulated clean by pumping well clean out fluids (including weighted brines, seawater, high viscosity pills, and other chemical additivities as required) into the well. These fluids will be returned to the surface mixed with residual fluids remaining in the production tubing and annular spaces (predominately WBM and inhibited seawater). Returned fluids will be sent to the MODU's mud system and mud pits (tanks). Fluids may be discharged if they meet less than 1% oil concentration.

Skimming may be used to remove separated hydrocarbons where possible (and stored for onshore disposal) but dilution with seawater will not occur to achieve the less the 1% oil concentration requirement. Operational efficiencies will be explored throughout the campaign to minimise activities like pit cleaning. Ideally this will only occur at the end of the campaign, resulting in a single fluid discharge with a maximum of 1% oil.

#### 7.8.2.3. Cementing Fluids, Cement and Grout

Cementing fluids, including cementing mix water, may require discharge to the marine environment under various scenarios.

Upon arrival on location at the Operational Area, the rig may be required to perform a cement unit test, or 'dummy cement job'. Discharges from the test are made through the usual cement unit discharge line, which may be up to 10 m above the sea level and occur as a cement slurry. The slurry is usually a mix of cement and water (~10 $m^3$); however, may sometimes contain stabilisers or chemical additives.

After each cement job, leftover cement slurry in the cement pump unit and the surface lines is flushed and discharged to the sea to prevent clogging of the lines and equipment. This is estimated to be about 20 $m^3$ per well. In the event of issues while injecting cement slurry downhole, the slurry may be discharged. In the event the cement job does not meet barrier requirements, the cement will be drilled out and cement operation redone.

Cement spacers can be used as part of the cementing process, within the well casing, to assist with cleaning of the casing sections prior to cement flow through. The spacers may consist of either seawater or a mixture of fresh water with weighting agents and other additives to aid with the cleaning of casing and cement placement. A dye may be added to the spacer where the cement is returned to the seabed surface; it is used to provide a pre-indicator of cement overflow to the seabed surface, to ensure adequate cement height.

Dry Bulk ProductDry bulk materials generally pose little or no risk to the environment (PLONOR)[25], but barite may contain traces of heavy metals, such as mercury and cadmium. Woodside requires that concentrations of mercury and cadmium in barite be <1 mg/kg and <3 mg/kg, respectively. This conforms to the American Petroleum Institute (API) specification for drilling barite. Heavy metal analysis is conducted on individual

[25] Barite (as barium sulphate), cement and bentonite are on the OSPAR List of Substances Used and Discharged Offshore which are Considered to Pose Little or No Risk to the Environment (PLONOR). The List is available at: https://www.cefas.co.uk/media/p3sbu3bn/ospar-list-of-substancesused-and-discharged-offshore-which-are-considered-to-pose-little-or-no-risk-to-the-environment-plonor-update-2021.pdf

batches of stock barite prior to mobilisation offshore. This sampling confirms that heavy metals of concern (cadmium and mercury) are within limits prescribed by API Standards.

Following completion of all plugging operations at end of campaign, excess dry bulks including cement, barite and bentonite are planned for use during subsequent drilling operations and will therefore remain on the MODU and be provided to the next operator at the end of the P&A activities.

#### 7.8.2.4. BOP and Well P&A Control Fluids

Subsea fluids are likely to be released during permanent plugging for abandonment activities including well infrastructure removal. These substances include hydraulic fluids, subsea control fluids, dye, glycol, brine, or seawater with traces of gas and liquid hydrocarbons. During permanent plugging activities, the control system for the subsea tree operates in open loop, resulting in approximately 10 $m^3$ of control fluid being expected to be discharged per well.

The BOP is required to be regularly function tested, as defined by legislative requirements. The BOP is function tested during assembly and maintenance and during operation on the seabed. As part of this testing, small volumes of BOP control fluid (generally consisting of water mixed with a glycol based detergent or equivalent water based anti-corrosive additive) is released to the marine environment. The BOP will be function tested about every seven days (when a pressure test is not occurring) and pressure tested about every 21 days as per API 53 (an American Petroleum Institute standard for Well Control Equipment Systems for Drilling Wells). The estimated volume of BOP control fluid per function is up to about 90 L per test.

#### 7.8.2.5. Removal of Well Infrastructure

The removal of wellhead will result in routine discharge of grit/flocculants (from abrasive water jet cutting) and/or metal swarf (from mechanical or diamond wire cutting). Discharges from cutting of well infrastructure are expected to be confined predominately within the well and settle on the top permanent plug. During final cut through the conductor pipe, small amounts of will be released below the mudline to sediments immediately surrounding the well. Should cutting at a shallower depth be required, these discharges may be released to the seabed surface. For the mechanical cutting tool, discharges will be limited to small quantities of metal and cement cuttings from the infrastructure itself as well as small quantities of lubricant. For the abrasive water jet cutting method, discharges include a small amount of grit and flocculant.

#### 7.8.2.6. Contingency Milling

During plugging activities, there is a potential contingency activity where the well casing needs to be milled out (up to 4 x 30 m plugs or 120 m per well). This will produce milled swarf, drilled cement cuttings and formation rock and will be completed using WBM. At the end of section milling, the WBM circulating system may be discharged if contaminated with swarf, to prevent reuse and consequent equipment damage. The volume of discharged WBM is conservatively estimated to be 1,600 $m^3$ per well. Operational efficiencies will be explored throughout the campaign to minimise discharge volumes.

#### 7.8.2.7. Contingency Marine Riser Clean Out

There is potential for the marine riser and BOP to be susceptible to rust and other minor build up between wells. This can lead to operational issues. To avoid this, the marine riser will be recovered to deck and inspected. If needed, the equipment will be cleaned over a bunded area with fluids returned to tanks on the MODU. The BOP cavities will also be cleaned before deployment and, if equipment needs to be cleaned after deployment, large diameter brushes, clean drill pipe and high-rate circulation subs will be available to enable riser cleaning/flushing to the MODU mud pits.

### 7.8.3. Environmental Impact Assessment

#### 7.8.3.1. Water Quality

Table 7-19 identifies a range of discharges that may occur during the plug and abandonment activity which may impact upon water quality.

The permanent plugging activities occur with a riser fitted, creating a closed loop system. Small volumes of cement cuttings and/or formation cuttings with unrecoverable fluids may be brought to the surface via the riser

and discharged below the water line from the MODU, resulting in drilled cement and drilling fluids (WBMs and brine) rapidly diluting and dispersing through the water column. The dispersion and fate of the solids are determined by particle size and density of the unrecoverable fluids; the larger solid particles will drop out of suspension and deposit in proximity to the well site (tens of metres) with potential for localised spreading downstream, while the fluids and finer particles will remain in suspension and will be transported away from the well site, rapidly diluting and eventually depositing over a larger area (hundreds of metres) downstream of the well site.

Elevated TSS will occur and will be highest at the point of discharge in the water column, rapidly decreasing with depth and distance over a period of short duration (minutes). The finer particles (associated with the drilling fluids) will remain in suspension and are transported further before settling on the seabed over a wider area (hundreds of metres) downstream of the well site. Increased turbidity from the discharge of cement or formation cuttings will recover rapidly to natural levels upon the discharge ceasing through mixing in the water column and sedimentation of particles. This may result in impacts to marine fauna, such as short-term, localised avoidance of the plume by fish, and short-term impairment of filter-feeding organisms. Monitoring by Advisian (2021) showed elevated turbidity near the sea surface (Figure 4-8), hence biological communities may be naturally adapted to variations in TTS.

Well kill/clean out brine and WBM may be bulk discharged at the end of specific P&A activities, where there is a requirement to change the fluid system, or the fluid cannot be re-used (due to deterioration/contamination). A small quantity of WBM and NWBM residue (<1%) may also be discharged at the sea surface while cleaning the mud pits, typically at the conclusion of P&A activities or when changing between fluid types.

Discharge of brine or WBM will result in a negatively buoyant plume of fine materials that will rapidly dilute and decrease in turbidity levels immediately away from the discharge point. Jones et al. (2021) used an ROV to observe mud pit discharges and reported the discharge to exit the discharge outlet as a jet of material in a distinctive cloud-like plume descending rapidly to the seabed and growing in diameter with increasing depth. The chemical components of the drilling fluids (WBM and weighted brine) are designed to be low toxicity and biodegradable in offshore marine sediments. Water based fluids have been shown to have little or no toxicity to marine organisms (Jones et al., 1996). Similarly, Neff (2005) describes that due the rapid dilution of water-based drilling fluid plumes in the water column, “harm to communities of water column plants and animals is unlikely and has never been demonstrated” (Neff, 2005).

At completion of cementing operations or during testing of the cementing system, small amounts of cement slurry remaining in the mixing area will be discharged to sea before it sets to concrete. The cement slurry discharged to sea has low dispersibility, although some will disperse in the water column. As such, there will be some localised, short-term decrease in water quality until the cement slurry settles to the seabed as a very thin layer.

Concentrated BOP control fluids (such as Stack Magic EcoF) are diluted to 2 to 3% in water on the MODU to make up the BOP control fluid subsequently released to the marine environment. When used at this concentration, Stack Magic EcoF it is classed as a Group E product by the OCNS and therefore considered to be PLONOR. If an alternative BOP control fluid is used aboard the MODU, only BOP control fluids ranked D or better on OCNS ranked list will be utilised. Acute toxicity is not likely to occur due to the low inherent toxicity of the control fluid composition. Chronic toxicity will not occur because a) the already dilute fluid is further diluted upon release and dispersed away from the BOP, and b) even if there was no dispersion the interval between releases exceeds the biodegradation period of the fluid. Water- and glycol-based hydraulic fluids generally have low toxicity, are readily biodegradable and do not bioaccumulate. Given the nature of the hydraulic fluids, along with the relatively small discharge volume, impacts to water quality form their discharge will be negligible.

Residual acid wash may be discharged near the wellheads during cleaning activities. Seawater naturally has a high buffering capacity and hence residual acid will be diluted and neutralised in the water column rapidly. As a result, impacts to water quality will be short-term and localised to around the cleaning location. Biota on or around the wellhead may experience acute toxic effects, however these biota will be lost due to disturbance from the Xmas tree and wellhead removal activity.

#### 7.8.3.2. Sediment Quality

The volumes of cement cuttings during plug and abandonment are very low compared to typical drilling activities, as are formation cuttings that may be discharged during contingency plug and abandonment activities. Consequently, the potential area within which sediment quality may be impacted is relatively small. Changes to sediment properties, such as particle size distribution may occur within a small area. Sampling by Advisian (2021) found no differences in sediment particle size distribution at Minerva well locations where cuttings had previously been discharged, indicating that natural sedimentary processes will result in any cement or formation cuttings being worked into the natural sediments.

Removal of wellheads using an abrasive water jet cut or mechanical cutting tool to remove wellheads may result in traces of grit or swarf being incidentally discharged to the seabed at the wellhead location. These materials are non-toxic. Given the trace quantities, their non-toxic nature, and the seabed disturbance inherent in wellhead removal, impacts to sediment quality will be localised and minor.

#### 7.8.3.3. Benthic Habitats

Given the nature and small volumes of cement and formation cuttings that may be discharges (substantially less than initial drilling of a well), a relatively small area (10s of $m^2$) of benthic habitats would potential be smothered such that substantial changes to benthic communities occurs.

At completion of cementing operations, small amounts of residual cement slurry remaining in the mixing area will be discharged to sea before it sets to concrete. The cement slurry discharged to sea has low dispersibility, although some will disperse in the water column. The benthic habitats affected by this localised disturbance will be unconsolidated sediments that are colonised by a sparse, low abundance epibiotic and infauna community. As this habitat type and benthic community are ubiquitous throughout the region, potential deterioration in habitat quality in this small area is negligible.

### 7.8.4. Demonstration of ALARP

The vessel and subsea discharges aspect of the petroleum activity is considered a 'Type A' (lower order) impact based upon the decision context described in Section 6.1.1.

The ALARP process performed for the environmental aspect is summarised in Table 7-20. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable.

**Table 7-20: Plug and abandonment discharges - ALARP summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Eliminate*** | | | |
| Fluids circulated to the MODU mud system which are contaminated with less than 1% oil by volume are not discharged to the marine environment. | Reject | Whilst this is feasible it is not considered standard practice. This control would result in significant cost, labour, and resources due to the volumes of fluids expected that would require handling. Other cost/sacrifice elements which are considered include:<br>▪ Further treatment of fluids onshore is required to ensure a standard suitable landfill<br>▪ Potential delays during permanent plugging activity if transfer operations are delayed due to weather or operational issues<br>▪ Additional environmental impact incurred (air emissions, vessel | Not applicable |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | discharges) from vessel use and onshore trucking for transporting and disposal of fluids.<br>▪ Disposal via onshore treatment does not eliminate an environmental impact. These options have their own impacts and therefore disadvantages if implemented.<br>This control may result in a slight reduction in the consequence to the marine environment due to small volume of oil (<1% by content) not being discharged. However, generates onshore disposal consequences.<br>Control not adopted as cost/sacrifice outweighs benefit. | |
| Excess dry bulks retained on MODU | Accept | Control is considered feasible, dry bulk product including cement, barite and bentonite will be retained onboard the MODU for subsequent drilling activities that are planned following Minerva P&A. Retaining excess bulks would eliminate the bulk discharge to the marine environment and eliminate the consequence of impacts from such activities. | PS 9.1 |
| Sampling/analysis of stock barite to ensure acceptable levels of heavy metals (cadmium and mercury). | Accept | Barite may contain heavy metals, such as cadmium and mercury, depending on their geological origin. Limiting the concentrations of cadmium and mercury is consistent with industry good practice. Limiting cadmium and mercury concentrations in barite reduces the environmental risk from discharges of barite to the environment.<br>Control considered feasible and can be implemented with minimal cost. Heavy metal analysis for barite is considered standard practice. | PS 9.2 |
| ***Engineering*** | | | |
| During well bleed off activities, returned well kill fluids and produced water will be processed through the water treatment package of the dedicated fluid and gas handling bleed off package.<br>Fluid will be treated to less than 30 ppm oil in water content prior to discharge to the environment. If this cannot | Accept | By treating fluids prior to overboard discharge, the consequence of the release on the environment is reduced. Although no change in likelihood is provided, the decrease in consequence results in an environmental benefit.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 9.3 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| be met, fluids will be returned to shore. | | | |
| MODU Mud System<br>During well clean-up and when fluid is being circulated to the mud system (brine, WBM and clean-up fluids) potentially contaminated with wellbore fluids and residual hydrocarbons, fluids will be captured in the MODU mud tanks for discharge if oil concentration is less than 1% by volume.<br>If discharge requirements cannot be met fluids will be disposed onshore. | Accept | By treating fluids prior to overboard discharge, the consequence of the release on the environment is reduced. Although no change in likelihood is provided, the decrease in consequence results in an environmental benefit.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 9.4 |
| Mud pit wash residue will be measured for oil content prior to discharge. | Accept | Ensuring <1% oil content will provide a small reduction in consequence when residue is discharged to the environment.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 9.5 |
| Drilled cement, formation rock and swarf cuttings returned to the MODU will be discharged below the water line. | Accept | Discharge of cement, formation rock and swarf cuttings below the water line will reduce carriage and dispersion of solids, thereby reducing the consequence of solids discharges during the petroleum activity.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 9.6 |
| ***Administrate*** | | | |
| Fluids used for plug and abandonment activities including brine, WBM, cementing, and subsea control fluids and additives will have an environmental assessment completed prior to use. | Accept | Environmental assessment of chemicals will reduce the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability through Woodside's chemical assessment process (section 3.9). Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 9.7 |
| Bulk operational discharges conducted under MODU's Permit to Work (PTW) system (to operate discharge valves/ pumps). | Accept | The MODU's PTW may slightly reduce the likelihood of bulk discharges occurring, but it is unlikely to be significant given that bulk discharges are often operationally required and cannot be eliminated. | PS 9.8 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | |

#### 7.8.4.1. ALARP Summary

The risk assessment and evaluation has identified controls (Table 7-20) that, when implemented, are considered to manage the impacts of plug and abandonment discharges from the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts of plug and abandonment discharges. Additional control measures were identified in Table 7-20 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 7.8.5. Demonstration of Acceptability

Based on the impact assessment, given the adopted controls, discharges during plug and abandonment of the Minerva wells will not result in potential impacts greater than temporary and minor reduction in water quality, sediment quality and benthic habitats, which will recover naturally.

Further opportunities to reduce the impacts have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines and good oil-field practice/industry best practice. During consultation, GMTOAC questioned whether “eco-friendly” alternatives to cement had been considered. Woodside advised that the selected cement represented the most reliable and effective downhole barrier material for this activity, and that alternative materials may not be as strong or as durable as cement. No other concerns or objections regarding the impacts associated with the operational discharges associated with the P&A activity have been raised by relevant persons. Woodside has considered information contained in recovery plans and threat abatement plans (Section 4). The environmental impacts meet the Woodside environmental risk acceptability criteria (Section 6.1.1). The environmental impacts are consistent with the principles of ESD:

- Integration Principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside’s deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations. The plugging and abandonment of the wells may result in short-term impacts but provides for the long-term safe abandonment of the Minerva wells.
- Precautionary Principle: Pug and abandonment discharges, and their potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- Intergenerational Principle: Plug and abandonment discharges will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity Principle: Plug and abandonment discharges will not impact upon biodiversity or ecological integrity in the long-term.

On this basis, Woodside considers the impact to be managed to an acceptable level.

## 7.8.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 9<br>Impacts from operational discharges associated with P&A activities limited to localised, temporary changes in water and sediment quality in the vicinity of the discharge location. | C 9.1<br>Excess dry bulks at the end of the P&A campaign retained on MODU. | PS 9.1<br>Excess dry bulks retained onboard for use during subsequent drilling campaign | MC 9.1.1<br>Records demonstrate that, excess dry bulk cement, bentonite or barite were retained at conclusion of drilling activity. |
| | C 9.2<br>Sampling/analysis of stock barite to ensure acceptable levels of heavy metals (cadmium and mercury). | PS 9.2<br>Sampling/analysis of stock barite so that that heavy metals of concern are within limits prescribed by API standards of:<br>• mercury (Hg): max 1 mg/kg (< 1 ppm) dry weight in stock barite<br>• cadmium (cd): max 3 mg/kg (< 3 ppm) dry weight in stock barite | MC 9.2.1<br>Records demonstrate that concentrations of heavy metals within stock barite used during the activity are within acceptable levels. |
| | | | MC 9.2.2<br>Heavy metal analysis records demonstrate individual barite stocks used during the activity are within limits prescribed by API standards for mercury and cadmium. |
| | C 9.3<br>During well bleed off activities, returned well kill fluids and produced water will be processed through the water treatment package of the dedicated fluid and gas handling bleed off package prior to discharge to the environment. | PS 9.3.1<br>Less than 30 ppm oil in water content achieved before discharge of fluids from well bleed off package water filtration system. | MC 9.3.1<br>Records demonstrate that discharge criteria were met before discharge or fluids were contained. |
| | | PS 9.3.2<br>Fluids unable to meet 30 ppm oil in water content retained for onshore disposal. | MC 9.3.2<br>Records demonstrate any fluids unable to meet oil in water discharge standard are not discharged to the sea. |
| | C 9.4<br>MODU Mud System<br>During well clean-up and when fluid is being circulated to the mud system (brine, WBM, and | PS 9.4<br>Fluids containing >1% oil concentration by volume taken onshore for disposal. | MC 9.4.1<br>Records demonstrate fluids containing >1% hydrocarbons have been taken onshore. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | clean-up fluids) potentially contaminated with wellbore fluids and residual hydrocarbons, fluids will be captured in the MODU mud tanks for discharge if oil concentration is less than 1% by volume.<br>If discharge requirements cannot be met fluids will be disposed onshore. | | |
| | C 9.5<br>Mud pit wash residue will be measured for oil content prior to discharge. | PS 9.5<br>Less than 1% by volume oil content achieved before discharge of fluids from mud pit wash. | MC 9.5.1<br>Records demonstrate that discharge criteria were met before discharge or fluids were contained. |
| | C 9.6<br>Drilled cement, formation rock and swarf cuttings returned to the MODU will be discharged below the water line. | PS 9.6<br>Cement, formation rock and swarf cuttings discharged below the water line. | MC 9.6.1<br>Records confirm solids discharge chute/line is below the water line. |
| | C 9.7<br>All chemicals and fluids used for P&A activities including brine, WBM, cementing, and subsea control fluids and additives be reviewed and accepted under the Woodside chemical assessment process prior to use. | PS 9.7<br>All chemicals and fluids intended or likely to be discharged to the marine environment reviewed and accepted under the Woodside chemical assessment process prior to use. | MC 9.7.1<br>Records demonstrate chemical selection, assessment and approval process for chemicals and fluids has been followed. |
| | C 9.8<br>Bulk operational discharges conducted under MODU's Permit to Work (PTW) system (to operate discharge valves/ pumps). | PS 9.8<br>All bulk operational discharges conducted under MODU's PTW system. | MC 9.8.1<br>Records demonstrate that bulk discharges are conducted under the MODU PTW system. |

# 7.9. Solid Waste Generation and Management

## 7.9.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Solid Waste Generation | Hazardous and non-hazardous solid waste generated during MODU and project vessel operations. | Increase waste to landfill.<br>Additional usage of onshore waste reception facilities.<br>Availability of materials from recycling. | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |
| | Recovered well infrastructure | | 10 | N/A | - | Type A<br>Low Order Impact | Tolerable |

## 7.9.2. Source of Risk

### 7.9.2.1. MODU and Project Vessels

The MODU and project vessels generate a variety of hazardous and non-hazardous solid wastes, including domestic and industrial wastes. These include aluminium cans, bottles, paper and cardboard, scrap steel, chemical containers, batteries, and medical wastes. Wastes on-board are managed in accordance with the on-board Waste Management Plan.

Solid waste is segregated on-board the project vessels and stored in designated skips and waste containers. Wastes are segregated into the categories of:

- non-hazardous waste (or general waste)
- hazardous waste
- recyclables (further segregation is conducted in line with practices at existing Woodside operations in the region).

General non-hazardous waste includes domestic and galley waste, and recyclables such as scrap materials, packaging, wood and paper and empty containers. Volumes of non-hazardous waste generated on vessels are generally minor.

Hazardous wastes are defined as those that are or contain ingredients harmful to health or the environment. Hazardous wastes likely to be generated on-board the project vessels include oil-contaminated materials (such as sorbents, filters, and rags), chemical containers and batteries. The volumes of generated hazardous wastes are also generally minor.

### 7.9.2.2. Recovered Well Infrastructure

Well infrastructure, including production tubing, casing, wellheads, and subsea trees will be recovered for onshore treatment and disposal. The production tubing and casing will be recovered by the MODU during permanent plugging of the wells. Other well infrastructure above the mudline including the wellheads and subsea trees will be recovered by the MODU or support vessel following plug and abandonment activities. The recovery of well infrastructure will generate waste mainly comprising of steel, polymers and smaller quantities of other materials that will require onshore handling and disposal at licenced facilities.

Treatment of the recovered well infrastructure potentially involves decontamination (e.g., residual contaminants deposited during production) at an onshore location. If treatment is successful, the subsea infrastructure can be recycled or disposed of.

Recovered well infrastructure will be managed through the following, in accordance with the waste management hierarchy shown in Figure 7-9:

- Reduce (note, there are no opportunities to reduce the Minerva subsea infrastructure waste)
- Reuse
- Recycle
- Waste to energy
- Disposal to landfill
- Entombment.

This hierarchy ranks disposal options from the most preferred (re-use and repurposing) to the least preferred (entombment). The waste management arrangements for all Minerva decommissioning activities are described further in the Minerva Decommissioning and Field Management EP.

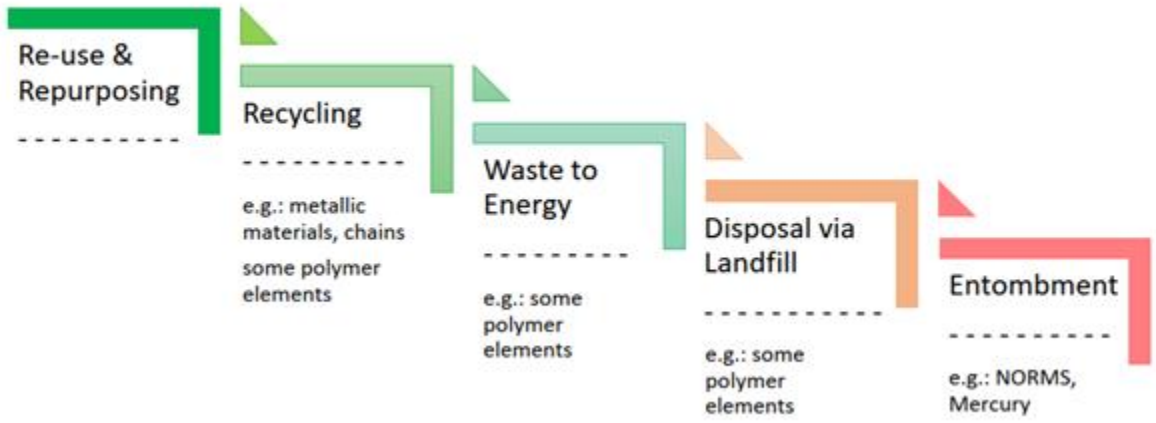


**Figure 7-9: Minerva equipment removal waste management hierarchy**

All waste streams will be managed in accordance with applicable legislative requirements, or in accordance with international guidance where applicable, for example:

- *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (Cth)
- *Navigation Act 1912* (Cth) and the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) and associated Marine Order 95 - Marine Pollution Prevention—Garbage
- *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (Cth) which implements the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal
- Environment Protection Act 2017 (Vic)
- Environment Protection Regulations 2021 (Vic)
- *Australian Radiation Protection and Nuclear Safety Act 1998* (Cth)
- MARPOL: International Convention for the Prevention of Pollution from Ships
- International Finance Corporation: EHS Guidelines: Environmental Waste Management.

Appendix C lists legislation, regulations and other requirements that apply to the proposed activity.

### 7.9.3. Environmental Impact Assessment

Waste generated during the petroleum activity will be transported to and managed appropriately by third parties. Environmental impacts associated with onshore disposal relate to the small incremental increase in waste volumes received at the onshore licensed waste recycling and disposal sites. The environmental impacts associated with waste disposal onshore are anticipated to be minor, based on the minor quantities involved and recycling of some materials.

Hazardous wastes generated by vessels will be classified and managed in accordance with the waste management procedures. This will include ensuring hazardous materials are disposed of by suitable waste management facilities.

Environmental impacts associated with recovered subsea infrastructure disposal will depend on the classification of the waste in accordance with the waste management hierarchy (Figure 7-9):

- Reuse of subsea infrastructure has no or very minor environmental impact; however, there is little potential for reuse of recovered well infrastructure.
- Recycling of subsea infrastructure requires energy use associated with a recycling process (e.g., use of heat etc). The use of energy has very minor environmental impact. Woodside's recent decommissioning experience indicates almost all the recovered well infrastructure will be recycled.
- The disposal of subsea infrastructure to landfill contributes to the overall volume of waste going to landfill each year.

Whilst the volumes of waste material associated with the subsea infrastructure are relatively minor compared to the volume of waste going to landfill in Australia each year (estimated at 20 million tonnes each year (Australian Bureau of Statistics, 2020)), the exploration of reducing waste to landfill through recycling and other waste management practices is part of the National Waste Policy Action Plan 2019 (Commonwealth of Australia, 2019).

Whilst Woodside's waste management philosophy follows the waste management hierarchy, in some instances it is not always feasible to reuse and recycle subsea infrastructure waste. If some subsea infrastructure waste goes to landfill the environmental impacts are anticipated to be minor, based on the relatively small quantities involved.

Hazardous waste materials will be classified and managed in accordance with the waste management procedures. This will include ensuring hazardous materials are disposed at suitably licensed waste management facilities. Woodside will provide appropriate assurance over final disposal of recovered equipment. The measured concentrations of potential contaminants deposited during production, such as NORM and mercury, are low in the production spools immediately downstream of the Xmas trees (Xodus, 2023).

The disposal of recovered subsea equipment will result in indirect impacts. Recovered steel, which comprises almost all the recovered material by mass, is expected to be recycled. Recycling may indirectly reduce demand for new steel, resulting in less consumption of energy and metals used to create steel. Material that cannot be recycled will be disposed of in accordance with the waste management hierarchy shown in Figure 7-9. Material that cannot be recycled will be classified and disposed of in accordance with relevant requirements (e.g., Schedule 5 of the Victorian Environment Protection Regulations 2021), with the end fate determined by the classification. Most non-recyclable wastes are expected to be disposed of in either inert waste or intractable waste landfill facilities. Monitoring and measurements to date indicate very low levels of mercury of NORM contamination (Xodus, 2023), hence little or no equipment is expected to be classified as intractable waste. Landfill facilities are limited in volume, and disposal of non-recyclable material by landfill will reduce the capacity of existing landfill facilities. Given the nature of the material that may be disposed of as landfill and the management of landfill facilities, indirect impacts such as groundwater contamination will not credibly occur. Transportation of recovered materials for recycling or disposal will have indirect impacts from the logistics chain, such as greenhouse gas emissions from transportation. Indirect impacts from management of recovered subsea equipment are a measurable but limited impact to the environment, hence the severity and severity factor are considered 2 and 30 respectively (Table 6-3).

### 7.9.4. Demonstration of ALARP

Waste management aboard the vessels for the duration of the petroleum activity is considered a 'Type A' (lower order) impact based upon the Decision Context described in Section 6.1.1 of this EP.

The ALARP process performed for the environmental aspect is summarised in Table 7-21. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable. The result of this ALARP assessment contributes to the overall acceptability of the impact or risk.

**Table 7-21: Waste management – ALARP assessment summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Administrate*** | | | |
| Marine Order 95 – Marine Pollution Prevention—Garbage (as appropriate to vessel class), prescribes matters necessary to give effect to Annex V of MARPOL, which prohibits the discharge of all garbage into the sea, except as provided otherwise. | Accept | Legislative requirements to be followed reduces the potential for contamination between hazardous and non-hazardous wastes by requiring waste segregation on the MODU and Project Vessels in accordance with a waste management plan.<br>The control is based on a legislative requirement and therefore must be adopted. | PS 10.1 |
| Disposal of any hazardous waste associated with the subsea infrastructure will comply with relevant State and Commonwealth legislation:<br>▪ *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (Cth)<br>▪ *Environmental Protection Regulations 2021 (Vic).* | Accept | Legislative requirements to be followed reduce the likelihood of incorrect disposal of infrastructure.<br>The control is based on a legislative requirement and therefore must be adopted. | PS 10.2 |
| Marine Order 94 – Packaged harmful substances, which requires:<br>▪ Vessels carrying harmful substances in packaged form must comply with 2 to 5 of MARPOL Annex III, with respect to stowage requirements.<br>▪ A Vessel Master may only wash a substance overboard if:<br>▪ The physical, chemical and biological properties of the substance have been considered, and<br>▪ Washing overboard is considered the most | Accept | Control is based on legislative requirements and reduces the likelihood of an unplanned release. Control must be accepted. | PS 10.3 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| appropriate manner of disposal, and<br>▪ The Vessel Master has authorised the washing overboard. | | | |
| Vessels waste arrangements, which require:<br>▪ Dedicated waste segregation bins.<br>▪ Records of all waste to be disposed, treated or recycled.<br>▪ Waste streams to be handled and managed according to their hazard and recyclability class.<br>▪ All non-putrescible waste (excludes all food, greywater or sewage waste) to be disposed of onshore. | Accept | Reduces the likelihood of an unplanned release.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 10.4 |
| ▪ Waste management contractor evaluation and selection will include a preference for contractors who are able to follow the waste management hierarchy philosophy, including achieving recycling targets and minimising waste volumes disposed to landfill. | Accept | Waste management practices will aim to reduce the volume of waste to landfill.<br>Control is feasible and can be implemented with minimal cost. Control considered standard practice. Benefits outweigh cost sacrifice. | PS 10.5 |
| Environmental awareness induction provided to vessel crews to include waste management requirements for the project. | Accept | Providing awareness inductions to personnel assists in understanding obligations.<br>Control is feasible, standard practice with minimal cost. Benefit outweighs any cost sacrifice. | PS 10.6 |

#### 7.9.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 7-21) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the impacts from solid waste generation and management to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential impacts from solid waste generation and management during the petroleum activity. Additional reasonable control measures were identified in Table 7-21 to further reduce impacts but rejected since the associated cost and sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

### 7.9.5. Demonstration of Acceptability

Solid waste generation and management cannot be eliminated. The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding solid waste generation and management have been raised by relevant stakeholders. Given the adopted controls, solid waste generation and management will not result in potential impacts greater than measurable but limited impacts to the environment and community. Further opportunities to reduce the impacts have been investigated in Table 7-21.

All waste streams will be managed in accordance with applicable legislative requirements, and/or in accordance with international guidance where applicable, including:

- Victorian Environment Protection Regulations 2021
- *Navigation Act 1912* and the Protection of the Sea (Prevention of Pollution from Ships) Act 1983 and associated Marine Order 95 - Marine Pollution Prevention—Garbage, which gives effect to MARPOL Annex V – Garbage
- *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (Cth) which implements the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the Basel Convention)

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding the solid waste generation and management aspect within the scope of this EP have been raised by relevant stakeholders. The environmental impacts meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental impacts are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations. Woodside's waste management hierarchy for decommissioning prefers re-use, re-purposing, and recycling over disposal with no subsequent beneficial use.
- Precautionary principle: The solid waste generation and management aspect, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- Inter-generational principle: The solid waste generation and management aspect will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The solid waste generation and management aspect will not impact upon biodiversity or ecological integrity.

Woodside considers the impact to be managed to an acceptable level.

## 7.9.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 10<br>Waste generated is segregated and disposed of onshore in accordance with relevant legislation | C 10.1<br>Marine Order 95 – Marine Pollution Prevention—Garbage (as appropriate to vessel class), prescribes matters necessary to give effect to Annex V of MARPOL, which prohibits the discharge of all garbage into the sea, except as provided otherwise. | PS 10.1<br>MODU and Project Vessels compliant with Marine Order 95. | MC 10.1.1<br>Records demonstrate MODU and Project Vessels are compliant with Marine Order 95. |
| | C 10.2<br>Disposal of any hazardous waste associated with the subsea infrastructure will comply with relevant State and Commonwealth legislation:<br>▪ *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (Cth)<br>▪ *Environmental Protection Act 2017* (Vic)<br>▪ Environmental Protection Regulation 2021 (Vic). | PS 10.2<br>Disposal of any hazardous waste associated with the well infrastructure is compliant with the Commonwealth *Hazardous Waste (Regulation of Exports and Imports) Act 1989* and the Victoria Environmental Protection Regulation 2021. | MC 10.2.1<br>Records demonstrate disposal of hazardous waste associated with the well infrastructure was compliant with relevant Commonwealth and State legislation. |
| | C 10.3<br>Marine Order 94 – Packaged harmful substances, which requires:<br>▪ Vessels carrying harmful substances in packaged form must comply with 2 to 5 of MARPOL Annex III, with respect to stowage requirements.<br>▪ A Vessel Master may only wash a substance overboard if:<br>▪ The physical, chemical and biological properties of the substance have been considered, and | PS 10.3<br>Compliance with Marine Order 94 (where relevant to vessel class) – packaged harmful substances which provides information about preventing harmful substances carried by regulated Australian vessels, from entering the marine environment. | MC 10.3.1<br>Records demonstrate any non-compliance with Marine Order 94 are documented |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | ▪ Washing overboard is considered the most appropriate manner of disposal, and<br>▪ The Vessel Master has authorised the washing overboard. | | |
| | C 10.4<br>Vessels waste arrangements, which require:<br>▪ Dedicated waste segregation bins.<br>▪ Records of all waste to be disposed, treated or recycled.<br>▪ Waste streams to be handled and managed according to their hazard and recyclability class.<br>▪ All non-putrescible waste (excludes all food, greywater or sewage waste) to be disposed of onshore. | PS 10.4<br>Hazardous and non-hazardous waste will be managed in accordance with the Project Vessel waste arrangements. | MC 10.4.1<br>Records demonstrate compliance against Project Vessel waste arrangements. |
| | C 10.5<br>Waste management contractor evaluation and selection will include a preference for contractors who are able to follow the waste management hierarchy philosophy, including achieving recycling targets and minimising waste volumes disposed to landfill. | PS 10.5<br>Engagement with relevant waste contractors to identify potential waste disposal pathways will be undertaken and inform the infrastructure disposal and resource recovery strategy. | MC 10.5.1<br>Records demonstrating relevant waste contractors have been engaged. |
| | C 10.6<br>Environmental awareness induction provided to vessel crews to include waste management requirements for the project. | PS 10.6<br>MODU and vessel crew shall undertake a project-specific induction covering waste management requirements for the project. | MC 10.6.1<br>Environment induction attendance records demonstrate MODU and vessel crews are aware of project waste management requirements. |

# 8. Environmental Risk Assessment: Unplanned Events

This section addresses the requirements of Regulations 21(5) and 21(6) of the Environment Regulations by assessing and evaluating:

- the environmental risks associated with unplanned events during the petroleum activity
- the associated control measures that will be applied to reduce the risks to ALARP and an acceptable level.

The environmental aspects and sources of risk identified during the ENVID process were divided into planned activities (i.e., routine operations) and unplanned events (i.e., incidents). This section presents the environmental impacts and risks associated with unplanned events. Table 8-1 summarises the risk analysis for the aspects associated with the unplanned events. A comprehensive risk assessment for each of the unplanned events, and subsequent control measures proposed by Woodside to reduce the risks to ALARP and acceptable levels, are detailed in the following subsections.

**Table 8-1: Summary of the environmental impact and risk analysis for unplanned events**

| Aspect | Value Potentially at Risk / Impact | | | | | | | | | | | | | | Risk Assessment & Evaluation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Environmental | | | | | | | | | Socio-Economic | | | | | | | | |
| | *Marine Mammals* | *Marine Reptiles* | *Fish* | *Seabirds / Shorebirds* | *Seabed / Benthic Habitat* | *Water Quality* | *Air Quality* | *Marine Protected Areas* | *Key Ecological Features* | *Commercial Fisheries* | *Shipping Activities* | *Cultural Features and Heritage Values* | *Tourism / Recreation* | *Onshore (Indirect Impacts)* | *Severity Factor* | *Likelihood Factor* | *Residual Risk* | *Acceptability* |
| ***Hydrocarbon Release from a Loss of Well Control – Section 8.2*** | | | | | | | | | | | | | | | | | | |
| Loss of hydrocarbons to the marine environment due to loss of well containment during P&A | x | x | x | x | | x | | x | | x | | x | x | | 300 | 0.03 | 9 | Tolerable |
| ***Hydrocarbon Release from Vessel Collision or Bunkering Incident – Section 8.3*** | | | | | | | | | | | | | | | | | | |
| Surface release of MDO from a project vessel as a result of an external impact (vessel collision) which ruptures an MDO tank. | x | x | x | x | | x | | x | | x | | x | x | | 100 | 0.1 | 10 | Tolerable |
| Release of MDO during a bunkering or refuelling incident. | x | x | x | x | | x | | | | | | | | | 10 | 0.3 | 3 | Tolerable |
| ***Unplanned Discharge of Chemicals and Minor Hydrocarbon Spills – Section 8.4*** | | | | | | | | | | | | | | | | | | |
| Minor spills / leaks of chemicals and hydrocarbons | x | x | x | x | x | x | | | | | | | | | 10 | 0.3 | 3 | Tolerable |
| ***Loss of Solid Hazardous and Non-hazardous Wastes (including Dropped Objects) – Section 8.5*** | | | | | | | | | | | | | | | | | | |
| Accidental loss of waste (hazardous and non-hazardous) and dropped objects to the marine environment | x | x | x | x | x | x | | | | | | | | | 10 | 0.3 | 3 | Tolerable |

| Aspect | Value Potentially at Risk / Impact | | | | | | | | | | | | | | Risk Assessment & Evaluation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Environmental | | | | | | | | | Socio-Economic | | | | | | | | |
| | *Marine Mammals* | *Marine Reptiles* | *Fish* | *Seabirds / Shorebirds* | *Seabed / Benthic Habitat* | *Water Quality* | *Air Quality* | *Marine Protected Areas* | *Key Ecological Features* | *Commercial Fisheries* | *Shipping Activities* | *Cultural Features and Heritage Values* | *Tourism / Recreation* | *Onshore (Indirect Impacts)* | *Severity Factor* | *Likelihood Factor* | *Residual Risk* | *Acceptability* |
| ***Marine Fauna Interaction – Section 8.6*** | | | | | | | | | | | | | | | | | | |
| Accidental collision between project vessel and marine fauna. | x | x | | | | | | | | | | | | | 30 | 0.1 | 3 | Tolerable |
| ***Introduction of Invasive Marine Species – Section 8.7*** | | | | | | | | | | | | | | | | | | |
| Biofouling of MODU, project vessels or submersible equipment or through ballast water exchange. | | | | | x | | | | | x | | | | | 100 | 0.1 | 10 | Tolerable |

## 8.1. Quantitative Spill Risk Assessment Methodology

Several unplanned events may occur during the proposed activities, resulting in the potential for large-scale releases of hydrocarbons (i.e., incidents or emergencies). Worst-case credible spill scenarios were identified through the environmental impact and risk assessment process and a series of workshops. The following scenarios were identified:

- Subsea release of hydrocarbons from the Minerva-4 well from a loss of well control (LOWC) scenario.
- Surface release of marine diesel oil (MDO) from a vessel collision at the Minerva-1 well location.

Table 8-2 presents the worst-case hydrocarbon spill scenarios identified.

**Table 8-2: Summary of worst-case hydrocarbon spill scenarios**

| Scenario | Hydrocarbon Type | Worst-case Maximum Spill Volume | Comments | Oil Spill Modelling | EP Section |
|---|---|---|---|---|---|
| Subsea release of condensate oil from a loss of containment from the Minerva-4 well. | Minerva condensate | 52,634 bbl (~8,368 $m^3$) over 81 days | Maximum credible volume modelled with highest flow LOWC | Yes | 8.2 |
| Surface release of MDO from fuel tank rupture on project vessel due to collision at the Minerva-1 well location. | Marine diesel oil | 330 $m^3$ over 6 hours | Maximum credible volume based on largest fuel tank capacity on project vessel. | Yes | 8.3 |

An overview of the oil spill modelling undertaken for the worst-case maximum spill volumes presented in Table 8-2 is presented in Section 8.1.1.

Vessel grounding was discussed and considered but determined non-credible given the water depths and offshore location of the Operational Area, and therefore, not discussed further.

### 8.1.1. Oil Spill Modelling Overview

Quantitative hydrocarbon spill modelling was performed by GHD (2022) on the worst-case credible release scenario using a three-dimensional (3D) hydrocarbon spill trajectory and weathering model developed by SINTEF – the Oil Spill Contingency and Response (OSCAR) system. OSCAR is designed to simulate the transport, spreading and weathering of specific hydrocarbon types under the influence of changing meteorological and oceanographic forces.

The stochastic model within OSCAR performs many simulations for a given release site, varying the release time for each simulation. The model uses the spill time to select samples of current and wind data from a long time series hindcast of wind and current data. Hence, the transport and weathering of each slick will be subject to a different sample of wind and current conditions. More simulations will tend to use the most commonly occurring conditions, while conditions that are more unusual will be represented less frequently.

Results of the replicate simulations are statistically analysed and mapped to define contours of percentage probability of contact at identified thresholds around the hydrocarbon release point. The stochastic approach captures a wide range of potential weathering outcomes under varying environmental conditions, which is reflected in the aggregated spatial outcomes showing the areas that might be affected by sea surface and subsurface hydrocarbons.

The modelling outcomes are presented in Sections 0.2 and 8.3 provide a conservative understanding of where a worst-case loss of well control or MDO release could travel in any metocean condition. The modelling does not consider any of the spill prevention, mitigation and response capabilities that would be implemented in response to the spill. Therefore, the modelling results represent the maximum extent that may be affected.

Environmental receptors selected for the modelling are chosen based on protected area status, sensitivity of habitats to impact, societal values. Table 8-3 presents the parameters and justification used in the modelling.

**Table 8-3: Model input specifications**

| Parameter | MDO Release | Condensate Release |
|---|---|---|
| Scenario description | Vessel collision resulting in complete loss of MDO from single largest tank aboard project vessel at Minerva-1 well location | Minerva-4 - Loss of well control with completed reservoir section open to flow via production casing |
| Oil type | MDO (see Table 8-5) | Condensate (see Table 8-4) |
| Release location | Surface release | Subsea release: An uncontrolled release from BOP, 11.28 m above mudline |
| Water depth at location | Approximately 60 m | Mudline: 59.6 m MSL<br>Release depth: 48.32 m MSL |
| Permit area | VIC/L22 | |
| Release coordinates | Minerva-1 well:<br>-38° 42' 06.885" South<br>142° 57' 17.278" East | Minerva 4 well:<br>-38° 43’ 07.37” South<br>142° 57’ 44.02” East |
| Release duration / rate | Instantaneous (6 hours) | Based on 81-day release |
| Total release volume | 330 $m^3$ | Condensate: 52,634 bbl<br>Water: 110,543 bbl<br>Gas: 15,618 MMscf |
| Simulation length | Time to extend far enough past cessation of the spill such that oil concentrations drops below stated threshold concentrations | Time to kill well plus time to extend far enough past cessation of the spill such that oil concentrations drops below stated threshold concentrations |
| Release orifice | N/A | 18.75" |
| Period analysed | Any time of year (summer & winter) | |

## 8.1.2. Hydrocarbon Properties

### 8.1.2.1. Minerva Condensate

Woodside provided GHD with an assay of Minerva condensate, with key properties summarised in Table 8-4. GHD then selected a suitable analogue for the Minerva condensate (Marulk condensate) for use in the modelling study, which had close agreement with the physical characteristics of Minerva condensate.

Marulk was selected from SINTEF’s oil library to represent Minerva-4 Condensate for the subsea LOWC scenario. The results of the weathering analyses are presented in Figure 8-1.

Marulk is a light, non-persistent oil with a high tendency to evaporate. Under low wind speeds of 1 m/s, approximately 90% of the surface slick is predicted to have evaporated after 5 days (120 hours), with ~10% remaining on the sea surface and minimal dispersion into the water column. Under moderate wind speeds of 5 m/s, the entire surface slick is predicted to evaporate (89%) or disperse (21%) after 24 hours. High wind

speeds of 10 m/s are predicted to disperse ~30% of the oil and evaporate the remaining ~70% after only 6 hours.

Marulk has a low tendency to form emulsions, attaining a maximum water content of 10% under all wind conditions simulated.

Viscosities increase with weathering, as the lighter oil components evaporate out of the oil and the proportion of heavier oil components increases. However, for this light condensate oil, viscosities are predicted to remain relatively low, reaching a maximum of < 8 cP after 5 days of weathering.

Similarly, the pour point increases during weathering, with peak pour points of <12 °C for the various wind scenarios assessed. This peak pour point is below typical sea surface temperatures in the region, meaning the weathered surface slick is likely to remain in liquid form (i.e., no gelling or solidification is predicted).

**Table 8-4: Minerva condensate properties**

| Parameter | Minerva Condensate |
|---|---|
| API Gravity | 49.9º |
| Wax Content (%) | <0.1 |
| Pour Point (°C) | -36 |
| Specific Gravity | 0.7802 gm/cc |
| Viscosity @ 20ºC | 1.204 cSt |

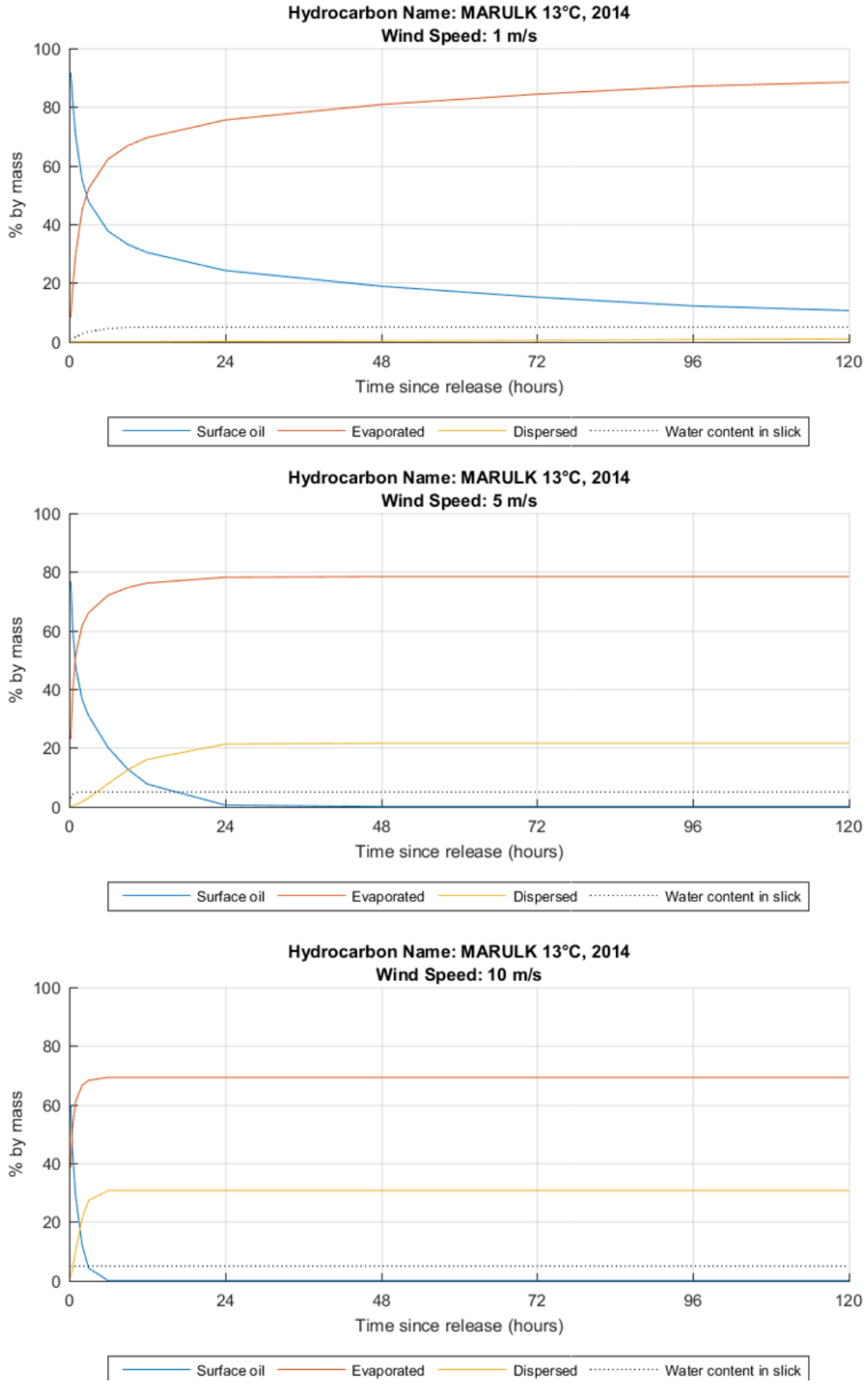


**Figure 8-1: Simulated weathering of the SINTEF MARULK 13C 2014 hydrocarbon for constant wind speeds of 1 m/s (top), 5 m/s (middle) and 10 m/s (bottom) (GHD, 2022)**

#### 8.1.2.2. Marine Diesel Oil

Marine diesel is a moderate weight, moderately persistent oil in the marine environment. The International Tanker Owners Pollution Federation (ITOPF) and the Australian Maritime Safety Authority (AMSA) (2015) categorise diesel as a moderate group III hydrocarbon. For the MDO spill modelling, Marine Diesel (IKU) was selected from the SINTEF oil library to represent MDO. A summary of the marine diesel oil properties is provided in Table 8-5.

Results of the weathering analysis are shown in Figure 8-2 and are summarised as follows. Under low winds (1 m/s), 60% of the surface slick is predicted to remain after 120 hours (5 days). Under moderate winds (5 m/s), 40% of the initial surface slick is predicted to remain after 24 hours, decreasing further to approximately 10% after 48 hours and ~1% after 72 hours. With high winds (10 m/s), the surface slick is predicted to be almost entirely evaporated and dispersed after 12 hours. The MDO has a very low tendency for emulsion formation, with only ~1% water contained entrained into the surface slick after 120 hours for all wind conditions assessed.

The modelling results are presented for the fate hydrocarbons at the hydrocarbon exposure values defined in Section 8.1.3. The spatial extent of the MDO release is presented in Figure 4-1. The outer extent of the MDO EMBA shown is derived from the oil spill modelling defined using the low exposure values (Section 8.1.3) and is based on the combined area of contact for all hydrocarbon phases (surface oil, dissolved oil, total submerged oil and shoreline accumulated oil).

**Table 8-5: MDO properties**

| Parameter | Marine Diesel Oil (data from SINTEF's *Marine Diesel IKU*) |
|---|---|
| API Gravity | 0.843 |
| Wax Content (%) | 0.05 |
| Pour Point (°C) | -36 |
| Asphaltene (%) | 0.05 |
| Specific Gravity | 36.4 |
| Viscosity (cP) | 3.9 @ 20°C |

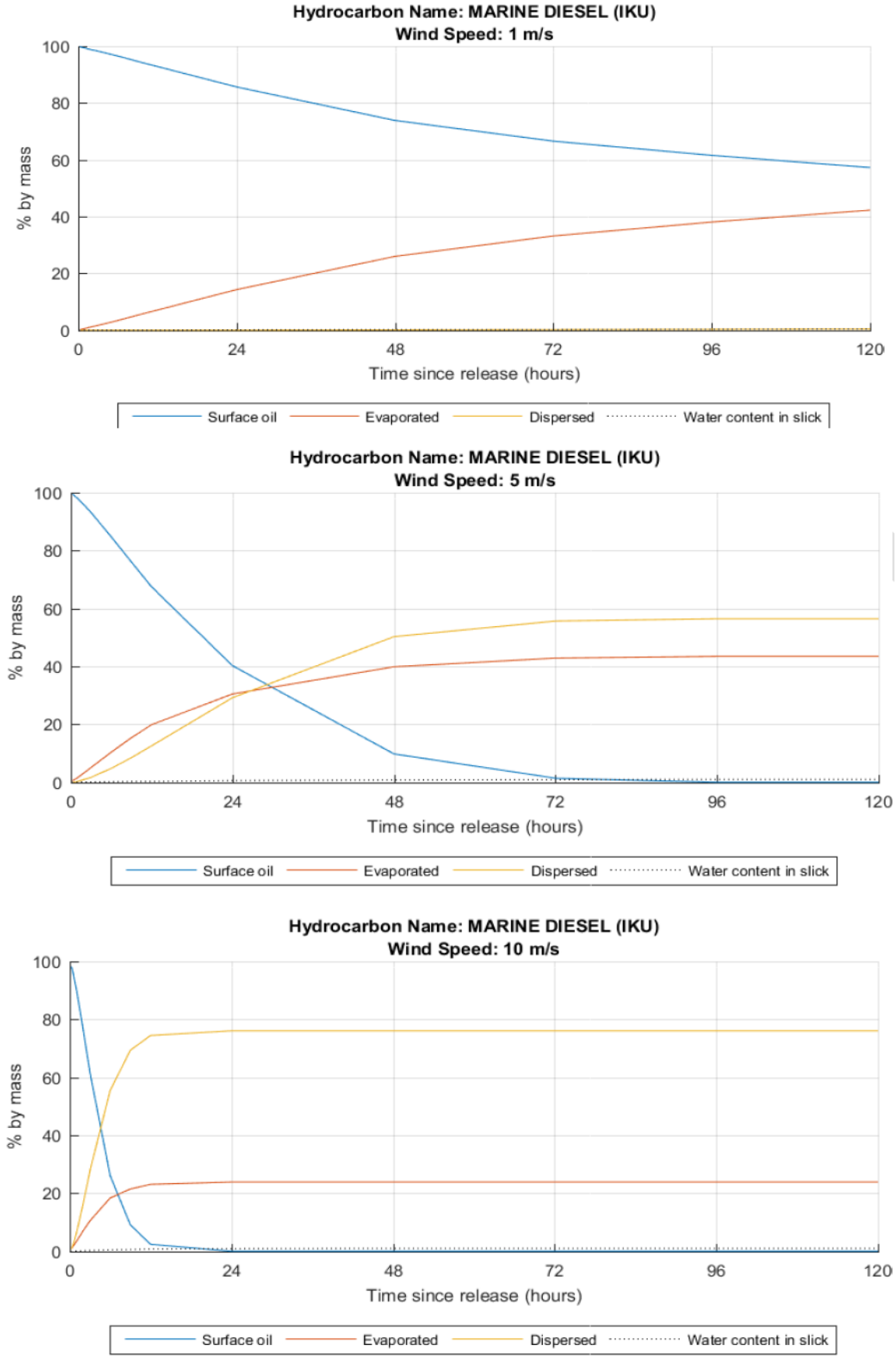


**Figure 8-2: Simulated weathering of the SINTEF marine diesel (IKU) hydrocarbon for constant wind speeds of 1 m/s (top), 5 m/s (middle) and 10 m/s (bottom) (GHD, 2022)**

### 8.1.3. Hydrocarbon Exposure Values

As described in Section 4.1, the spatial extent of the ecological and socio-economic EMBA has been derived using stochastic hydrocarbon fate and transport modelling of the worst-case credible release scenario. For this EP, the EMBA is driven by a combination of the worst case credible hydrocarbon spill scenarios including a loss of 8,368 $m^3$ of Minerva condensate in the event of a loss of well containment, as well as a loss of 330 $m^3$ of marine diesel in the event of a vessel collision.

To present this large amount of simulated data in a meaningful way and to inform the impact and risk assessment and environmental management actions, appropriate hydrocarbon exposure values were applied to each of the hydrocarbon components. *Bulletin #1 Oil Spill Modelling* (NOPSEMA, 2019) recommends selecting hydrocarbon exposure values that broadly reflect the range of consequences that could occur at various concentrations.

The ecological and socio-economic EMBA presented in Figure 4-1 was defined using exposure thresholds values presented in Table 4-1.

As the weathering of different components of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean conditions, the EMBA combines the potential spatial extent of the different hydrocarbon components. The EMBA also includes areas that are predicted to experience shoreline contact with hydrocarbons above threshold concentrations.

Surface and accumulated shoreline hydrocarbon concentrations are expressed as grams per square metre ($g/m^2$), with entrained and dissolved aromatic hydrocarbon concentrations expressed as parts per billion (ppb). A conservative approach to selecting thresholds was taken by adopting the guideline impact thresholds (NOPSEMA, 2019) for surface, entrained, dissolved and accumulated hydrocarbons to define the EMBA for the condensate and marine diesel spills. An additional threshold has been included to define the boundary within which socio-cultural impacts may occur, based on visible surface oil (1 $g/m^2$) impacting on the visual amenity of the marine environment. Each of these hydrocarbon thresholds are presented in Table 4-1 and Table 8-6.

**Table 8-6: Summary of exposure values applied in the hydrocarbon spill modelling**

| Threshold Exposure Value | Description |
|---|---|
| ***Surface (Floating) Hydrocarbons*** | |
| 1 $g/m^2$ | Low: It is recognised that 1 $g/m^2$ represents the practical limit of observing hydrocarbon sheens in the marine environment. This concentration is used to define an area within which social-cultural impacts to the visual amenity of the marine environment may occur. The surface threshold of ≥1 $g/m^2$ is based on the relationship between film thickness and appearance (Bonn Agreement oil appearance code, 2015), and represents a 'rainbow sheen' appearance. This threshold is considered below levels which would cause ecological impacts, and instead represents potential for visual amenity impacts. This threshold area is referred to as the 'socio-cultural EMBA' |
| 10 $g/m^2$ | The spill modelling outputs defined the EMBA for surface hydrocarbons resulting from a spill (contact on surface waters) using a threshold of ≥10 $g/m^2$.<br>Moderate: This value is considered appropriate to assess ecological impact risk, as it is the estimate for the minimum thickness of oil that will result in harm to seabirds through ingestion from preening of contaminated feathers, or the loss of thermal protection of their feathers. This has been estimated by at 10 to 25 $g/m^2$ (French-McCay, 2009; Koops et al., 2004).<br>Furthermore, based on literature reviews on aquatic birds and marine mammals (Clark, 1984; Engelhardt, 1983; Geraci and St Aubin, 1988; Jenssen, 1994), the exposure value for harmful impacts is 10 $g/m^2$.<br>This exposure value is used to determine the risk of exposure that can cause adverse impact to turtles, seasnakes, marine mammals and seabirds. This threshold was selected as a reasonable and conservative value to apply to the risk evaluation with respect to surface hydrocarbons. |

| Threshold Exposure Value | Description |
|---|---|
| 50 g/m$^2$ | High: This high exposure value for surface oil is above the minimum threshold observed to cause ecological effect. At this concentration surface hydrocarbons would be clearly visible on the sea surface. |
| ***Shoreline (accumulated) hydrocarbons*** | |
| 10 g/m$^2$ | The threshold for visible surface oil (1 g/m$^2$) was used to define a socio-cultural EMBA within which socio-cultural impacts to the visual amenity of the marine environment may occur.<br>Low: This low exposure value defines the area for potential socio-economic impacts (for example, reduction in aesthetic value of the area). |
| 100 g/m$^2$ | A threshold of ≥100 g/m² has been adopted as the threshold for shoreline accumulation and has been included in the EMBA.<br>Moderate: The concentration for exposure to hydrocarbons stranded on shorelines is derived from levels likely to cause adverse impacts to intertidal habitats and associated fauna. Studies have reported oil thicknesses of 0.1 mm (100 g/m$^2$) as the lethal exposure values for benthic epifaunal invertebrates on intertidal habitats (rock, artificial or human-made) and in intertidal sediments (mud, silt, sand and gravel) (French McCay, 2004; French McCay et al., 2003; French-McCay, 2009). It is also the impact threshold assumed for oiling of birds (French McCay, 2004).<br>This exposure value has been used to inform the risk evaluation with respect to accumulated shoreline hydrocarbons and the threshold for shoreline response, based on possible clean-up options. |
| 1,000 g/m$^2$ | High: This low exposure value predicts the area likely to require intensive clean-up effort. |
| ***Entrained Hydrocarbons*** | |
| 10 ppb | Low: Total submerged hydrocarbons, also referred to as 'total water-accommodated fraction' or entrained hydrocarbons, encompass oil droplets in the water column. Much of the published scientific literature does not provide sufficient information to determine if toxicity is caused by the dissolved or the entrained hydrocarbon component, but rather the toxicity of total submerged hydrocarbons. Variation in the methodology of the water-accommodated fraction may account for much of the observed wide variation in reported threshold values, which also depend on the test organism, duration of exposure, oil type and the initial oil concentration.<br>The 10 ppb exposure value represents the very lowest concentration and corresponds with the lowest trigger levels for total hydrocarbons in water recommended in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality: Volume 1 - the Guidelines* (Australian and New Zealand Environment and Conservation Council and Agriculture and Resource Management Council of Australia and New Zealand, 2000) |
| 100 ppb | Moderate: This exposure value is considered conservative in terms of potential sub-lethal impacts to most species and lethal impacts to sensitive species based on literature for toxicity testing.<br>Total oil toxicity acute effects of total oil as LC50 for molluscs range from 500 to 2000 ppb. A wider range of LC50 values have been reported for species of crustacea and fish from 100 to 258,000,000 ppb (Clark et al., 2001; Gulec et al., 1997; Gulec and Holdway, 2000) and 45 to 465,000,000 ppb (Barron et al., 2004; Gulec and Holdway, 2000) respectively.<br>This exposure value has been used to define the spatial extent of the EMBA from total submerged hydrocarbons and used to describe environmental sensitivities within the EMBA. This exposure value has been used to inform the risk evaluation with respect to entrained hydrocarbons and used to describe environmental sensitivities within the EMBA. |
| ***Dissolved hydrocarbons*** | |
| 10 ppb | Low: This low exposure value establishes the planning area for scientific monitoring (based on potential for exceeding water quality triggers). |

| Threshold Exposure Value | Description |
|---|---|
| 50 ppb | Moderate: This exposure value approximates toxic effects, particularly sub-lethal effects to sensitive species (NOPSEMA, 2019). French-McCay et al. (2002) indicates an average 96-hour LC50 of around 50 ppb could serve as an acute lethal threshold. For most marine organisms, a concentration of between 50 and 400 ppb is considered to be more appropriate for risk evaluation.<br>This exposure value has been used to inform the risk evaluation with respect to dissolved hydrocarbons and used to describe environmental sensitivities within the EMBA. |

## 8.2. Hydrocarbon Release – Loss of Well Control

### 8.2.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Loss of well control during P&A due to failure of well barrier integrity. | Loss of hydrocarbons (condensate) to the marine environment due to loss of well control | Reduction in water quality with potential for toxicity effects to marine fauna and flora (including potential mortality), oiling of offshore, nearshore and shoreline habitats (smothering). Disruption to biologically important behaviours (feeding / breeding / migration). Hypothermia due to hydrocarbon exposure. Impacts to socio-economic receptors. | 300 | Highly Unlikely (0.03) | 9 | Type B Higher Order Risk | Tolerable |

### 8.2.2. Source of Risk

A loss of well control can lead to an uncontrolled release of reservoir hydrocarbons and other wellbore fluids to the environment. Woodside has identified a subsea release of condensate resulting from a loss of well control (failure of well barrier integrity) from the Minerva-4 well as the scenario with the worst-case credible environmental outcome.

Woodside has calculated the worst-case discharge (WCD) for a LOWC event consistent with the methodology applied within the *SPE Technical Report; Calculation of Worst-Case Discharge (WCD), Rev 1 2016* (Society of Petroleum Engineers, 2015).

During the abandonment workover operation, as a contingency to perforating the tubing and pumping cement with the tubing in place, it is planned to cut and remove the tubing string above the production packer and place cement barriers above. It is during this time – after removing the tubing and before placing the cement barriers - that the worst-case scenario exists for loss of well control and is therefore the well description that is assessed for this work. Although the tailpipe and production packer will remain in place SPE-174705-TR and AEP guidelines do not allow any credit for restrictions to flow in the wellbore during the modelled well release. Figure 8-3 below shows a simplified drawing of the well construction as applied in the spill modelling scenario.

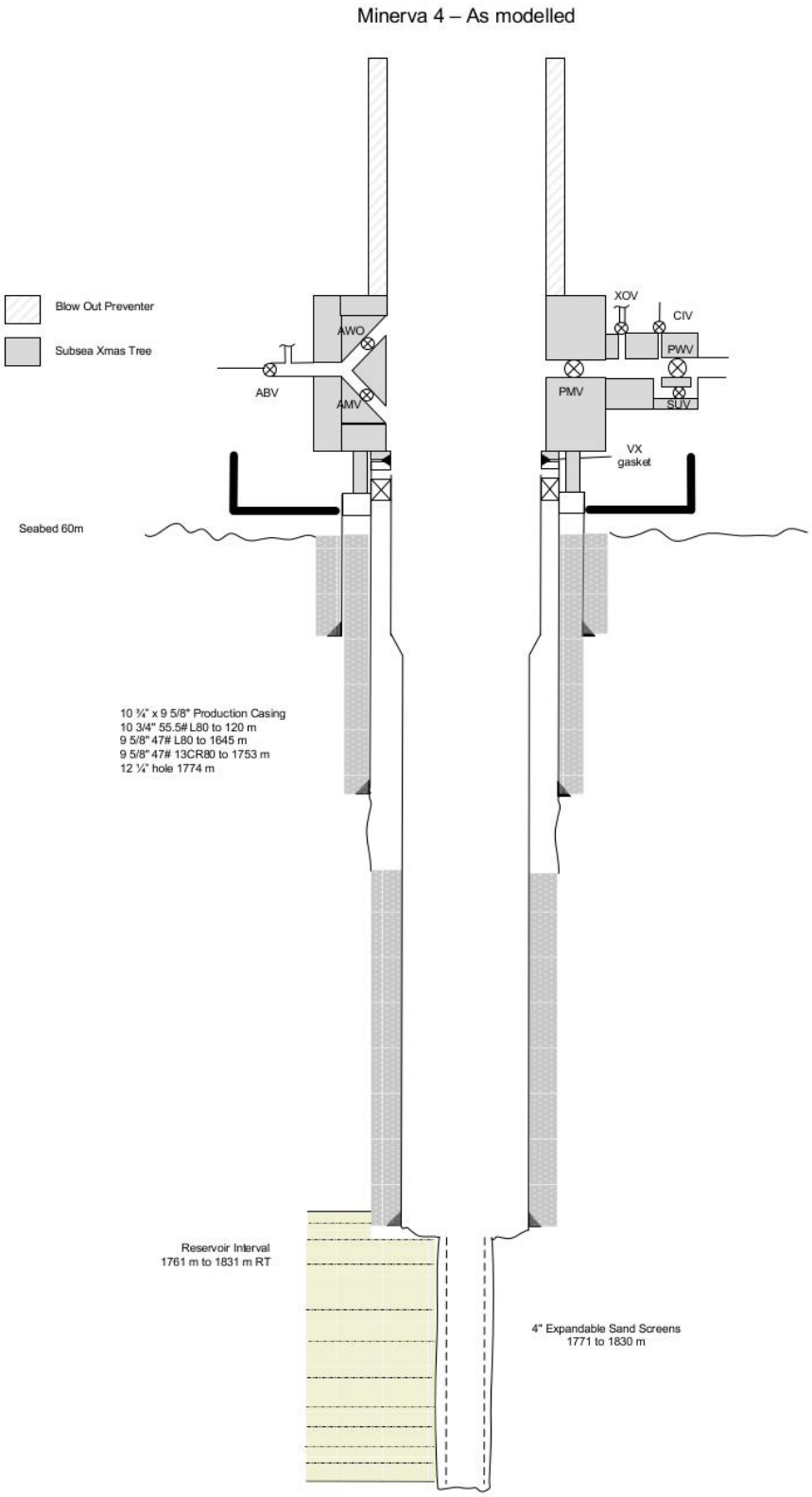


**Figure 8-3: Minerva-4 as modelled**

A review of international data provided in the Bureau of Safety and Environmental Enforcement (BSEE) *Loss of Well Control Occurrence and Size Estimators Report* (BSEE, 2017) and the International Oil and Gas Producers *Blowout Frequencies – Risk Assessment Data Directory Report* (IOGP, 2019) was undertaken to provide an understanding of historical event frequency of well release incidents on production wells. The

frequencies are mainly based on data from the areas of the US Gulf of Mexico (GoM) outer continental shelf and North Sea. The data is based on events reported in the SINTEF Offshore Blowout Database.

The data reported for releases from abandoned wells are the most analogous statistics to apply to P&A activities in the Minerva Field. The data demonstrates the very low likelihood of a release during abandonment activities for normal wells:

- Probability, reported as frequency per year, of a well blowout / well release from an abandoned well is 2.3 x $10^{-5}$.

#### 8.2.2.1. Oil Spill Modelling Results

The EMBA for the worst-case loss of well containment was incorporated into the EMBA Figure 4-1. The outer extent of the ecological and socio-economic EMBA is derived from the oil spill modelling defined using the hydrocarbon exposure thresholds in Table 4-1 and is based on the combined area of contact for all hydrocarbon components (surface, shoreline dissolved and entrained hydrocarbons). The modelling results below are presented for each hydrocarbon component at the hydrocarbon exposure thresholds defined in Table 4-1.

***Sea Surface Hydrocarbons***

No surface oiling exceeding the low, moderate, or high thresholds was predicted to occur in any model cells during any of the stochastic realisations for either Summer or Winter seasons.

***Dissolved Hydrocarbons***

*Low Exposure (>10 ppb)*

For Autumn-Winter, dissolved hydrocarbons at the low threshold (10 ppb) were predicted to occur at distances of up to ~75 km west and ~150 km east of the spill site. The maximum spatial extents at the moderate (50 ppb) and high (400 ppb) thresholds were reduced to ~110 km and ~50 km, respectively.

For Spring-Summer, Dissolved hydrocarbons at the low threshold (10 ppb) were predicted to occur at distances of up to ~100 km west and ~125 km east of the spill site. The maximum spatial extents at the moderate (50 ppb) and high (400 ppb) thresholds were reduced to ~80 km and ~25 km, respectively.

*Moderate Exposure (50 ppb)*

For Autumn-Winter, A summary of contact predictions for dissolved hydrocarbons at the moderate threshold (50 ppb) include:

- For IBRA regions (including neighbouring state waters), high contact probabilities of ~80-100% were predicted at the Otway Plain, Warrnambool Plain and Otway Ranges, with maximum local time-averaged concentrations of 596 ppb and minimum arrival times of 0.3 days.
- For marine reserves, the Twelve Apostles state marine park was predicted to be contacted with 100% probability, a maximum time-averaged concentration of 185 ppb and a minimum arrival time of 0.3 days. The Apollo AMP was predicted to be contacted with 1% probability, a maximum time-averaged concentration of 86 ppb and a minimum arrival time of 3.8 days.

The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 596 ppb and minimum arrival time of 0.1 days (i.e. 2 hours, or 1 model time step). The Central Victoria IMCRA region was predicted to be contacted with 1% probability, a maximum time-averaged concentration of 75 ppb and minimum arrival time of 4.0 days.

For Spring-Summer, Summarised contact predictions for dissolved hydrocarbons at the moderate threshold (50 ppb) include:

- For IBRA regions (including neighbouring state waters), high contact probabilities of ~62-100% were predicted at the Warrnambool Plain and Otway Ranges, with maximum local time-averaged concentrations of 242 ppb and minimum arrival times of 0.3 days. A lower contact probability of 18% was predicted at the Otway Plain, with a maximum time-averaged concentration of 112 ppb and minimum arrival time of 3.8 days.

- For marine reserves, the Twelve Apostles state marine park was predicted to be contacted with 100% probability, a maximum time-averaged concentration of 242 ppb and a minimum arrival time of 0.6 days.

The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 319 ppb and minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model time step).

There were no predicted exceedances of the high (400 ppb) threshold anywhere within the model domain.

***Total Submerged Hydrocarbons (Entrained plus Dissolved)***

*Low Exposure (>10 ppb)*

For Autumn-Winter, total submerged oil at the low threshold (10 ppb) was predicted to occur up to ~125 km to the west and ~625 km east of the spill site. Exposure at the high threshold (100 ppb) was limited to within ~75 km west and ~110 km east of the spill site.

For Spring-Summer, Total submerged oil at the low threshold (10 ppb) was predicted to occur up to ~250 km to the west and ~375 km east of the spill site. Exposure at the high threshold (100 ppb) was limited to within ~75 km from the spill site.

*High Exposure (>100 ppb)*

For Autumn-Winter, a summary of contact predictions for dissolved hydrocarbons at the moderate threshold (50 ppb) include:

- For IBRA regions (including neighbouring state waters), high contact probabilities of ~80-100% were predicted at the Otway Plain, Warrnambool Plain and Otway Ranges, with maximum local time-averaged concentrations of 596 ppb and minimum arrival times of 0.3 days.
- For marine reserves, the Twelve Apostles state marine park was predicted to be contacted with 100% probability, a maximum time-averaged concentration of 185 ppb and a minimum arrival time of 0.3 days. The Apollo AMP was predicted to be contacted with 1% probability, a maximum time-averaged concentration of 86 ppb and a minimum arrival time of 3.8 days.

The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 596 ppb and minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model time step). The Central Victoria IMCRA region was predicted to be contacted with 1% probability, a maximum time-averaged concentration of 75 ppb and minimum arrival time of 4.0 days.

For Spring-Summer, summarised contact predictions for dissolved hydrocarbons at the moderate threshold (50 ppb) include:

- For IBRA regions (including neighbouring state waters), a moderate-high contact probability of 66% was predicted at the Warrnambool Plain, with a maximum time-averaged concentration of 3,785 ppb and minimum arrival time of 0.1 days (2 hours). Lower contact probabilities were predicted at the Otway Plain (5%) and Otway Ranges (7%), with maximum local time-averaged concentrations of 151 ppb and minimum arrival times of 0.8 days.
- For marine reserves, a moderate contact probability was predicted at the Twelve Apostles state marine park (39%), with a maximum time-averaged concentration of 648 ppb and a minimum arrival time of 0.3 days. A very low contact probability of <1% was also predicted at The Arches state marine park, with a maximum time averaged concentration of 52 ppb and a minimum arrival time of 1.3 days.

The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 4,349 ppb and minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model timestep).

***Shoreline Accumulated Hydrocarbons***

*Low Exposure (>10 g/m²)*

For Autumn-Winter, Shoreline loading above the low threshold (>10 g/m²) was predicted to occur between the Victorian Volcanic Plain (~150 km west) and Flinders (575 km east). At the moderate threshold (100 g/m²), predicted shoreline accumulation was limited to within a 100 km distance from the well site, spanning the Warrnambool Plain, Otway Plain and Otway Ranges.

For Spring-Summer, shoreline loading above the low threshold (>10 g/m²) was predicted to occur between the Victorian Volcanic Plain (~200 km west) and Wilsons Promontory (475 km east). At the moderate threshold (100 g/m²), predicted shoreline accumulation was limited to within a ~75 km distance from the well site, spanning the Warrnambool Plain, Otway Plain and Otway Ranges.

*Moderate Exposure (>100 g/m²)*

For Autumn-Winter, at the moderate threshold (100 g/m²), a very high contact probability of 95% was predicted across all shorelines, with individual contact probabilities of 88% at the Warrnambool Plain, 39% at the Otway Plain and 24% at the Otway Ranges. Across all shorelines, the predicted maximum accumulated shoreline load was 12.3 tonnes, with a minimum arrival time of 0.5 days and a maximum oiled shoreline length of 31 km. Maximum accumulated shoreline loads at individual receptors were 9.6 tonnes at the Warrnambool Plain, 3.0 tonnes at the Otway Plain and 1.4 tonnes at the Otway Ranges, with minimum arrival times of 0.5, 3.1 and 4.1 days, respectively, and maximum oiled shoreline lengths of 25, 8 and 5 km, respectively.

For Spring-Summer, at the moderate threshold (100 g/m²), a contact probability of 100% was predicted across all shorelines, with individual contact probabilities of 100% at the Warrnambool Plain, 13% at the Otway Plain and 11% at the Otway Ranges. Across all shorelines, the predicted maximum accumulated shoreline load was 9.6 tonnes, with a minimum arrival time of 0.6 days and a maximum oiled shoreline length of 28 km. Maximum accumulated shoreline loads at individual receptors were 8.4 tonnes at the Warrnambool Plain, 2.2 tonnes at the Otway Plain and 1.2 tonnes at the Otway Ranges, with minimum arrival times of 0.6, 1.8 and 2.8 days, respectively, and maximum oiled shoreline lengths of 23, 5 and 3 km, respectively.

*High Exposure (>1,000 g/m²)*

No shoreline accumulation at the high threshold (1,000 g/m²) was predicted for either Summer or Winter seasons.

***Deterministic Modelling Results***

Whilst the combined 200 stochastic LOWC realisations present the overall geographic area of potential hydrocarbon contact, realisation number 75 of the LOWC scenario resulted in the highest accumulated shoreline mass (above 100 g/m²) of 12.3 tonnes, including 8.2 tonnes at the Warrnambool Plain, 3.0 tonnes at the Otway Plain and 1.1 tonnes at the Otway Ranges.

The deterministic simulation of this realisation did not generate a surface slick exceeding any of the assessed thresholds (i.e. the surface slick was <1 g/m² at all times). Total submerged oil exceeding 100 ppb and dissolved hydrocarbons exceeding 50 ppb extended up to ~75 km from the release location, travelling primarily eastward from the Minerva-4 well site.

The predicted hydrocarbon weathering (i.e. mass balance partitioning) for the specific met-ocean conditions encountered during the deterministic simulation is presented in Figure 8-4, and summarised as follows:

- Evaporation is the primary weathering mechanism with evaporated oil accounting for ~60% of the total oil mass between day 40 and the end of the simulation (day 116).
- Oil decay (i.e. biodegradation) accounts for the remaining ~40% of the oil by the end of the simulation (day 116).
- Entrained and dissolved hydrocarbons account for the majority of the unweathered oil mass during the discharge period (81 days), with surface slicks appearing only intermittently in response to calm wind conditions that allow entrained droplets to surface.

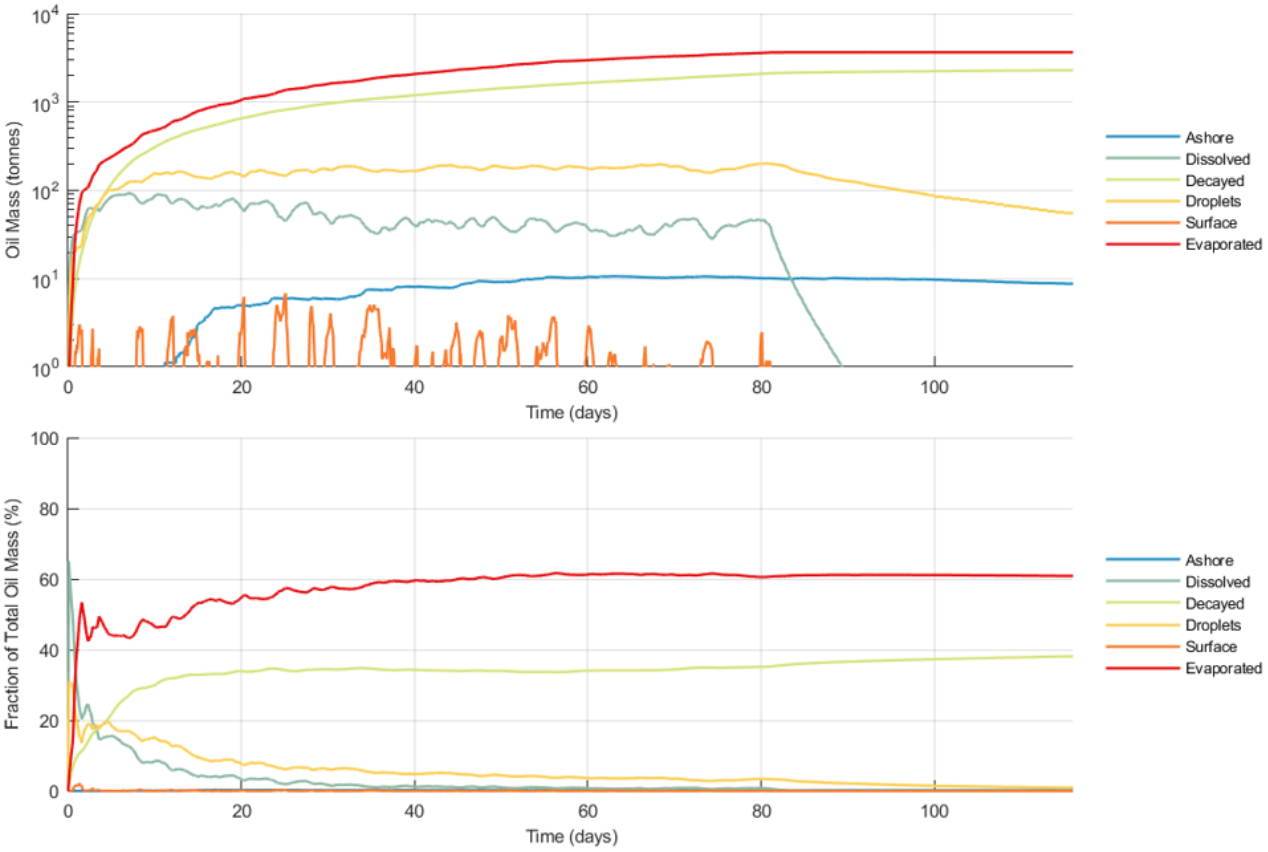


**Figure 8-4: Hydrocarbon mass balance time series plots – LOWC: realization number 75 (GHD, 2022)**

## 8.2.3. Environmental Impact Assessment

To help inform the hydrocarbon spill impact and risk assessment, a summary of potential impacts to the environmental values, sensitivities and receptors within the EMBA from exposure to hydrocarbons at or above the relevant impact thresholds is provided in Table 8-7; this information is drawn upon within the hydrocarbon risk assessment for each release scenario.

### 8.2.3.1. Species Recovery Plans, Threat Abatement Plans, and Conservation Advice

Several recovery plans and conservation advice identify either direct or indirect impacts of oil pollution as a threat. Taxa subject to such plans are considered in Table 8-7.

**Table 8-7: Summary of potential impacts to environmental values, sensitivities, and receptors within the EMBA from exposure to Minerva condensate**

| Receptor | Impacts |
|---|---|
| ***Physical Environment*** | |
| Water quality | Water quality would be affected due to hydrocarbon contamination above impact thresholds. These are defined by the EMBA descriptions for each of the entrained and dissolved hydrocarbon fates and their predicted extent. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to water quality within the EMBA, with impacts predicted to be greatest for areas closest to the potential release location. |
| Sediment quality | Proposed mechanisms for hydrocarbon contamination of sediments include sedimentation of hydrocarbons and direct contact between submerged plumes and the seabed (Romero et al. 2015). In the event of a major hydrocarbon release at the seabed, modelling indicates that a pressurised release of hydrocarbon would form droplets that would be transported into the water column to the surface (i.e. transported away from the seabed). As a result, the extent of potential impacts to the seabed area at and surrounding the release site would be largely confined to a localised footprint.<br>Marine sediment quality would be reduced as a consequence of hydrocarbon contamination for a small area within the immediate release site for a long to medium term, as hydrocarbons in sediments typically undergo slower weathering and degradation (Diercks et al. 2010, Liu et al. 2012). There is the potential for floating and entrained hydrocarbons to sink following extensive weathering and adsorption of sediment particles, which may result in the deposition of hydrocarbons to the seabed in areas distant from the release location. Such hydrocarbons are expected to be less toxic due to the weathering process. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in slight, short-term impacts to offshore sediment quality within the EMBA, with impacts predicted to be greatest for areas closest to the potential release location. |
| ***Marine Fauna*** | |
| Plankton (including zooplankton, larvae) | Plankton could include the organisms that complete their life cycle as plankton (e.g., copepods), as well as eggs and larvae of many taxa that are not planktonic when mature. Physical contact of small hydrocarbon droplets may impair plankton mobility, feeding and respiration.<br>There is potential for localised mortality of plankton due to reduced water quality and toxicity.<br>The likelihood of impacts to plankton would be determined by the extent and timing of the spill; for example, a spill during summer months may impact planktonic assemblages associated with higher productivity from upwelling.<br>The different life stages of plankton often show widely different tolerances and reactions to oil pollution. Usually the eggs, larval and juvenile stages will be more susceptible than the adults. Surface and entrained oil could impact fish eggs and larvae due to entrainment in surface slicks. However, fish eggs and larvae are highly dispersive and are carried significant distances by ocean currents. Any impacts to fish eggs and larvae are not anticipated to significantly impact on fish populations. |
| Fish, sharks and rays (including commercial species) | The ecological EMBA overlaps a white shark distribution BIA, however the EMBA is not known to be particularly important habitat or host aggregations of white sharks.<br>Short-finned eel adults and larvae may occur within the EMBA, which are culturally important to First Nations groups. Given the life history of short-finned eels and the nature and scale of the hydrocarbon spill risk, no impacts at a population level would occur. Adult short-finned eels spend daylight |

| Receptor | Impacts |
|---|---|
| | hours near the seabed and ascend to near the surface, hence they are only likely to encounter spilled hydrocarbons during night. The migration and recruitment periods are protracted, and the distribution of the species is across much of south-eastern Australia. Eels in freshwater environments, where they spend most of their life cycle, will not credibly be impacted. Hence, only a very small portion of the population would credibly be impacted by a hydrocarbon spill.<br>The most likely impact to fish, shark and rays is from the dissolved aromatic hydrocarbons or entrained hydrocarbon droplets, particularly when through the pathways of ingestion or the coating of gill structures. This could lead to respiratory problems (reduction in oxygen exchange efficiency) or an accumulation of hydrocarbons in tissues.<br>Near the sea surface, fish are likely to be able to detect and avoid contact with surface slicks and as a result, fish mortalities rarely occur in open waters from floating oils (International Tanker Owners Pollution Federation, 2011). Pelagic fish species are therefore generally not highly susceptible to impacts from hydrocarbon spills. Demersal fish species living and feeding on or near the seabed in deeper waters are not likely to be affected by surface and entrained oil in open waters. Likewise, most reef fish are expected to occur at water depths significant enough to be unaffected by surface oil, whereas reef fish in shallow waters (< 10 m) and sheltered embayments are at greatest risk from surface oil (Kirby et al., 2018), particularly if they are territorial and unlikely to leave their habitat.<br>While fish, sharks and rays do not generally break the sea surface, individuals may feed near the surface for short periods. The probability of prolonged exposure to a surface slick by fish, shark and ray species is unlikely. |
| Marine mammals | Eight species of threatened or migratory marine mammals were identified by the EPBC Protected Matters search for the EMBA (Section 4.4.2). BIAs overlapping the EMBA include (Table 4-6):<br>Pygmy blue whale:<br>Foraging areas<br>Southern right whale:<br>Migration<br>Reproduction<br>Marine mammals come to the sea surface to breathe air. They are therefore theoretically vulnerable to impacts caused by contact with hydrocarbons at the sea surface. Whales and dolphins are smooth-skinned, hairless mammals so oil tends not to stick to their skin and since they do not rely on fur for insulation, they are therefore not as sensitive to the physical effects of oiling.<br>The way whales and dolphins consume their food may affect the likelihood of their ingesting oil. Baleen whales (such as humpback whales), which skim the surface, are more likely to ingest oil than toothed whales, which are ‘gulp feeders’ (Helm et al., 2015). Spilled oil may also foul the baleen fibres of baleen whales, thereby impairing food-gathering efficiency or resulting in the ingestion of oil or oil-contaminated prey. Baleen whales may therefore be vulnerable to oil if feeding.<br>Ingested oil, particularly the lighter fractions, can be toxic to marine mammals. Ingested oil can remain within the gastro-intestinal tract and be absorbed into the bloodstream and thus irritate and destroy epithelial cells in the stomach and intestine. Pygmy blue whale foraging occurs seasonally in the region between January and March. A spill during this time may pose an increased risk to pygmy blue whales should in-water hydrocarbons coincide |

| Receptor | Impacts |
|---|---|
| | with areas of high prey density for pygmy blue whales. Given that rapid dispersion and modelling indicating surface oil is not expected to meet or exceed the moderate threshold for the LOWC scenario, and impact from surface contact is highly unlikely.<br>At the moderate in-water exposure level, a number of threatened and migratory mammals may be contacted with water column hydrocarbons including Antarctic Minke Whale, Australian Sea Lion, Pygmy Blue Whale, Southern Right Whale, Dusky Dolphin, Fin Whale, Humpback Whale, Killer Whale, Pygmy Right Whale, and Sei Whale. Of these, the Southern Right Whale (core range, migration and resting on migration, and aggregation), and Pygmy Blue Whale (Foraging and distribution) BIAs are within the EMBA. Given whales and dolphins are not predicted to be impacted by entrained/dissolved hydrocarbons in the water column since they are mobile species and not likely to be constantly exposed for extended durations that would be required to cause any major toxic effects. Given the size of the spill and expected rapid evaporation and dispersion rate, impacts to marine mammals are expected to be low.<br>An unplanned release of gas condensate is not expected to interfere with their migration activity. There is the potential for behaviour disruption to the local population and individuals that traverse the spill area. Owing to the rapid dispersion and evaporation of gas condensate, impacts are not predicted at the population level. |
| Marine reptiles | Marine turtles are unlikely to occur within the EMBA (Section 4.4.2). There are no identified marine turtle nesting beaches predicted to be contacted by moderate thresholds (ecological EMBA) of condensate. Likewise, surface oil is not expected to meet or exceed the moderate threshold for the LOWC scenario.<br>Direct contact of marine turtles with hydrocarbons and exposure from hydrocarbon components may resulting digestion and absorption of hydrocarbons through food contamination or direct physical contact. This may cause damage to the digestive tract and other organs irritation of mucous membranes (such as those in the nose, throat and eyes), leading to inflammation and infection.<br>Physical contact with hydrocarbons in the water column are likely to have biological consequences to individuals only, especially given there is no identified areas critical to the survival at any turtle species that may occur within the EMBA. |
| Seabirds and shorebirds | Several species of seabirds were identified as potentially occurring within the ecological EMBA (Section 4.4.2). Foraging BIAs for a range of seabirds occur within the ecological EMBA (Table 4-6).<br>Birds exposed to hydrocarbons may suffer a range of internal and external health effects. Direct contact with hydrocarbons and exposure from hydrocarbons has the potential to cause:<br>▪ oiled feathers affecting the ability of the birds to fly and those birds on the sea surface may suffer from loss of buoyancy and drown or die from hypothermia<br>skin irritation or ulceration of eyes, mouth or nasal cavities<br>▪ internal effects from poisoning or intoxication through ingestion, preening and ingestion of oil via their prey items<br>▪ reduced reproduction ability<br>▪ reduction in the number of eggs laid<br>▪ decreased shell thickness |

| Receptor | Impacts |
|---|---|
| | ▪ disruption of the normal breeding and incubating behaviours.<br>The surface oil component poses the greatest risk of impact to seabirds due to the amount of time they spend on or near the sea surface. Individuals are at risk of lethal or sub-lethal physical and toxic effects due to external exposure (oiling of feathers) and ingestion, especially those close to the source point where concentrations are at their highest. Even small quantities of feathers contaminated by oil can be lethal, causing hypothermia and reduced buoyancy (O'Hara and Morandin, 2010). Seabirds are less likely to be affected by entrained and dissolved hydrocarbons, except through the ingestion of contaminated prey.<br>Seabirds spend most of their time at sea, travelling over large distances to forage over the open ocean, returning to land during breeding only; therefore, some seabirds may transit the offshore waters of the EMBA and encounter surface oil. While individual seabirds may be affected, it is not predicted that large numbers of seabirds will be impacted from surface oil as they are unlikely to be present in significant numbers due to their vast distribution area. The risk of impact is greater should a release occur within the chick-rearing period where adults forage closer to breeding colonies. The risk may also be greater during summer months when upwelling occurs, as seabirds may forage in the relatively high productivity during this period.<br>Given surface oil is not expected to meet or exceed the moderate threshold for the LOWC scenario, it is unlikely that marine seabirds would come into contact with condensate oil at conservative impact levels.<br>There is a potential for shoreline accumulation with deterministic modelling indicating the highest accumulated shoreline mass (above 100 g/m$^2$) of 12.3 tonnes, including 8.2 tonnes at the Warrnambool Plain, 3.0 tonnes at the Otway Plain and 1.1 tonnes at the Otway Ranges.<br>Whilst much of the coastline of the Twelve Apostles is rocky, there are shoreline types along these stretches of potentially impacted coastline including sandy beaches and saltmarsh that would be suitable shorebird nesting and feeding habitat.<br>Of the 14 identified bird species with BIAs overlapping the wider EMBA, the most likely to be impacted as a result of moderate levels of shoreline loading would include: the Common Diving Petrel, White-faced Storm Petrel, Short-tailed Shearwater, Wedge-tailed Shearwater, and Australasian Gannet.<br>Impacts are expected to marine seabirds and shorebirds that come into contact with stranded condensate oil as well from as indirect effects from localised reduction of prey abundance. Given the limited extent of moderate shoreline exposure, and the non-persistent nature of condensate, impacts may occur at either an individual or population level, however they would not be considered widespread or persistent. |
| ***Intertidal / Sub-tidal Habitats*** | |
| Intertidal sandy beaches / mud flats | Shoreline exposure for the upper and lower areas differ. The upper shore has the potential to be exposed to surface slicks, while the lower shore is potentially exposed to entrained hydrocarbon. Potential impacts may occur due to hydrocarbon contact with intertidal areas, including sandy shores, mudflats and rocky shores.<br>The tidal range in the region is relatively small, and much of the coastline is exposed to high energy metocean conditions. This results in limited development of extensive intertidal sandy habitat. Intertidal flats support infauna and epifauna such as polychaetes, crustaceans, and molluscs. In turn, these fauna assemblages support wading birds.<br>Hydrocarbon at sandy shores is incorporated into fine sediments through mixing in the surface layers from wave energy, penetration down worm burrows and root pores. Hydrocarbon in the intertidal zone can adhere to sand particles; however, high tide may remove some or most of the hydrocarbon back off the sediments. Typically, hydrocarbon is only incorporated into the surface layers to a maximum of 10 cm (Etkin, 2003). As |

| Receptor | Impacts |
|---|---|
| | described earlier, accumulated hydrocarbons ≥100 g/m² could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat (French-McCay, 2009).<br>Spilled hydrocarbons may result in mortality of intertidal flats assemblages, resulting in indirect effects to species that prey in these environment<br>Temporary declines in infauna and epifauna populations may have indirectly affect feeding shorebirds and wading birds. |
| Macroalgal and seagrass beds | Macroalgal beds occur both intertidally on rocky shores and sub-tidally within the ecological EMBA.<br>Impact of hydrocarbons on macroalgae, particularly on intertidal shores, largely depends on the degree of exposure, the degree of wave and tidal action, and how much of the hydrocarbon adheres to the seagrass or macroalgae. Macroalgae is predicted to recover quickly because of wind, wave, and tidal-driven coastal processes that naturally flush the hydrocarbons.<br>Impacts could include reduced capability for photosynthesis if the seagrass or macroalgae were smothered, or toxic effects could occur from contact with the hydrocarbon. Indirect impacts may occur due to reduced light attenuation, which would restrict the seagrasses ability to photosynthesis, leading to reduced growth rates and reduced flowering capability. Entrained oil may also adhere to seagrass in shallower areas, inhibiting respiration. The susceptibility of seagrass to hydrocarbons will depend largely on their distribution, with communities in deeper water are less likely to be affected, whereas seagrass beds in shallower waters are more likely to be affected by entrained oil droplets. |
| ***Shoreline Habitat*** | |
| Shoreline Habitats | Stochastic modelling predicted that shoreline oiling above the visual amenity threshold (>10 g/m$^3$) may occur between the Victorian Volcanic Plain and Flinders. At ecological threshold (100 g/m$^2$), stochastic modelling indicated predicted shoreline accumulation limited to within a 100 km distance from well site, spanning the Warrnambool Plain, Otway Plan and Otway Ranges. No shoreline accumulation at the high threshold (1,000 g/m$^2$) was predicted. Across all shorelines, the predicted maximum accumulated shoreline load was 12.3 tonnes, with a minimum arrival time of 0.5 days and a maximum oiled shoreline length of 31 km. Maximum accumulated shoreline loads at individual receptors were 9.6 tonnes at the Warrnambool Plain, 3.0 tonnes at the Otway Plain and 1.4 tonnes at the Otway Ranges, with minimum arrival times of 0.5, 3.1 and 4.1 days, respectively, and maximum oiled shoreline lengths of 25, 8 and 5 km, respectively.<br>Whilst much of the coastline of the Twelve Apostles is rocky, there are also sandy beaches. Saltmarshes occur in the region, however these are typically restricted to within bar estuaries rather than the open coast and will not credibly be impacted. Rocky shorelines are generally less vulnerable than beaches and saltmarshes.<br>Given the predictive modelling results, the following shoreline habitats are considered at risk:<br>▪ Sandy beaches of the Port Fairy to Lady Bay (Warrnambool) coastline, and small sections of sandy beach between Warrnambool and Cape Otway.<br>Rocky shore habitats are common along the Twelve Apostles Marine Park. These rocky shore habitats and limestone platforms provide a range of habitat niches and as such have a high biodiversity of associated fauna and flora.<br>Warrener shells (*turbo undulatus*) were identified as culturally important by BLCAC during consultation. *T. undulatus* occurs on mid-to-low tidal areas on rocky shores and intertidal rocky reefs (Smoothey, 2013). |

| Receptor | Impacts |
|---|---|
| | Given the limited volumes, low wax content and non-persistent nature of potentially stranded condensate, potential impacts are considered moderate and are not expected to persist. |
| ***Socio-economic*** | |
| Fisheries | There is the potential for hydrocarbons to temporarily disrupt fishing activities if surface or water column hydrocarbons move through fishing areas. Fishing grounds may be temporarily closed, which would have an impact through loss of income. Market value/ demand for fish may also be impacted due to actual or perceived tainting of catches. Potential impacts to fish stock are unlikely to be extensive volatile and non-persistent nature of Minerva gas condensate. The dissolved component of the hydrocarbon is likely to be the most toxic to commercial species, but moderate to high levels are not anticipated over a broad area and would not persist in the environment. Some mortality and sub-lethal effects may impact individuals located close to the release location; however, overall impacts are not predicted at the population level.<br>Material impacts to fish stock are unlikely to occur. Refer to preceding rows for descriptions of impacts to fishes, fish eggs, and larvae. |
| Tourism and recreation | There is a wide variety of nature-based tourism and recreational activities that occurs in the EMBA. There is the potential for temporary closure of recreational activities and beaches due to the risk to public health and safety. Hydrocarbons may reduce the aesthetic value of the environment, reducing the appeal to tourists. Impacts to recreational fishing may also occur due to impacts to fish as described for fisheries above. |
| Defence | No impacts to defence activities are expected to occur. |
| Shipping | No impacts to commercial shipping are expected to occur. |
| Oil and gas activities | No impacts to oil and gas activities are expected to occur. |
| Cultural values and Heritage | Marine ecosystems may hold both cultural and environmental value to Traditional Custodians (see Section 4.6.1.5), with cultural and environmental values intrinsically linked (DCCEEW 2023). It necessarily follows that an impact to marine ecosystems has the potential to impact cultural features where the impact is detectable within Sea Country—the seascape which Traditional Custodians view, interact with or hold knowledge of. The EMBA is known to include habitat for culturally important species such as whales and eels (Section 4.6.1.5).<br>In the event of a worst-case release of condensate individual fauna may be directly impacted or impacted through temporary degradation of their habitats, however, no population level impacts as expected. Impacts are not expected to occur to ecologically significant proportions of the populations of the species, nor result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. Impacts to biological resources, such as intertidal warrener shells (identified by BLCAC as a cultural value) may reduce opportunities for traditional gathering activities. However, given the relatively low levels of hydrocarbons contacting shorelines above impact thresholds and the inaccessible nature of much of the coastline, impacts to biological resources of cultural value would be highly localised and temporary. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.<br>The EMBA overlaps multiple Aboriginal cultural heritage places (Section 4.6.1.5). The EMBA overlaps 33 sites of historic heritage significance (Section 4.6.1.7). Any oil that reaches the shoreline has potential to impact on Aboriginal heritage places and areas of cultural heritage sensitivity (as per the Aboriginal Heritage Regulations 2018), along the coastline. In the unlikely event of a hydrocarbon release, shoreline accumulation may affect sensitive artefacts or areas, which could damage their heritage value. |

| Receptor | Impacts |
|---|---|
| | The EMBA overlaps multiple marine parks, as described in Section 4.5. Management Plans for these parks recognise cultural values of Indigenous groups (Section 4.6.1.4). Cultural values associated with marine parks could be impacted by an condensate spill.<br>Impacts may occur to the intangible cultural values discussed in Section 4.6.1.6 such as songlines; creation/dreaming sites, sacred sites, ancestral beings; cultural obligations to care for Country; knowledge of Country/customary law and transfer of knowledge; connection to Country; Access to Country; kinship systems and totemic species, resource collection. Related intangible cultural heritage may include (for example) the transmission of cultural knowledge about whales and whale behaviour, including birthing areas, whale communication and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn, 2021). Inter-generational transmission of cultural knowledge (including songlines) relating to marine fauna may be impacted where changes results in reduced sightings (e.g., through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO, 2003). In the unlikely event of a hydrocarbon release, intangible cultural heritage values may be impacted. |
| Maritime heritage | There are several shipwrecks in the EMBA. It is unlikely contact would have any lasting impact on these sites, apart from a possible temporary reduction in aesthetic value for a period. |
| ***Protected / Significant Areas*** | |
| World Heritage and National Heritage | No impacts to World Heritage Areas will credibly occur. |
| Protected Areas | The EMBA overlaps several protected areas (refer to Sections 4.5.6). The environmental values and sensitivities of these protected areas are described in Appendix D. The potential impacts to these values are described in the relevant sections of this table. |
| Key ecological features | The EMBA does not overlap any KEFs. No impacts to KEFs will credibly occur. |

### 8.2.4. Demonstration of ALARP

Given a potential LOWC scenario represents a higher order risk, and consistent with the Demonstration of ALARP for higher order risks as described in Section 6.1.1, Woodside have undertaken an engineering risk assessment to evaluate alternate, additional, or improved controls according to their feasibility, reasonableness, and practicability to implement to further reduce the potential for risks associated with this event.

The ALARP process performed for this aspect is summarised in Table 8-8. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable.

A detailed environmental impact and risk assessment for spill response activities and detailed ALARP assessment including the evaluation of alternate, additional, or improved response controls for a LOWC scenario is presented in the Minerva Field OPEP (Appendix E).

**Table 8-8: Minerva loss of well control – ALARP summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Engineering*** | | | |
| Subsea BOP installed, and function tested during permanent plugging operations. | Accept | Testing of the BOP will reduce the likelihood of a blowout resulting in release of hydrocarbons to the marine environment. In the event of a blowout, this control would not reduce the consequence, although the reduction in likelihood reduces the overall risk ranking.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 11.1 |
| Implement requirements for permanent well abandonment:<br>▪ well barrier as per the internal Woodside Standard(s)<br>▪ placement, length, material, and verification of a permanent barrier. | Accept | This procedure will reduce the likelihood of a spill occurring from a suspended or abandoned well. Although changes in severity wouldn't occur, the reduction in likelihood results in a reduction in overall risk.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 11.2 |
| ***Administrate*** | | | |
| The plug and abandonment activity to be managed in accordance with NOPSEMA accepted Well Operations Management Plan (WOMP), which includes the following requirements:<br>▪ Two barriers have been maintained<br>▪ Well barrier integrity is tested and verified | Accept | Compliance with an accepted WOMP that aligns with industry guidance and good practice well ensure barriers are in place and verified, reducing the likelihood of loss of well integrity occurring. Although the consequence of a well blowout would not be reduced, the reduction in likelihood reduces the overall risk.<br>Control is based on a legislative requirement under the Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011. The control must be adopted. | PS 11.3 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ▪ Wells are permanently abandoned and left in a safe state | | | |
| The P&A activity to be managed accordance with the NOPSEMA accepted MODU Safety Case, which includes the following:<br>▪ Planned maintenance requirements for well control equipment<br>▪ testing requirements of well control equipment<br>▪ verification requirements of safety critical equipment | Accept | The accepted safety case includes control measures to reduce the risk of an unplanned release of hydrocarbons as a result of loss of well containment. Compliance with the accepted Safety Case may reduce the likelihood of loss of well integrity occurring. Although the consequence of a well blowout would not be reduced, the reduction in likelihood reduces the overall risk.<br>Control is based on a legislative requirement under the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009. The control must be adopted | PS 11.4 |
| ***Pollution Control*** | | | |
| An approved Source Control Emergency Response Plan (SCERP) shall exist prior to drilling each well, including feasibility and any specific considerations for relief well kill. | Accept | The SCERP will describe the responses to a loss of well control including ROV intervention on BOP and the relief well. All of these responses are aimed at reducing the duration of the hydrocarbon release, resulting in a reduction in consequence and overall risk.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 11.5 |
| In the event of a spill, emergency response activities implemented in accordance with the OPEP. | Accept | Implementing the OPEP efficiently to deal with unplanned hydrocarbon spills will help to reduce impacts to the marine environment.<br>The control is feasible and standard practice. Costs associated with implementing response strategies vary dependant on nature and scale of spill event. Benefits outweigh any cost sacrifice. | PS 11.6 |
| Arrangements supporting the activities in the OPEP will be tested to ensure the OPEP can be implemented as planned. | Accept | Testing the OPEP activities would not reduce the likelihood, but response activities may reduce the consequence.<br>The control is feasible and standard practice. Moderate costs associated with conducting exercises for the purpose of testing arrangements. Benefits outweigh any cost sacrifice. | PS 11.7 |

#### 8.2.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 8-8) that, when implemented, are considered to manage the risk of hydrocarbon spill from a loss of well control during the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the risk of hydrocarbon spill from a loss of well control during the petroleum activity. No reasonable additional control measures beyond those adopted in Table 8-8 were identified. The impacts are therefore considered reduced to ALARP.

### 8.2.5. Demonstration of Acceptability

The potential for a LOWC event occurring during the *Minerva P&A activity* is considered a 'Type B' (higher order) risk, that has been considered acceptable by Woodside based upon:

- The risk has been deemed ALARP via a detailed engineering assessment (see Section 8.2.4 above)
- There have been no objections or claims made by relevant persons for this aspect of the activity
- There is sufficient regulatory control, Woodside corporate procedures and standards and industry good practice guidance to inform the development of robust preventative control measures and these measures have been evaluated by internal Woodside subject matter experts during the ENVID process and reflected within this EP
- By undertaking the activity, there is no contravention of any relevant Plan of Management for a World Heritage place, National Heritage place or Ramsar wetland identified within the EMBA
- Consideration of listed species recovery plans, conservation advice and threat abatement plans relevant to chemical discharge/oil spills, marine pollution, and habitat degradation/modification have informed the development of control measures.
- The valuation principle of Ecologically Sustainable Development (ESD) (as defined within Section 3A of the EPBC Act) has been considered with respect to potential costs incurred for a LOWC event. This principle has not been compromised given mitigative controls have been adopted to reduce potential impacts and risks in the event of an unplanned spill, and Woodside has committed to fully funding any and all remedial costs associated with an emergency oil pollution event; and
- Woodside is satisfied that when the accepted controls are implemented the environmental performance outcome (EPO) of "No loss of well integrity resulting in loss of hydrocarbons to the marine environment during the petroleum activity." will be met.

The adopted controls are considered good oil-field practice/industry best practice. Woodside has considered information contained in recovery plans and threat abatement plans (Section 4.4.3). The environmental risks meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental risks are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- Precautionary principle: The unplanned hydrocarbon release risk, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect. The unplanned hydrocarbon release risk assessment was informed by industry-standard modelling, which includes the worst-case credible spill scenario, incorporates inherent uncertainty and is consistent with the precautionary principle.
- Inter-generational principle: The unplanned hydrocarbon release risk will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The unplanned hydrocarbon release risk will not impact upon biodiversity or ecological integrity in the long-term. The controls Woodside will implement reduce the risk of a spill from a loss of well control event to ALARP.

During consultation, GLAWAC and EMAC requested that in the event of a hydrocarbon release they would like to be consulted at that time. Requirements to notify Traditional Owners who may be affected by a spill are captured in the OPEP (Appendix E).

Woodside considers the risk to be managed to a level that is acceptable.

## 8.2.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 11<br>No loss of well integrity resulting in loss of hydrocarbons to the marine environment during the petroleum activity. | C 11.1<br>Subsea BOP installed, and function tested during permanent plugging operations. | PS 11.1<br>Subsea BOP specification, installation and function testing compliant with internal Woodside Standards and international requirements (API Standard 53) as agreed by Woodside and MODU contractor. | C 11.11.1<br>Records demonstrate that BOP and BOP control system specifications and function testing were in accordance with minimum standards for the expected permanent plugging conditions as agreed by Woodside and MODU contractor. |
| | C 11.2<br>Implement requirements for permanent well abandonment:<br>▪ well barrier as per the internal Woodside Standard(s)<br>▪ placement, length, material and verification of a permanent barrier. | PS 11.2<br>Woodside abandons the wells according to internal Woodside Procedure. | MC 11.2.1<br>Records demonstrate Well Acceptance Criteria have been met. |
| | C 11.3<br>The P&A activity to be managed in accordance with NOPSEMA accepted Well Operations Management Plan (WOMP), which includes the following requirements:<br>▪ Two barriers have been maintained<br>▪ Well barrier integrity is tested and verified<br>▪ Wells are permanently abandoned and left in a safe state | PS 11.3<br>Accepted WOMP in place for the Minerva P&A activity to manage risks associated with plug and abandonment activities. | MC 11.3.1<br>WOMP Acceptance Letter |
| | C 11.4<br>The P&A activity to be managed in accordance with the NOPSEMA accepted MODU Safety Case, which includes the following: | PS 11.4<br>Accepted Safety Case in place for the Minerva P&A activity to manage risks associated with loss of well integrity. | MC 11.4.1<br>Safety Case Acceptance Letter |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | ▪ Planned maintenance requirements for well control equipment<br>▪ testing requirements of well control equipment<br>▪ verification requirements of safety critical equipment | | |
| | C 11.5<br>An approved SCERP shall exist prior to drilling each well, including feasibility and any specific considerations for relief well kill. | PS 11.5<br>SCERP is in place to ensure feasibility of performing a well kill operation. | MC 11.5.1<br>An approved Well SCERP |
| | C 11.6<br>In the event of a spill, emergency response activities implemented in accordance with the OPEP. | PS 11.6<br>In the event of a spill, emergency response activities implemented in accordance with the OPEP. | MC 11.6.1<br>Completed incident documentation. |
| | C 11.7<br>Arrangements supporting the activities in the OPEP will be tested to ensure the OPEP can be implemented as planned. | PS 11.7<br>Arrangements supporting the activities in the OPEP will be tested to ensure the OPEP can be implemented as planned.<br>Woodside procedure demonstrates a minimum level of trained personnel, for core roles in the OPEP, are maintained. | MC 11.7.1<br>Testing of arrangement records confirm that emergency response capability has been maintained. |
| | | | MC 11.7.2<br>Emergency Management dashboard confirms that minimum level of personnel trained for core OPEP roles are available. |

# 8.3. Hydrocarbon Release – Vessel Collision and Bunkering Incident

## 8.3.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Unplanned surface release of marine diesel oil | Surface release of MDO from a project vessel as a result of an external impact (vessel collision) which ruptures an MDO tank. | Temporary and localised reduction in water quality with potential for toxicity effects to marine fauna and flora, oiling of offshore, nearshore and shoreline habitats.<br>Impacts to socio-economic receptors. | 100 | 0.1 | 10 | Type A<br>Lower Order Risk | Tolerable |
| | Release of MDO or jet fuel during a bunkering or refuelling incident. | | 10 | 0.3 | 3 | Type A<br>Lower Order Risk | Tolerable |

## 8.3.2. Source of Risk

### 8.3.2.1. Surface Release of Marine Diesel Oil from a Vessel Collision

The temporary presence of the MODU and project vessels in the Operational Area during the petroleum activity will result in a navigational hazard for other marine users (such as commercial shipping) within the immediate area (as discussed in Section 7.2). This navigational hazard could result in a third-party vessel colliding with the MODU or a project vessel, resulting a loss of hydrocarbons from a fuel tank rupture.

A MODU will have a total marine diesel capacity of approximately 2,600 $m^3$ distributed through several isolated tanks. MODU fuel tanks are in the MODU pontoons, typically located on the inner sides of pontoons and can be over 10 m below the waterline. As such, a spill from MODU fuel tanks because of a vessel collision is not credible.

A typical project vessel (e.g., a light construction or subsea support vessel) is likely to have multiple isolated marine diesel tanks distributed throughout the hull of the vessel. The marine diesel storage capacity of a support vessel can be in the order of 1,000 $m^3$ (total) that is distributed through multiple isolated tanks typically located mid-ships. In the unlikely event of a vessel collision involving a project vessel during the petroleum activity, the vessel will have the capability to pump marine diesel from a ruptured tank to a tank with spare volume to reduce the potential volume of fuel released to the environment.

A vessel collision has the potential to result in the rupture of a vessel fuel tank and the release of MDO. A review of commercial fisheries (Section 4.6.2), commercial shipping (Section 4.6.4), and consultation undertaken during the development of this EP (Section 4), indicated a very low likelihood of third party vessels being active in the Operational Area.

The AMSA *Technical Guidelines for Preparing Contingency Plans for Marine and Coastal Facilities* (2015) has been applied to determine the credible WCD associated with an in-field vessel collision event.

For the type of project vessels anticipated to support the MODU during the activity, the largest single fuel oil tank is likely 250-300 $m^3$. Generally, fuel oil tanks are filled to 80% of total capacity (maintaining 20% ullage) whilst undertaking offshore operations. To allow for an appropriately conservative environmental impact and

risk assessment, or for a vessel with larger-than-anticipated fuel oil capacity to support the activity, a total potential marine diesel oil (MDO) release volume of 330 $m^3$ has been modelled as the WCD for a vessel collision scenario.

From a review of the ATSB marine safety and investigation reports, one vessel collision occurred in 2011/12 that resulted in a spill of 25–30 L of oil into the marine environment as a result of a collision between a tug and support vessel off Barrow Island. Two other vessel collisions occurred in 2010, one in the port of Dampier, where a support vessel collided with a barge being towed. Minor damage was reported and no significant injury to personnel or pollution occurred. The second 2010 vessel collision involved a vessel under pilot control in port connecting with a vessel alongside a wharf, causing it to sink. No reported pollution resulted from the sunken vessel. These incidents demonstrate the likelihood of only minor volumes of hydrocarbons being released during the highly unlikely event of a vessel collision.

From 2010 to 2011, the ATSB's annual publication defines the individual safety action factors identified in marine accidents and incidents: 42% related to navigation action (2011). Of those, 15% related to poor communication and 42% related to poor monitoring, checking and documentation (ATSB, 2011). The majority of these related to the grounding instances.

A review of the Annual Overview of Marine Incidents (AMSA, 2019) (covering the period from January 2016 to December 2019) indicates that 'very serious marine incidents', which may include loss of a vessel and serious pollution, accounted for a small portion (0.05%) of the overall reported marine incidents during the reporting period. Based upon this report, and reports from previous years, this would indicate a vessel collision resulting in a loss of 330 $m^3$ MDO would be considered a highly unlikely event.

#### 8.3.2.2. Bunkering Incident

Bunkering of marine diesel between support vessels and the MODU, as well as the refuelling of cranes and other equipment, may take place on the MODU and project vessels during the petroleum activity. Bunkering incidents may occur as the result of a damaged refuelling hose, coupling failures, loss of connection, vessel collision or loss of vessel position.

Three credible scenarios for the loss of containment of marine diesel during bunkering operations have been identified:

- Partial or total failure of a bulk transfer hose or fittings during bunkering, due to operational stress or other integrity issues could spill marine diesel to the deck and/or into the marine environment. This would be in the order of less than 200 L, based on the likely volume of a bulk transfer hose (assuming a failure of the dry break and complete loss of hose volume).
- Partial or total failure of a bulk transfer hose or fittings during bunkering, combined with a failure in procedure to shutoff fuel pumps, for a period of up to five minutes, resulting in approximately 50 $m^3$ marine diesel lost to the deck and/or into the marine environment.
- Partial or total failure of a bulk transfer hose or fittings during helicopter refuelling could spill aviation jet fuel to the helicopter deck and/or into the marine environment. All helicopter refuelling activities are closely supervised and leaks on the helideck are considered to be easily detectable. In the event of a leak, transfer would cease immediately. The credible volume of such a release during helicopter refuelling would be in the order of < 100 L.

The guidance provided by AMSA (2015) for a bunkering spill under continuous supervision is considered appropriate, given bunkering will be constantly supervised. The maximum credible release volume during refuelling is calculated as transfer rate multiplied by 15 minutes of flow. The detection time of 15 minutes is seen as conservative but applicable after failure of multiple barriers followed by manual detection and isolation of the fuel supply. Based on an expected pumping rate of 150 $m^3$/hour and a conservative time of 15 minutes to shut down the pumping operation once the fuel spill had been identified, a total release volume of around 37.5 $m^3$ is proposed as the worst-case credible volume for a bunkering incident.

#### 8.3.2.3. Oil Spill Modelling Results

The EMBA for the worst-case MDO release is presented in Figure 4-1. The outer extent of the ecological and socio-economic EMBA is derived from the oil spill modelling defined using the hydrocarbon exposure thresholds in Table 4-1 and is based on the combined area of contact for all hydrocarbon components (surface, shoreline dissolved and entrained hydrocarbons). The modelling results below are presented for each hydrocarbon component at the hydrocarbon exposure thresholds defined in Table 4-1.

***Sea Surface Hydrocarbons***

*Low exposure (>1 g/m$^2$)*

For autumn-winter, surface oiling exceeding the low threshold (1 g/m$^2$) was predicted to occur up to ~25 km west and ~75 km east of the spill location. For spring-summer, surface oiling exceeding the low threshold (1 g/m$^2$) was predicted to occur up to ~40 km west and ~30 km east of the spill location.

*Moderate exposure (>10 g/m$^2$) to High exposure (>50 g/m$^2$)*

For autumn-winter, the maximum spatial extent of surface oiling at the moderate (10 g/m$^2$) and high (50 g/m$^2$) thresholds was reduced to within ~25 km and ~10 km of the spill site, respectively. Summarised contact predictions for surface oil at the moderate threshold (10 g/m$^2$) include:

- For marine reserves, low contact probabilities were predicted at The Arches state marine park (<1%) and the Twelve Apostles state marine park (5%), with maximum time-averaged concentrations of 13 and 26 g/m$^2$, respectively, and minimum arrival times of 1.3 and 0.3 days, respectively.
- The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 99% probability (meaning 1% of realisations did not generate a surface slick exceeding 10 g/m$^2$), a maximum time-averaged concentration of 276 g/m$^2$ and a minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model time step).

For spring-summer, the maximum spatial extent of surface oiling at the moderate (10 g/m$^2$) and high (50 g/m$^2$) thresholds was reduced to within ~25 km and ~10 km of the spill site, respectively. Summarised contact predictions for surface oil at the moderate threshold (10 g/m$^2$) include:

- For IBRA regions (including neighbouring state waters), a low-moderate contact probability of 31% was predicted at the Warrnambool Plain with a maximum local time-averaged concentration of 107 g/m$^2$ and a minimum arrival time of 0.2 days (4 hours).
- For marine reserves, a very low contact probability was predicted at the Twelve Apostles state marine park (1%), with a maximum time-averaged concentration of 15 g/m$^2$ and a minimum arrival time of 0.6 days.
- The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 252 g/m$^2$ and a minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model time step).

***Dissolved Hydrocarbons***

*Low Exposure (>10 ppb)*

For autumn-winter, dissolved hydrocarbons at the low threshold (10 ppb) were predicted to occur at distances of up to ~75 km west and ~150 km east of the spill site.

For Spring-Summer, dissolved hydrocarbons at the low threshold (10 ppb) were predicted to occur at distances of up to ~90 km west and ~80 km east of the spill site.

*Moderate Exposure (>50 ppb) to High exposure (>400 ppb)*

For autumn-winter, the maximum spatial extents at the moderate (50 ppb) and high (400 ppb) thresholds were reduced to ~90 km and ~25 km, respectively. Summarised contact predictions for dissolved hydrocarbons at the moderate threshold (50 ppb) include:

- For marine reserves, a moderate contact probability was predicted at the Twelve Apostles state marine park (39%), with a maximum time-averaged concentration of 648 ppb and a minimum arrival time of 0.3 days. A very low contact probability of <1% was also predicted at The Arches state marine park, with

a maximum time averaged concentration of 52 ppb and a minimum arrival time of 1.3 days.

- The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 4,349 ppb and minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model timestep).

For spring-summer, the maximum spatial extents at the moderate (50 ppb) and high (400 ppb) thresholds were reduced to ~75 km and ~50 km, respectively. Summarised contact predictions for dissolved hydrocarbons at the moderate threshold (50 ppb) include:

- For marine reserves, a moderate contact probability was predicted at the Twelve Apostles state marine park (33%), with a maximum time-averaged concentration of 1,698 ppb and a minimum arrival time of 0.3 days
- The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 5,708 ppb and minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model time step).

***Total Submerged Hydrocarbons (entrained plus dissolved)***

*Low exposure (>10 ppb)*

For autumn-winter, total submerged oil at the low threshold (10 ppb) was predicted to occur up to ~150 km to the west and ~450 km east of the spill site.

For spring-summer, total submerged oil at the low threshold (10 ppb) was predicted to occur up to ~225 km to the west and ~150 km east of the spill site.

*High exposure (>100 ppb)*

For autumn-winter, exposure at the high threshold (100 ppb) was limited to within ~80 km west and ~150 km east of the spill site. Summarised contact predictions for total submerged oil at the high threshold (100 ppb) include:

- For marine reserves, a moderate contact probability was predicted at the Twelve Apostles state marine park (49%), with a maximum time-averaged concentration of 1,584 ppb and a minimum arrival time of 0.2 days. A very low contact probability of 2% was also predicted at The Arches state marine park, with a maximum time averaged concentration of 283 ppb and a minimum arrival time of 0.4 days. The Apollo AMP was predicted to be contacted with low probability (3%), a maximum time-averaged concentration of 169 ppb and a minimum arrival time of 1.4 days.
- The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 7,711 ppb and minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model timestep). The IMCRA regions of Central Victoria and Central Bass Strait had very low predicted contact probabilities of 3% and 1%, respectively, with maximum time-averaged concentrations of 179 and 126 ppb, respectively, and minimum arrival times of 1.6 and 2.1 days, respectively.

For spring-summer, Exposure at the high threshold (100 ppb) was limited to within ~90 km west and east of the spill site. Summarised contact predictions for total submerged oil at the high threshold (100 ppb) include:

- For marine reserves, a moderate contact probability was predicted at the Twelve Apostles state marine park (45%), with a maximum time-averaged concentration of 2,566 ppb and a minimum arrival time of 0.2 days. A very low contact probability of 3% was also predicted at The Arches state marine park, with a maximum time averaged concentration of 348 ppb and a minimum arrival time of 0.3 days.
- The spill site is located within the Otway IMCRA region. Therefore, Otway was contacted with 100% probability, a maximum time-averaged concentration of 8,929 ppb and minimum arrival time of 0.1 days (i.e., 2 hours, or 1 model time step).

***Shoreline Accumulated Hydrocarbons***

*Low exposure (>10 g/m$^2$)*

For autumn-winter, shoreline loading above the low threshold (>10 g/m$^2$) was predicted to occur between the Warrnambool Plain (~150 km west) and Wilsons Promontory (~500 km east).

For spring-summer, shoreline loading above the low threshold (>10 g/m$^2$) was predicted to occur between the Victorian Volcanic Plain (~200 km west) and the Otway Ranges (~125 km east).

*Moderate exposure (>100 g/m$^2$) to High exposure (>1,000 g/m$^2$)*

For autumn-winter, At the moderate (100 g/m$^2$) and high (1,000 g/m$^2$) thresholds, predicted shoreline accumulation was limited to within a 100 km distance from the well site, spanning the Warrnambool Plain, Otway Plain and Otway Ranges. At the moderate threshold (100 g/m$^2$), a high contact probability of 74% was predicted across all shorelines, with individual contact probabilities of 63% at the Warrnambool Plain, 29% at the Otway Plain and 13% at the Otway Ranges. Across all shorelines, the predicted maximum accumulated shoreline load was 187 tonnes, with a minimum arrival time of 0.2 days (4 hours) and a maximum oiled shoreline length of 35 km. Maximum accumulated shoreline loads at individual receptors were 187 tonnes at the Warrnambool Plain, 27 tonnes at the Otway Plain and 7 tonnes at the Otway Ranges, with minimum arrival times of 0.2, 1.0 and 0.8 days, respectively, and maximum oiled shoreline lengths of 30, 21 and 9 km, respectively.

For spring-summer, at the moderate (100 g/m$^2$) and high (1,000 g/m$^2$) thresholds, predicted shoreline accumulation was limited to within a 100 km distance from the well site, spanning the Warrnambool Plain, Otway Plain and Otway Ranges. At the moderate threshold (100 g/m$^2$), a high contact probability of 76% was predicted across all shorelines, with individual contact probabilities of 74% at the Warrnambool Plain, 16% at the Otway Plain and 10% at the Otway Ranges. Across all shorelines, the predicted maximum accumulated shoreline load was 152 tonnes, with a minimum arrival time of 0.2 days (4 hours) and a maximum oiled shoreline length of 33 km. Maximum accumulated shoreline loads at individual receptors were 152 tonnes at the Warrnambool Plain, 24 tonnes at the Otway Plain and 5 tonnes at the Otway Ranges, with minimum arrival times of 0.2, 1.4 and 1.2 days, respectively, and maximum oiled shoreline lengths of 30, 17 and 10 km, respectively.

## 8.3.3. Environmental Impact Assessment

The potential impacts of surface, shoreline, entrained, and dissolved hydrocarbons on sensitive receptors occurring within the ecological and socio-economic EMBA is provided in Table 8-9.

A worst-case MDO release to the marine environment would result in a localised and temporary reduction in water quality in the upper surface waters of the water column. While MDOs are generally considered to be non-persistent oils, they a small percentage by volume of hydrocarbons that are classified as persistent.

When released at sea, MDO will spread and thin out quickly and more than half of the volume can be lost to evaporation. No shoreline contact above the impact threshold concentration is predicted to occur.

A worst-case release of MDO from a vessel collision has the potential to have an impact to the environment within the EMBA, lasting a period of one to three years. Given the extent, the worst-case severity is considered to be substantial.

### 8.3.3.1. Species Recovery Plans, Threat Abatement Plans, and Conservation Advice

Several recovery plans and conservation advice identify either direct or indirect impacts of oil pollution as a threat. Taxa subject to such plans are considered in Table 8-9.

**Table 8-9: Summary of potential impacts to environmental values, sensitivities, and receptors within the EMBA from exposure to MDO**

| Receptor | Impacts |
|---|---|
| ***Physical Environment*** | |
| Water quality | A hydrocarbon spill will result in a temporary decrease in water quality within the EMBA. Modelling indicates most MDO will evaporate, with in-water fractions becoming dispersed and degrading through natural processes. Recovery to pre-spill conditions is expected to occur within days to weeks. Hence the impact will be temporary but may occur over a wide area. |
| Sediment quality | No impacts to sediment quality are expected, as the spilled hydrocarbons are associated with surface waters. |
| ***Marine Fauna*** | |
| Plankton (including zooplankton, larvae) | Plankton could include the organisms that complete their life cycle as plankton (e.g., copepods), as well as eggs and larvae of many taxa that are not planktonic when mature. Physical contact of small hydrocarbon droplets may impair plankton mobility, feeding and respiration.<br>There is potential for localised mortality of plankton due to reduced water quality and toxicity.<br>The likelihood of impacts to plankton would be determined by the extent and timing of the spill; for example, a spill during summer months may impact planktonic assemblages associated with higher productivity from upwelling.<br>The different life stages of plankton often show widely different tolerances and reactions to oil pollution. Usually the eggs, larval and juvenile stages will be more susceptible than the adults. Surface and entrained oil could impact fish eggs and larvae due to entrainment in surface slicks. However, fish eggs and larvae are highly dispersive and are carried significant distances by ocean currents. Any impacts to fish eggs and larvae are not anticipated to significantly impact on fish populations. |
| Fish, sharks and rays (including commercial species) | The ecological EMBA overlaps a white shark distribution BIA, however the EMBA is not known to be particularly important habitat or host aggregations of white sharks.<br>Short-finned eel adults and larvae may occur within the EMBA, which are culturally important to First Nations groups. Given the life history of short-finned eels and the nature and scale of the hydrocarbon spill risk, no impacts at a population level would occur. Adult short-finned eels spend daylight hours near the seabed and ascend to near the surface, hence they are only likely to encounter spilled hydrocarbons during night. The migration and recruitment periods are protracted, and the distribution of the species is across much of south-eastern Australia. Eels in freshwater environments, where they spend most of their life cycle, will not credibly be impacted. Hence, only a very small portion of the population would credibly be impacted by a hydrocarbon spill.<br>The most likely impact to fish, shark and rays is from the dissolved aromatic hydrocarbons or entrained hydrocarbon droplets, particularly when through the pathways of ingestion or the coating of gill structures. This could lead to respiratory problems (reduction in oxygen exchange efficiency) or an accumulation of hydrocarbons in tissues.<br>Near the sea surface, fish are likely to be able to detect and avoid contact with surface slicks and as a result, fish mortalities rarely occur in open waters from floating oils (International Tanker Owners Pollution Federation, 2011). Pelagic fish species are therefore generally not highly susceptible to impacts from hydrocarbon spills. Demersal fish species living and feeding on or near the seabed in deeper waters are not likely to be affected by surface and entrained oil in open waters. Likewise, most reef fish are expected to occur at water depths significant enough to be unaffected by surface oil, whereas reef fish in shallow waters (< 10 m) and sheltered embayments are at greatest risk from surface oil (Kirby et al., 2018), particularly if they are territorial and unlikely to leave their habitat. |

| Receptor | Impacts |
|---|---|
| | While fish, sharks and rays do not generally break the sea surface, individuals may feed near the surface for short periods. The probability of prolonged exposure to a surface slick by fish, shark and ray species is unlikely. |
| Marine mammals | Eight species of threatened or migratory marine mammals were identified by the EPBC Protected Matters search for the EMBA (Section 4.4.2). BIAs overlapping the EMBA include (Table 4-6):<br>▪ Pygmy blue whale:<br>– Foraging areas<br>▪ Southern right whale:<br>– Migration<br>– Reproduction<br>Marine mammals come to the sea surface to breathe air. They are therefore theoretically vulnerable to impacts caused by contact with hydrocarbons at the sea surface. Whales and dolphins are smooth-skinned, hairless mammals so oil tends not to stick to their skin and since they do not rely on fur for insulation, they are therefore not as sensitive to the physical effects of oiling.<br>The way whales and dolphins consume their food may affect the likelihood of their ingesting oil. Baleen whales (such as humpback whales), which skim the surface, are more likely to ingest oil than toothed whales, which are 'gulp feeders' (Helm et al., 2015). Spilled oil may also foul the baleen fibres of baleen whales, thereby impairing food-gathering efficiency or resulting in the ingestion of oil or oil-contaminated prey. Baleen whales may therefore be vulnerable to oil if feeding.<br>Ingested oil, particularly the lighter fractions, can be toxic to marine mammals. Ingested oil can remain within the gastro-intestinal tract and be absorbed into the bloodstream and thus irritate and destroy epithelial cells in the stomach and intestine. Pygmy blue whale foraging occurs seasonally in the region between January and March. A spill during this time may pose an increased risk to pygmy blue whales should in-water hydrocarbons coincide with areas of high prey density for pygmy blue whales. Given the relatively quick weathering of MDO, the period in which such an impact could occur is relatively short (days). |
| Marine reptiles | Marine turtles are unlikely to occur within the EMBA (Section 4.4.2). Once species, the leatherback turtle, was identified as potentially occurring in low numbers. No BIAs for leather back turtles, such as nesting or important foraging habitat, occur within he ecological EMBA.<br>Direct contact of marine turtles with hydrocarbons and exposure from hydrocarbon components may result in digestion and absorption of hydrocarbons through food contamination or direct physical contact. This may cause damage to the digestive tract and other organs irritation of mucous membranes (such as those in the nose, throat and eyes), leading to inflammation and infection. |
| Seabirds and shorebirds | Several species of seabirds were identified as potentially occurring within the ecological EMBA (Section 4.4.2). Foraging BIAs for a range of seabirds occur within the ecological EMBA (Table 4-6).<br>Birds exposed to hydrocarbons may suffer a range of internal and external health effects. Direct contact with hydrocarbons and exposure from hydrocarbons has the potential to cause:<br>▪ oiled feathers affecting the ability of the birds to fly and those birds on the sea surface may suffer from loss of buoyancy and drown or die from hypothermia<br>skin irritation or ulceration of eyes, mouth or nasal cavities |

| Receptor | Impacts |
|---|---|
| | ▪ internal effects from poisoning or intoxication through ingestion, preening and ingestion of oil via their prey items<br>▪ reduced reproduction ability<br>▪ reduction in the number of eggs laid<br>▪ decreased shell thickness<br>▪ disruption of the normal breeding and incubating behaviours.<br>The surface oil component poses the greatest risk of impact to seabirds due to the amount of time they spend on or near the sea surface. Individuals are at risk of lethal or sub-lethal physical and toxic effects due to external exposure (oiling of feathers) and ingestion, especially those close to the source point where concentrations are at their highest. Even small quantities of feathers contaminated by oil can be lethal, causing hypothermia and reduced buoyancy (O'Hara and Morandin, 2010). Seabirds are less likely to be affected by entrained and dissolved hydrocarbons, except through the ingestion of contaminated prey.<br>Seabirds spend most of their time at sea, travelling over large distances to forage over the open ocean, returning to land during breeding only; therefore, some seabirds may transit the offshore waters of the EMBA and encounter surface oil. While individual seabirds may be affected, it is not predicted that large numbers of seabirds will be impacted from surface oil as they are unlikely to be present in significant numbers due to their vast distribution area. The risk of impact is greater should a release occur within the chick-rearing period where adults forage closer to breeding colonies. The risk may also be greater during summer months when upwelling occurs, as seabirds may forage in the relatively high productivity during this period. |
| ***Intertidal / Sub-tidal Habitats*** | |
| Intertidal sandy beaches / mud flats | The tidal range in the region is relatively small, and much of the coastline is exposed to high energy metocean conditions. This results in limited development of extensive intertidal sandy habitat. Intertidal flats support infauna and epifauna such as polychaetes, crustaceans, and molluscs. In turn, these fauna assemblages support wading birds.<br>Spilled hydrocarbons may result in mortality of intertidal flats assemblages, resulting in indirect effects to species that prey in these environment<br>Temporary declines in infauna and epifauna populations may have indirectly affect feeding shorebirds and wading birds.<br>Given no hydrocarbons were predicted to accumulate on shorelines above impact thresholds and the low persistent nature of MDO, significant impacts from shoreline accumulation are not anticipated. |
| Macroalgal and seagrass beds | Macroalgal beds occur both intertidally on rocky shores and sub-tidally within the ecological EMBA.<br>Impact of hydrocarbons on macroalgae, particularly on intertidal shores, largely depends on the degree of exposure, the degree of wave and tidal action, and how much of the hydrocarbon adheres to the seagrass or macroalgae. Macroalgae is predicted to recover quickly because of wind, wave, and tidal-driven coastal processes that naturally flush the hydrocarbons.<br>Impacts could include reduced capability for photosynthesis if the seagrass or macroalgae were smothered, or toxic effects could occur from contact with the hydrocarbon. |

| Receptor | Impacts |
|---|---|
| ***Shoreline Habitat*** | |
| Shoreline Habitats | Whilst much of the coastline of the Twelve Apostles is rocky, there are also sandy beaches. Saltmarshes occur in the region, however these are typically restricted to within bar estuaries rather than the open coast and will not credibly be impacted. Rocky shorelines are generally less vulnerable than beaches and saltmarshes.<br>Given the predictive modelling results, the following shoreline habitats are considered at risk:<br>▪ Sandy beaches of the Port Fairy to Lady Bay (Warrnambool) coastline, and small sections of sandy beach between Warrnambool and Cape Otway.<br>Rocky shore habitats are common along the Twelve Apostles Marine Park. These rocky shore habitats and limestone platforms provide a range of habitat niches and as such have a high biodiversity of associated fauna and flora.<br>Warrener shells (*turbo undulatus*) were identified as culturally important by BLCAC during consultation. *T. undulatus* occurs on mid-to-low tidal areas on rocky shores and intertidal rocky reefs (Smoothey, 2013).<br>Given the potential degree of shoreline loading, but the non-persistent nature of potentially stranded MDO, potential impacts are considered moderate but are unlikely to persist. |
| ***Socio-economic*** | |
| Fisheries | There is the potential for hydrocarbons to temporarily disrupt fishing activities if surface or water column hydrocarbons move through fishing areas. Fishing grounds may be temporarily closed, which would have an impact through loss of income. Market value / demand for fish may also be impacted due to actual or perceived tainting of catches.<br>Material impacts to fish stock are unlikely to occur. Refer to preceding rows for descriptions of impacts to fishes, fish eggs, and larvae. |
| Tourism and recreation | There is a wide variety of nature-based tourism and recreational activities that occurs in the EMBA. There is the potential for temporary closure of recreational activities and beaches due to the risk to public health and safety. Hydrocarbons may reduce the aesthetic value of the environment, reducing the appeal to tourists. Impacts to recreational fishing may also occur due to impacts to fish as described for fisheries above. |
| Defence | No impacts to defence activities are expected to occur. |
| Shipping | No impacts to commercial shipping are expected to occur. |
| Oil and gas activities | No impacts to oil and gas activities are expected to occur. |
| Offshore Renewable Energy | No impacts to offshore renewable energy activities are expected to occur. |
| Cultural values and Heritage | Marine ecosystems may hold both cultural and environmental value to Traditional Custodians (see Section 4.6.1.5), with cultural and environmental values intrinsically linked (DCCEEW 2023). It necessarily follows that an impact to marine ecosystems has the potential to impact cultural features where the impact is detectable within Sea Country—the seascape which Traditional Custodians view, interact with or hold knowledge of. The EMBA is known to include habitat for culturally important species such as whales and eels (Section 4.6.1.5). |

| Receptor | Impacts |
|---|---|
| | In the event of a worst-case release of MDO individual fauna may be directly impacted or impacted through temporary degradation of their habitats, however, no population level impacts as expected. Impacts are not expected to occur to ecologically significant proportions of the populations of the species, nor result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. Impacts to biological resources, such as intertidal warrener shells (identified by BLCAC as a cultural value) may reduce opportunities for traditional gathering activities. However, given the relatively low levels of hydrocarbons contacting shorelines above impact thresholds and the inaccessible nature of much of the coastline, impacts to biological resources of cultural value would be highly localised and temporary. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.<br>The EMBA overlaps multiple Aboriginal cultural heritage places (Section 4.6.1.5). The EMBA overlaps 33 sites of historic heritage significance (Section 4.6.1.7). Any oil that reaches the shoreline has potential to impact on Aboriginal heritage places and areas of cultural heritage sensitivity (as per the Aboriginal Heritage Regulations 2018), along the coastline. In the unlikely event of a hydrocarbon release, shoreline accumulation may affect sensitive artefacts or areas, which could damage their heritage value.<br>The EMBA overlaps multiple marine parks, as described in Section 4.5. Management Plans for these parks recognise cultural values of Indigenous groups (Section 4.6.1.4). Cultural values associated with marine parks could be impacted by an MDO spill.<br>Impacts may occur to the intangible cultural values discussed in Section 4.6.1.6 such as songlines; creation/dreaming sites, sacred sites, ancestral beings; cultural obligations to care for Country; knowledge of Country/customary law and transfer of knowledge; connection to Country; Access to Country; kinship systems and totemic species, resource collection. Related intangible cultural heritage may include (for example) the transmission of cultural knowledge about whales and whale behaviour, including birthing areas, whale communication and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn, 2021). Inter-generational transmission of cultural knowledge (including songlines) relating to marine fauna may be impacted where changes results in reduced sightings (e.g., through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO, 2003). In the unlikely event of a hydrocarbon release, intangible cultural heritage values may be impacted. |
| Maritime heritage | There are several shipwrecks in the EMBA. It is unlikely contact would have any lasting impact on these sites, apart from a possible temporary reduction in aesthetic value for a period. |
| ***Protected / Significant Areas*** | |
| World Heritage and National Heritage | No impacts to World Heritage Areas will credibly occur. |
| Protected Areas | The EMBA overlaps several protected areas (refer to Sections 4.5.6). The environmental values and sensitivities of these protected areas are described in Section 4.5. The potential impacts to these values are described in the relevant sections of this table. |
| Key ecological features | The EMBA does not overlap any KEFs. No impacts to KEFs will credibly occur. |

### 8.3.4. Demonstration of ALARP

Given a worst-case vessel spill scenario represents a higher order risk, and consistent with the Demonstration of ALARP for higher order risks as described in Section 6.1.1, Woodside have undertaken an engineering risk assessment to evaluate alternate, additional, or improved controls according to their feasibility, reasonableness, and practicability to implement to further reduce the potential for risks associated with this event.

The ALARP process performed for this aspect is summarised in Table 8-10. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable.

A detailed environmental impact and risk assessment for spill response activities and detailed ALARP assessment including the evaluation of alternate, additional, or improved response controls for a worst-case vessel spill scenario is presented in the Minerva Field OPEP (Appendix E).

**Table 8-10: Marine Diesel Release – ALARP Summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Legislation, Codes and Standards*** | | | |
| MODU and project support vessel compliant with navigation safety requirements including the *Navigation Act 2012* and any subsequent Marine Orders (21 & 30), which specify:<br>▪ navigation (including lighting, compass/radar), bridge and communication equipment will comply with appropriate marine navigation and vessel safety requirements<br>▪ Automatic Identification System (AIS) is fitted and maintained in accordance with Regulation 19-1 of Chapter V of SOLAS<br>▪ crew performing vessel bridge-watch will be qualified in accordance with AMSA Marine Order Part 3: Seagoing Qualifications or certified training equivalent | Accept | Legislative requirements to be followed which reduces the risk of third-party vessel interactions due to ensuring safety requirements are fulfilled and other marine users are aware of the presence of the MODU and support vessels.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.1 |
| Marine Order 91 (marine pollution prevention – oil) 2014, requires Ship Oil Pollution Emergency Plan (SOPEP)/Spill Monitoring Programme Execution Plan | Accept | By ensuring a SOPEP/SMPEP is in place for the vessel, the likelihood of a spill entering the marine environment is reduced. Although no significant reduction in consequence could result, the overall risk is | PS 13.1 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| (SMPEP) (as appropriate to vessel class). | | reduced. Control is based on a legislative requirement and must be adopted.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | |
| Establishment of a 500 m safety exclusion zone around MODU/infrastructure removal vessel and communicated to marine users. | Accept | Control is based on legislative requirements and must be adopted; reduces likelihood of vessel collision with third parties. Third-party vessels must navigate the exclusions zone to reduce the risk. The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.2 |
| ***Eliminate*** | | | |
| Eliminate use of vessels. | Reject | Control not considered feasible. The use of vessels is required to conduct the petroleum activity. | Not applicable |
| The MODU/project vessel brought into port to refuel. | Reject | Control is not considered feasible and does not eliminate the fuel transfer risk.<br>It is not operationally practical to transit MODU/project vessel back to port for refuelling based on the frequency of the refuelling requirements and distance from the nearest suitable port (Portland, 122 km from Operational Area).<br>Eliminates the risk in the Operational Area, However, moves risk to another location. Therefore, no overall benefit.<br>Significant cost sacrifice due to schedule delay and vessel transit costs and day rates. Control grossly disproportionate to the benefit gained and therefore not adopted. | Not applicable |
| No refuelling of helicopter on MODU. | Reject | Control is not considered feasible given the distance of the Operational Area from the airports suitable for helicopter operations. Helicopter flights cannot be eliminated and may be required in emergency situations. | Not applicable |
| ***Substitute*** | | | |
| The MODU and project vessel will use marine diesel. No intermediate or heavy fuel oils will be used. | Accept | Marine diesel is a light fuel oil and is less persistent in the marine environment than intermediate or heavy fuel oils.<br>Limiting project vessels to marine diesel reduces the risk to the marine environment in the event of a spill.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 12.1 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Separate*** | | | |
| Support vessel is designated for standby during MODU based P&A activities to assist in third party vessel interactions. Standby vessel will undertake actions to prevent unplanned interactions with third party vessels such as:<br>▪ Maintaining 24-hour radio watch on designated radio channel(s)<br>▪ Performing continuous surveillance and warn MODU of any approaching vessels reaching the 500 m petroleum safety zone.<br>▪ When complying with COLREGS, approach any vessel attempting to transit through the 5500 m zone and contact vessel by all available means.<br>▪ Standby vessel will monitor and advise the MODU if:<br>▪ MODU navigation signals are defective.<br>▪ Visibility becomes restricted.<br>▪ Any buoys in the area are not holding position or are not working as expected. | Accept | Control provides a reduction in likelihood of a collision with a third-party vessel.<br>The control is standard industry practice and can be implemented with minimal cost. Support vessels are available routinely in the Operational Area during the petroleum activity to conduct standby duties as defined in the One Marine Charterers Instructions.<br>Benefits outweigh cost/sacrifice. | PS 12.2 |
| ***Engineering*** | | | |
| Bunkering equipment controls:<br>▪ All hoses that have a potential environmental risk following damage or failure shall be linked to the MODU's preventative maintenance system.<br>▪ All bulk transfer hoses shall be tested for integrity before use (tested in accordance with Original Equipment Manufacturer recommendations) and | Accept | Reduces the likelihood of a spill occurring. Although no significant reduction in consequence could result, the overall risk is reduced. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 13.2 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| recertified annually as a minimum.<br>▪ There shall be dry-break couplings and flotation on fuel hoses.<br>▪ There shall be an adequate number of appropriately stocked, located and maintained spill kits. | | | |
| Navigation Equipment | Accept | Navigation equipment such as lighting, radar, bridge and communication equipment will meet safety requirements as well as improve detection at sea for other marine users. Also ensures compliance with the *Navigation Act 2012*; International Convention of the Safety of Life at Sea (SOLAS); Marine Order Part 30: Prevention of Collisions, Issue 8; Marine Order 21, Issue 8 (Safety of Navigation and Emergency Procedures). | PS 12.3 |
| ***Administrate*** | | | |
| Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including:<br>▪ A completed PTW and/or Job Safety Assessment (JSA) shall be implemented for the hydrocarbon bunkering/refuelling operation.<br>▪ Visual monitoring of gauges, hoses, fittings and the sea surface during the operation.<br>▪ Hose checks prior to commencement.<br>▪ Bunkering/refuelling will commence in daylight hours. If the transfer is to continue into darkness, the JSA risk assessment must consider lighting and the ability to determine if a spill has occurred.<br>▪ Hydrocarbons shall not be transferred in marginal weather conditions | Accept | Reduces the likelihood of a spill occurring. Although no significant reduction in consequence could result, the overall risk is reduced. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 13.3 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| 24/7 bridge watch | Accept | Improves the ability to identify third-party vessels at risk of collision. | PS 12.4 |
| Training & Competency | Accept | Trained and competent bridge crew will ensure compliance with AMSA Marine Order Part 3: Seagoing Qualifications. | PS 12.5 |
| AHO notified of activity no less than four working weeks prior to undertaking the petroleum activity | Accept | Notification to AHO will enable them to generate navigation warnings.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.3 |
| Notify relevant fishing industry government departments, representative bodies and licence holders of activities prior to commencement and upon completion of activities. | Accept | Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.4 |
| Notify DoD at least five weeks prior to the scheduled activity commencement date | Accept | Notification was requested by DoD<br>during consultation. Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.5 |
| Notify AMSA JRCC of activities 24–48 hours of undertaking the petroleum activity | Accept | Communicating the activities to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 1.6 |
| Relevant persons requiring ongoing consultation regarding the physical presence of the MODU and project vessels during the activity shall be supplied information consistent with requirements identified during the relevant person consultation process. | Accept | Communicating the petroleum activity to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.<br>Benefits outweigh cost/sacrifice. Control is also Standard Practice. | PS 1.7 |
| Establish and maintain a publicly available interactive map which provides relevant persons with updated information on activities being | Accept | Interactive map provides additional alternative method for marine users to obtain information on the timing of activities, thereby reducing the likelihood. | PS 1.8 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| conducted as part of the Petroleum Activity. | | Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | |
| ***Pollution Control*** | | | |
| In the event of a spill, emergency response activities implemented in accordance with the OPEP. | Accept | Implementing the OPEP efficiently to deal with unplanned hydrocarbon spills will help to reduce impacts to the marine environment.<br>The control is feasible and standard practice. Costs associated with implementing response strategies vary dependant on nature and scale of spill event. Benefits outweigh any cost sacrifice. | PS 11.6 |
| Arrangements supporting the activities in the OPEP will be tested to ensure the OPEP can be implemented as planned. | Accept | Testing the OPEP activities would not reduce the likelihood, but response activities may reduce the consequence.<br>The control is feasible and standard practice. Moderate costs associated with conducting exercises for the purpose of testing arrangements. Benefits outweigh any cost sacrifice. | PS 11.7 |
| In the event of SIMOPS, risk assessment and implementation of controls prior to commencement in accordance with SIMOPS Plan. | Accept | While there is no planned SIMOPS, if required, a SIMOPS Plan would be implemented to account for appropriate risk assessment and implementation of relevant controls.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 11.6 |

#### 8.3.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 8-10) appropriate to the decision type (Decision Type A), that when implemented are considered to manage the risks and consequences from an unplanned hydrocarbon release (marine diesel) as a result of a vessel collision or incident during bunkering or refuelling activities to ALARP.

Woodside considers the control measures described above are appropriate to reduce the potential risks of a marine diesel hydrocarbon release. As no reasonable additional/alternative controls were identified that would future reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are therefore ALARP.

### 8.3.5. Demonstration of Acceptability

Given the adopted controls, the risk of a marine diesel hydrocarbon release will be reduced to a tolerable level. Further opportunities to reduce the risk have been investigated in Table 8-10.

The adopted controls are considered good oil-field practice/industry best practice. Woodside has considered information contained in recovery plans and threat abatement plans (Section 4.4.3). The environmental risks meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental risks are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- Precautionary principle: The unplanned hydrocarbon release risk, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect. The unplanned hydrocarbon release risk assessment was informed by industry-standard modelling, which includes the worst-case credible spill scenario, incorporates inherent uncertainty and is consistent with the precautionary principle.
- Inter-generational principle: The unplanned hydrocarbon release risk will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The unplanned hydrocarbon release risk will not impact upon biodiversity or ecological integrity in the long-term. The controls Woodside will implement reduce the risk of a MDO spill to ALARP.

During consultation, GLAWAC and EMAC requested that in the event of a hydrocarbon release they would like to be consulted at that time. Triggers to notify Traditional Owners who may be affected by a spill are captured in the OPEP (Appendix E).

Woodside considers the risk to be managed to a level that is acceptable.

## 8.3.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 12<br>No release of hydrocarbons to the marine environment due to a vessel collision during the petroleum activity. | C 1.1 (refer to Section 7.2.6) | PS 1.1 (refer to Section 7.2.6) | MC 1.1.1 (refer to Section 7.2.6) |
| | C 1.2 (refer to Section 7.2.6) | PS 1.2 (refer to Section 7.2.6) | MC 1.2.1 (refer to Section 7.2.6) |
| | C 1.3 (refer to Section 7.2.6) | PS 1.3 (refer to Section 7.2.6) | MC 1.3.1 (refer to Section 7.2.6) |
| | C 1.4 (refer to Section 7.2.6) | PS 1.4 (refer to Section 7.2.6) | MC 1.4.1 (refer to Section 7.2.6) |
| | C 1.5 (refer to Section 7.2.6) | PS 1.5 (refer to Section 7.2.6) | MC 1.5.1 (refer to Section 7.2.6) |
| | C 1.6 (refer to Section 7.2.6) | PS 1.6 (refer to Section 7.2.6) | MC 1.6.1 (refer to Section 7.2.6) |
| | C 1.7 (refer to Section 7.2.6) | PS 1.7 (refer to Section 7.2.6) | MC 1.7.1 (refer to Section 7.2.6) |
| | C 1.8 (refer to Section 7.2.6) | PS 1.8 (refer to Section 7.2.6) | MC 1.8.1 (refer to Section 7.2.6) |
| | C 12.1<br>The MODU and project vessels will use marine diesel. No intermediate or heavy fuel oils will be used. | PS 12.1<br>MODU and Project Vessels to operate on marine diesel during the petroleum activity; no intermediate or heavy fuel oils will be used. | MC 12.1.1<br>Records demonstrate MODU and project vessels are operating on marine diesel. |
| | C 12.2<br>Support vessel is designated for standby during MODU based P&A activities to assist in third part vessel interactions. Standby vessel will undertake actions to prevent unplanned interactions with third party vessels such as:<br>▪ Maintaining 24-hour radio watch on designated radio channel(s)<br>▪ Performing continuous surveillance and warn MODU of any approaching vessels reaching the 500 m petroleum safety zone.<br>▪ When complying with COLREGS, approach any vessel attempting to transit | PS 12.2<br>Define role of support vessels in maintaining petroleum safety zone, preventing unplanned third-party vessel interactions, monitoring the effectiveness of navigation controls (e.g., signals), and warning third-party vessels of navigation hazards. | MC 12.2.1<br>Records of non-conformance against controls maintained. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | through the 500 m zone and contact vessel by all available means.<br>▪ Standby vessel will monitor and advise the MODU if:<br>▪ MODU navigation signals are defective.<br>▪ Visibility becomes restricted.<br>▪ Any buoys in the area are not holding position or are not working as expected. | | |
| | C 12.3<br>Vessel navigation equipment | PS 12.3<br>Navigation equipment (including lighting, compass/radar), bridge and communication equipment will be compliant with appropriate marine navigation and vessel safety requirements. | MC 12.3.1<br>Completed Vessel Assurance Questionnaire for each vessel prior to entering field demonstrating compliance with relevant Marine Orders and confirming functioning navigation equipment. |
| | C 12.4<br>Maintain 24/7 bridge watch | PS 12.4<br>Vessels will maintain a 24/7 bridge watch during the activity. | MC 12.4.1<br>Records indicate the presence of a 24/7 bridge watch during the activity. |
| | C 12.5<br>Woodside vessel contracting procedures ensure trained and competent bridge crew are hired to complete the activity. | PS 12.5<br>Woodside vessel contracting procedures require vessel bridge crew comply with AMSA Marine Order Part 3: Seagoing Qualifications. | MC 12.5.1<br>Records indicate vessel bridge crew comply with AMSA Marine Order Part 3: Seagoing Qualifications. |
| | C 12.6<br>In the event of SIMOPS, risk assessment and implementation of controls prior to commencement in accordance with SIMOPS Plan. | PS 12.6<br>Risk assessment and implementation of controls implemented prior to commencement of SIMOPS in accordance with SIMOPS Plan. | MC 12.6<br>An approved SIMOPS Plan. |
| | C 11.6 (refer to Section 8.2.6) | PS 11.6 (refer to Section 8.2.6) | MC 11.6.1 (refer to Section 8.2.6) |
| | C 11.7 (refer to Section 8.2.6) | PS 11.7 (refer to Section 8.2.6) | MC 11.7.1 (refer to Section 8.2.6) |
| | | | MC 11.7.2 (refer to Section 8.2.6) |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 13<br>Undertake the petroleum activity in a manner that will prevent an unplanned release of hydrocarbons to the marine environment from bunkering and refuelling activities that results in a substantial change in water quality which may adversely impact on biodiversity, ecological integrity, social amenity or human health. | C 13.1<br>Marine Order 91 (marine pollution prevention – oil) 2014, requires Ship Oil Pollution Emergency Plan (SOPEP)/Spill Monitoring Programme Execution Plan (SMPEP) (as appropriate to vessel class). | PS 13.1<br>Appropriate initial responses prearranged and drilled in the event of a hydrocarbon spill, as appropriate to vessel class. | MC 13.1.1<br>Marine assurance records demonstrate compliance with Marine Order 91. |
| | C 13.2<br>Bunkering equipment controls:<br>• All hoses that have a potential environmental risk following damage or failure shall be linked to the MODU's preventative maintenance system.<br>• All bulk transfer hoses shall be tested for integrity before use (tested in accordance with Original Equipment Manufacturer recommendations) and recertified annually as a minimum.<br>• There shall be dry-break couplings and flotation on fuel hoses.<br>• There shall be an adequate number of appropriately stocked, located and maintained spill kits. | PS 13.2<br>Damaged equipment is replaced prior to failure.<br>All diesel transfer hoses to have dry break couplings and pressure rating suitable for intended use.<br>Adequate resources are available to allow implementation of SOPEP. | MC 13.2.1<br>Records confirm the MODU bunkering equipment is subject to systematic integrity checks.<br>MC 13.2.2<br>Records confirm presence of dry break of couplings and flotation on fuel hoses.<br>MC 13.2.3<br>Records demonstrate bunkering/refuelling undertaken in accordance with contractor bunkering procedures. |
| | C 13.3<br>Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including:<br>• A completed PTW and/or Job Safety Assessment (JSA) shall be implemented for the hydrocarbon bunkering/refuelling operation. | PS 13.3<br>Compliance with Contractor procedures for the management of bunkering/helicopter operations. | MC 13.3.1<br>Records demonstrate bunkering/refuelling undertaken in accordance with contractor bunkering procedures. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | • Visual monitoring of gauges, hoses, fittings and the sea surface during the operation.<br>• Hose checks prior to commencement.<br>• Bunkering/refuelling will commence in daylight hours. If the transfer is to continue into darkness, the JSA risk assessment must consider lighting and the ability to determine if a spill has occurred.<br>• Hydrocarbons shall not be transferred in marginal weather conditions | | |

# 8.4. Unplanned Spills of Chemicals and Hydrocarbons

## 8.4.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Minor spills and leaks of chemicals and hydrocarbons | Accidental discharge of drilling and plug and abandonment fluids to the marine environment during plug and abandonment activities or from MODU operations. | Localised and temporary reduction in water quality adjacent to the discharge and minor adverse toxicity effects to surface and water column biota. | 10 | 0.3 | 3 | Type A Lower Order Risk | Tolerable |
| | Minor spills and leaks of chemicals and hydrocarbons on the vessels from subsea equipment (such as ROVs) reaching the marine environment. | | 10 | 0.3 | 3 | Type A Lower Order Risk | Tolerable |

## 8.4.2. Source of Risk

The petroleum activity requires handling, use and transfer of hydrocarbons and chemicals on the MODU and project vessels and subsea at the well locations. During operations involving chemicals and hydrocarbon, there is the potential for an accidental release or loss of containment to occur that could result in minor chemical or hydrocarbon spills to the marine environment. A minor loss of containment of chemical or hydrocarbon can occur from the following:

- deck spills of stored hydrocarbon/chemicals or equipment
- failure of hydraulic hoses
- leaks from fluid lines, tanks and during wireline activities
- failures during bulk fluid transfers
- failure of the slip joint packer on the MODU releasing well fluids to the marine environment
- activation of the Emergency Disconnect Sequence

All chemicals selected for use that may be released or discharged to the marine environment during the petroleum activity are assessed as per Woodside Chemical Selection and Assessment (Section 3.12). This assessment process is used to demonstrate that the potential impacts of the chemicals that may be released are acceptable and ALARP.

### 8.4.2.1. Unplanned Deck Spills

Deck spills can result from spills from stored hydrocarbons/chemicals or equipment. Project vessels typically store hydrocarbon/chemicals in various volumes (20 L, 205 L; up to approximately 4,000–6,000 L). Storage

areas are typically set up with effective primary and secondary bunding to contain any deck spills. Releases from equipment are predominantly from the failure of hydraulic hoses, which can either be located within bunded areas or outside of bunded or deck areas (e.g., over water on cranes).

Minor leaks during P&A activities with a live well are described to include leaks such as:

- leaks from the lubricator, stuffing box and hose or fitting failure, which are expected to be less than 10 L (0.01 $m^3$)
- loss of containment – fluids – surface holding tanks
- back loading of raw slop fluids in an Intermediate Bulk Containers
- stuffing box leak / under pressure
- draining of lubricator contents
- excess grease / lubricant leaking from the grease injection head
- wind-blown lubricant dripping from cable / on deck
- lubricant used to lubricate hole.

Woodside's operational experience demonstrates that spills are most likely to originate from hydraulic hoses and have been less than 100 L, with an average volume <10 L.

#### 8.4.2.2. Unplanned Subsea Spills

Subsea spills can result from a loss of containment of fluids from subsea equipment including the BOP or ROVs. A review of these spills to the marine environment in the past 12 months showed subsea spills did not exceed approximately 26 L in Woodside's Global Wells and Seismic (GWS) Business Group.

The ROV hydraulic fluid is supplied through hoses containing approximately 20 L of fluid. Hydraulic lines to the ROV arms and other tooling may become caught resulting in minor leaks to the marine environment. Small volume hydraulic leaks may occur from equipment operating via hydraulic controls subsea (subsea control fluid). These include the diamond wire cutter, bolt tensioning equipment, ROV tooling etc.

#### 8.4.2.3. Spills and Leaks from Fluid Transfers

A support vessel will bulk transfer WBM, brine and other fluids required for P&A to the MODU, if and when required. During MODU operations, chemicals required for P&A (drill fluids, cementing fluids, brine) will be transferred and mixed in storage tanks prior to use and subsequently recirculated out of the wellbore after use (where they are potentially contaminated with residual wellbore fluids and hydrocarbons) and transferred to processing and treatment systems (well bleed off package, mud pits). There is potential leaks or small spills may occur due to incorrect line-ups or equipment failure when transferring fluids. Failure of a transfer hose or fittings during a transfer or backload, as a result of an integrity or fatigue issue, could result in a spill of fluids to either the bunded deck or into the marine environment.

The most likely spill volume of drill fluid is likely to be less than 0.2 $m^3$, based on the volume of the transfer hose and the immediate shutoff of the pumps by personnel involved in the bulk transfer process. However, the worst-case credible spill scenario could result in up to 8 $m^3$ of drill fluid being discharged. This scenario represents a complete failure of the bulk transfer hose combined with a failure to follow procedures, requiring transfer activities to be monitored, coupled with a failure to immediately shut off pumps (e.g., mud pumped through a failed transfer hose for a period of about five minutes).

#### 8.4.2.4. Well Fluids – Slip Joint Packer Failure

The slip joint packer enables compensation for the dynamic movement of the MODU (heave) in relation to the static location of the BOP. A partial or total failure of the slip joint packer could result in a loss of well fluids to the marine environment. The likely causes of this failure include a loss of pressure in the pneumatic (primary) system combined with loss of pressure in the back-up (hydraulic) system.

Sequential failure of both slip joint packers (pneumatic and hydraulic) would trigger the alarm and result in a loss of the volume of fluid above the slip joint (conservatively 1.5 $m^3$), plus the volume of fluid lost in the one minute (maximum) taken to shut down the pumps. At a flow rate of 3.8 $m^3$ per minute, this volume would equate to an additional 3.8 $m^3$. In total, it is expected that this failure would result in a loss of 5.3 $m^3$.

Failure of either of the slip joint packers at a rate not large enough to trigger the alarms could result in an undetected loss of 20 bbl (3 $m^3$) maximum, assuming a loss rate of 10 bbl/hr and that MODU personnel would likely walk past the moon pool at least every two hours.

#### 8.4.2.5. Drilling Fluids – Activation of the Emergency Disconnect Sequence

The EDS is an emergency system that provides a rapid means of shutting in the well (i.e., BOP closed) and disconnecting the MODU from the Lower Disconnect package of the WOCS/WORS or BOP. The EDS could be manually activated due to an identified threat to the safety of the MODU, including loss of MODU station keeping resulting from loss of multiple moorings, potential collision by a third-party vessel or a loss of well control.

During operations, activating the EDS could result in a subsurface release of a combination of WBM and solids at the seabed. The volume of material released depends on the water depth and, hence, the length of the riser (i.e., the entire riser volume would be lost), typically volumes could be between 150–165 $m^3$ depending on water depth.

## 8.4.3. Environmental Impact Assessment

#### 8.4.3.1. Water Quality

Fluids required for plug and abandonment (including weighted brine, water-based mud, cement and cementing additives) are made up of the components detailed in Section 3.10, including a variety of chemicals with low toxicity, incorporated into the selected drilling fluid system to meet specific technical requirements. If released to the marine environment, impacts would be a short-term, localised decrease in water quality. Any release would be confined to the open waters of the Operational Area that would not reach shorelines or protected areas. Components of the fluid would mix in the water column.

Minor leaks and spills of other chemicals including hydraulic fluid and typical operational oils and greases are expected to only occur in minor quantities (less than 20 L). Hydraulic oils behave similarly to marine diesel when spilled to the marine environment. These are medium oils of light to moderate viscosity. They have a relatively rapid spreading rate and will dissipate quickly in ocean conditions. Any impact is temporary, localised, minor, and restricted to the Operational Area.

The accidental discharge (spill/leak) of minor volumes of plug and abandonment chemicals, hydraulic fluid, and other hydrocarbon has the potential to result in a localised reduction in water quality and a minor potential for toxicity impacts to plankton and fish populations (surface and water column biota). Large, more mobile fauna are likely to be transient within the Operational Area and toxic impacts are unlikely to occur to these species. The potential impacts would most likely be highly localised and restricted to the immediate area in the footprint of the release.

Impacts from the release of well fluids from slip joint packer failure have been inferred from a loss of well containment (Section 0). This is considered to provide a highly conservative basis for assessing environmental impacts, given the nature and scale of the credible worst-case spill scenario resulting from a release of approximately 5 $m^3$ of fluids versus a loss of containment. The biological consequences of a release of well fluids on open water sensitive receptors relate to the potential for slight and temporary impacts to water quality, sediment quality and benthic habitats in the immediate vicinity of the release location.

## 8.4.4. Demonstration of ALARP

Given the routine nature of operations that may cause unplanned chemical and hydrocarbon spills and the localised, short-term nature of the impacts, the risk of unplanned spills of chemicals and hydrocarbons during the petroleum activity is considered a ‘Type A’ (lower order) risk (Section 6.1.1).

The ALARP process performed for this aspect is summarised in Table 8-11. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable.

**Table 8-11: Minor Spills of chemicals and hydrocarbons - ALARP summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Legislation, Codes and Standards*** | | | |
| Marine Order 91 (marine pollution prevention – oil) 2014, requires Ship Oil Pollution Emergency Plan (SOPEP)/Spill Monitoring Programme Execution Plan (SMPEP) (as appropriate to vessel class). | Accept | By ensuring a SOPEP/SMPEP is in place for the vessel, the likelihood of a spill entering the marine environment is reduced. Although no significant reduction in consequence could result, the overall risk is reduced. Control is based on a legislative requirement and must be adopted.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 13.1 |
| ***Engineering*** | | | |
| Where there is potential for loss of primary containment of oil and chemicals on the MODU, deck drainage must be collected via a closed drainage system (e.g., drill floor). | Accept | Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. No change in consequence would occur.<br>Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 14.1 |
| Project vessels have self-containing hydraulic oil drip tray management system. | Accept | Requirements for self-containing hydraulic oil drip tray management system would reduce the likelihood of contaminants being discharged to the marine environment. No change in consequence would occur.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 14.2 |
| Marine riser's telescopic joint to be:<br>▪ comprised of a minimum of two packers (one hydraulic and one pneumatic)<br>▪ pressure tested in accordance with manufacturers recommendations. | Accept | Reduces the likelihood of equipment failure leading to an unplanned release of drilling fluids. Although the consequence of an unplanned release would be reduced, the reduction in likelihood reduces the overall risk providing an overall environmental benefit.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 14.3 |
| Below-deck storage of all hydrocarbons and chemicals. | Reject | Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. The consequence is unchanged. | Not applicable |
| A reduction in the volumes of chemicals and hydrocarbons stored onboard the vessel. | Reject | Reduces the likelihood of a deck spill from entering the marine environment. The consequence is unchanged. | Not applicable |
| ***Separate*** | | | |
| Liquid chemical and fuel storage areas are bunded or | Accept | Implementation of procedures for chemical storage and handling on the MODU and | PS 14.4 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| secondarily contained when they are not being handled/moved temporarily. | | project vessels will reduce the consequence of impacts resulting from unplanned discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | |
| ***Administrate*** | | | |
| Fluids and additives intended or likely to be discharged to the marine environment will have an environmental assessment completed before use. | Accept | Reduces the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental acceptability (refer to Section 3). Planned discharges are required for safely executing activities; therefore, no reduction in likelihood can occur.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 8.5 |
| Critical hoses outside bunded areas (such as ROVs) are inspected and maintained as part of PMS | Accept | Maintenance and inspection completed as scheduled on PMS reduces the risk of leaks to the marine environment. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 14.5 |
| Contractor procedure for managing P&A fluids transfers onto, around and off the MODU, which requires:<br>▪ emergency shutdown systems for stopping losses of containment (e.g., burst hoses)<br>▪ break-away dry-break couplings for oil-based mud hoses<br>▪ transfer hoses to have floatation devised to allow detection of a leak<br>▪ the valve line-up will be checked prior to commencing mud transfers<br>▪ constant monitoring of the transfer process<br>▪ direct radio communications<br>▪ completed PTW and JSA showing contractor | Accept | Reduces the likelihood of an unplanned release occurring. Although no change in consequence would occur, the reduction in likelihood decreases the overall risk, providing environmental benefit.<br>Control is feasible and can be implemented with minimal cost. It is standard practice for Woodside to review contractor systems prior to performing activity. Benefits outweigh cost/sacrifice. | PS 14.6 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| procedures are implemented<br>▪ recording and verification of volumes moved to identify any losses<br>▪ mud pit dump valves locked closed when not in use for mud transfers and operated under a PTW. | | | |
| Check for the functionality of:<br>▪ mud tanks<br>▪ mud tank room<br>▪ transfer hoses<br>▪ SBM base fluid transfer lines and storage<br>▪ Well bleed off lines and storage tanks | Accept | Verifying functionality prior to use reduces the likelihood of a spill or leak occurring and reduces the potential consequences (by limiting volume released).<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 14.7 |
| Spill kits positioned in high-risk locations around the rig (near potential spill points such as transfer stations). | Accept | Spill kits would reduce the likelihood of a deck spill from entering the marine environment. The consequence is unchanged.<br>The control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 14.8 |

#### 8.4.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 8-11) that, when implemented, are considered to manage the risks of unplanned spills of chemicals or hydrocarbons during the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the risk of unplanned spills of chemicals and hydrocarbons during the petroleum activity. Additional control measures were identified in Table 8-11 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 8.4.5. Demonstration of Acceptability

Given the adopted controls, the risk of unplanned spills of chemicals and hydrocarbons will be reduced to a tolerable level. Further opportunities to reduce the risk have been investigated in Table 8-11.

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding the risk of unplanned spills of chemicals and hydrocarbons have been raised by relevant stakeholders. Woodside has considered information contained in recovery plans and threat abatement plans (Section 4.4.3). The environmental risks meet the Woodside environmental risk acceptability criteria (Section 6.3).

The environmental risks are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.

- Precautionary principle: The risk of unplanned spills of chemicals and hydrocarbons is well understood, as are measures to prevent unplanned spills. The receiving environment is well understood.
- Inter-generational principle: The risk of unplanned spills of chemicals and hydrocarbons will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The risk of unplanned spills of chemicals and hydrocarbons will not impact upon biodiversity or ecological integrity in the long-term.

Woodside considers the risk to be managed to an acceptable level.

## 8.4.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 14<br>No unplanned release of hazardous chemicals or hydrocarbon to the marine environment greater than a Severity Level 2[26] during the petroleum activity. | C 13.1 (refer to Section 8.3.6) | PS 13.1 (refer to Section 8.3.6) | MC 13.1 (refer to Section 8.3.6) |
| | C 14.1<br>MODU has a functioning closed drainage system to contain any loss of primary containment of oil and chemicals on the deck. | PS 14.1<br>MODU has a functional closed drains system to contain contaminated deck drainage. | MC 14.1.1<br>Records demonstrate that MODU has a functional closed drains system to contain contaminated deck drainage. |
| | C 14.2<br>Project vessels have self-containing hydraulic oil drip tray management system. | PS 14.2<br>Project vessels have self-contained hydraulic oil drip tray management system in place in to contain hydraulic oil leaks. | MC 14.2.1<br>Environmental inspection records demonstrate MODU and PIV are equipped with self-containing hydraulic oil drip tray management system. |
| | C 14.3<br>Marine riser's telescopic joint to be:<br>▪ comprised of a minimum of two packers (one hydraulic and one pneumatic)<br>▪ pressure tested in accordance with manufacturers recommendations. | PS 14.3<br>MODU's joint packer designed and maintained to reduce hydrocarbons discharged to the environment. | MC 14.3.1<br>Records demonstrate that MODU's joint packer is compliant. |
| | C 14.4<br>Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily. | PS 14.4<br>Failure of primary containment in storage areas does not result in loss to the marine environment. | MC 14.4.1<br>Records confirms all liquid chemicals and fuel are stored in bunded/secondarily contained areas when not being handled/moved temporarily. |
| | C 8.5 (refer to Section 7.7.6) | PS 8.5 (refer to Section 7.7.6) | MC 8.1.1 (refer to Section 7.7.6) |

[26] Defined as 'Measurable but limited impact (< 1 year) on marine environment, limited community impact (< 1 month)'

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | C 14.5<br>Critical hoses outside bunded areas (such as ROVs) are inspected and maintained as part of PMS. | PS 14.5<br>Critical hoses outside bunded areas (such as ROVs) are identified and regularly inspected, maintained, and replaced as part of the PMS. | MC 14.5.1<br>Records in the PMS demonstrate inspections of critical hoses comply with equipment specifications. |
| | C 14.6<br>Contractor procedure for managing P&A fluids transfers onto, around and off the MODU, which requires:<br>▪ emergency shutdown systems for stopping losses of containment (e.g. burst hoses)<br>▪ break-away dry-break couplings for oil-based mud hoses<br>▪ transfer hoses to have floatation devised to allow detection of a leak<br>▪ the valve line-up will be checked prior to commencing mud transfers<br>▪ constant monitoring of the transfer process<br>▪ direct radio communications<br>▪ completed PTW and JSA showing contractor procedures are implemented<br>▪ recording and verification of volumes moved to identify any losses<br>▪ mud pit dump valves locked closed when not in use for mud transfers and operated under a PTW. | PS 14.6<br>Compliance with Contractor procedures to limit accidental loss to the marine environment. | MC 14.6.1<br>Records demonstrate fluid transfers are performed in accordance with the applicable contractor procedures. |
| | C 14.7<br>Check for the functionality of:<br>▪ mud tanks | PS 14.7<br>Functionality checks on mud handling equipment prevents unacceptable use or | MC 14.7.1<br>Records demonstrate the presence and functionality of the specified equipment. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | ▪ mud tank room<br>▪ transfer hoses<br>▪ SBM base fluid transfer lines and storage<br>▪ well bleed off lines and storage tanks | discharge of SBM/base oil and residual hydrocarbon during well P&A. | |
| | C 14.8<br>Spill kits positioned in high-risk locations around the rig (near potential spill points such as transfer stations). | PS 14.8<br>Spill kits to be available for use to clean up deck spills. | MC 14.8.1<br>Records confirms that spill kits are present, maintained, and suitably stocked. |

# 8.5. Loss of Solid Hazardous and Non-Hazardous Waste

## 8.5.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Loss of solid hazardous and non-hazardous wastes | Accidental loss of waste (hazardous and non-hazardous) to the marine environment | Localised decline in water quality, toxic effects to marine fauna and potential injury to fauna. | 10 | 0.3 | 3 | Type A<br>Low Order Impact | Tolerable |
| | Dropped objects resulting in disturbance to benthic habitats | Disturbance of benthic habitat and associated communities. | 10 | 0.3 | 3 | Type A<br>Low Order Impact | Tolerable |

## 8.5.2. Source of Risk

### 8.5.2.1. Solid Wastes

The MODU and project vessels will generate a variety of solid wastes, including domestic and industrial wastes. These include aluminium cans, bottles, paper and cardboard, scrap steel, chemical containers, batteries, and medical wastes.

Waste is segregated on-board the MODU and project vessels and stored in designated waste containers in accordance with the vessel specific waste management plan. Wastes are segregated into the categories of:

- non-hazardous waste (or general waste)
- hazardous waste
- recyclables (further segregation is conducted in line with practices at existing Woodside operations in the region).

There is the potential for solid wastes to be accidentally lost overboard to the marine environment, particularly during adverse weather events and back loading activities and due to incorrect waste storage. Waste items lost overboard are typically small wind-blown items such as plastic containers and cardboard.

### 8.5.2.2. Dropped Objects

There is the potential for objects to be dropped overboard from the MODU or project vessels to the marine environment. Small items dropped may include personal protective gear (such as glasses, gloves, hard hats) and small tools (such as spanners). There is also potential for larger equipment to be dropped during the petroleum activity, particularly during recovery of the well infrastructure from the seabed. If well infrastructure is dropped during the recovery activities, attempts will be made to locate and recover the lost equipment. Therefore, these impacts are expected to be temporary in nature. The spatial extent in which dropped objects can occur is restricted to the Operational Area

The handling and storage of solid materials and waste on-board the MODU and vessels has the potential for accidental overboard release. In the normal course of operations, solid waste will be stored on the vessel until it is transported via port facilities for appropriate disposal at licensed on shore facilities. However, accidental releases to the marine environment are a possibility, especially in rough ocean conditions and high winds, when items have the potential to roll off or be blown off the deck, if not appropriately stored or secured.

General non-hazardous waste includes general domestic and galley waste and recyclables such as scrap materials, cardboard packaging, wood, paper, and empty containers. Volumes of non-hazardous waste generated on the vessels are generally low. Hazardous wastes are defined those wastes that are or contain ingredients harmful to health or the environment. Hazardous wastes likely to be generated on-board the vessel includes oil contaminated materials (e.g., sorbents, filters, and rags), chemical containers and batteries, medical wastes, paints, and aerosol cans. The volumes of hazardous wastes generated are relatively small.

Solid objects/ equipment has the potential to be accidentally released overboard from manual handling errors or unsecure/ unbalance loads during lifts. All non-buoyant solid waste material or dropped objects/ equipment are expected to remain within the Operational Area as they sink through the water column and settle on the seabed. Buoyant waste material lost overboard could potentially be carried by ocean currents beyond the Operational Area.

## 8.5.3. Environmental Impact Assessment

### 8.5.3.1. Marine Fauna

The potential impacts of solid wastes accidentally discharged to the marine environment include direct pollution and contamination of the environment and secondary impacts relating to potential contact of marine fauna with wastes, resulting in entanglement or ingestion and leading to injury and death of individual animals. The temporary or permanent loss of waste materials into the marine environment is not likely to have a significant environmental impact, based on the location of the Operational Area, the types, size, and frequency of wastes that could occur, and species present.

Hazardous solid wastes such as paint cans, oily rags, etc., can cause localised contamination of the water through a release of toxins and chemicals. Given the likely small volumes of any unplanned solid waste discharge, and the occasional nature of the event, these would result in temporary and highly localised changes to the water quality.

The unplanned discharge of solid wastes can result in mortality to fauna, either through contamination or physical injury depending on the nature of the waste. Marine fauna, including fish, seabirds and shorebirds, marine mammals and marine reptiles may be impacted through ingestion or entanglement of waste or through exposure to toxic chemicals. Ingestion or entanglement of marine fauna has the potential for physical harm which may limit feeding/foraging behaviours and thus can result in mortalities. Injury and fatality to vertebrate marine life caused by ingestion of, or entanglement in, harmful marine debris was listed as a key threatening process under the EPBC Act in August 2003 (Commonwealth of Australia, 2018). Impacts to species including fish, birds, marine mammals, and marine reptiles from the unplanned discharge of solid waste is unlikely given low occurrence of unplanned discharges and the location of the activities at significant distance from sensitive habitats. Significant impacts are unlikely to occur at an individual level and will not occur at a population level, nor result in the decrease of the quality of the habitat such that the extent of these species is likely to decline.

The temporary or permanent loss of waste materials into the marine environment will have no lasting effect on any species or water quality, based on the types, size and frequency of wastes that could occur.

### 8.5.3.2. Benthic Habitats

In the unlikely event of loss of an object being dropped to the marine environment (including loss of larger objects such as well infrastructure), potential impacts would be limited to localised physical impacts on benthic communities over the footprint of the lost object. In most cases, objects will be able to be recovered and therefore these impacts will also be temporary in nature. Attempts will be made to locate and recover any well infrastructure accidentally dropped during the petroleum activity. Physical impacts from dropped objects are anticipated to be localised and minor and be associated with sediment burrowing infauna and surface epifauna invertebrates, particularly filter feeders, inhabiting the seabed. Any elevated turbidity would be very localised and temporary and is therefore not expected to have any significant impact to environment receptors, such as filter feeders. Lifting of well infrastructure would only occur after successful permanent plugging of a well. A loss of well containment from a dropped infrastructure impacting a well is not credible.

The temporary or permanent loss of dropped objects into the marine environment is likely to result in a localised impact only, as the benthic communities associated with the Operational Area are of low sensitivity and are

broadly represented throughout the Otway Basin. Given the nature and scale of risks and consequences from dropped objects, no lasting effect is expected to seabed sensitivities associated with the Operational Area. Further, considering the types, size, and frequency of dropped objects that could occur, it is unlikely a dropped object would have a significant impact on any benthic community.

#### 8.5.3.3. Species Recovery Plans and Threat Abatement Plans

Woodside has considered information contained in relevant recovery plans, threat abatement plans, and conservation advice for marine fauna that identify marine debris as a threat (Section 4.4.3).

### 8.5.4. Demonstration of ALARP

Given the routine nature of lifting and transfer operations aboard the vessels, the potential for an unplanned discharge of solid objects during the petroleum activity is considered a 'Type A' (lower order) risk based upon the Decision Context described in Section 6.1.1 of this EP.

The ALARP process performed for this aspect is summarised in Table 8-12. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable. The result of this ALARP assessment contributes to the overall acceptability of the impact or risk.

**Table 8-12: Loss of solid hazardous and non-hazardous waste - ALARP summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Administrate*** | | | |
| Marine Order 95 – Pollution prevention – Garbage (as appropriate to vessel class) which requires putrescible waste and food scraps are passed through a macerator so that it is capable of passing through a screen with no opening wider than 25 mm. | Accept | Controls based on legislative requirements must be accepted. Reduces probability of garbage being discharged to sea. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 8.2 |
| Woodside Drilling and Completions waste arrangements for MODU and project support vessels, which require:<br>▪ dedicated space for waste segregation bins and skips on the MODU/project support vessels<br>▪ records of all waste to be disposed, treated or recycled<br>▪ waste streams handled and managed according to their hazard and recyclability class<br>▪ all non-putrescible waste (excludes all food, grey water or sewage waste) to | Accept | Control reduces the likelihood of an unplanned release of solid hazardous or non-hazardous waste to the marine environment. The consequence remains unchanged.<br>Control is considered standard practice and can be implemented at minimal cost. Environmental benefit outweighs cost sacrifice. | PS 15.1 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| be transported disposed of onshore. | | | |
| MODU and project vessels' work procedures implemented for lifts, bulk transfers and cargo loading, which require:<br>▪ Security of loads shall be checked before commencing lifts.<br>▪ Loads shall be covered if there is a risk of loss of loose materials.<br>▪ Lifting operations shall be conducted using the PTW and JSA systems to manage the specific risks of that lift, including consideration of weather and sea state. | Accept | Reduces the likelihood of an unplanned release. Lifting, bulk transfer and cargo loading procedures will ensure lifts are performed in a safe manner and reduce likelihood of a dropped object event.<br>Control is considered standard practice and can be implemented at minimal cost. Environmental benefit outweighs cost sacrifice. | PS 15.2 |
| MODU inductions include control measures and training for crew in dropped object prevention. | Accept | By ensuring crew are appropriately trained in dropped object prevention, the likelihood of a dropped object event is reduced.<br>Control is considered standard practice and can be implemented at minimal cost. Environmental benefit outweighs cost sacrifice. | PS 15.3 |
| ROV, crane or support vessel may be used to attempt recovery of solid wastes or equipment lost overboard.<br>Where safe and practicable for this activity will consider:<br>▪ risk to personnel to retrieve object<br>▪ whether the location of the object is in recoverable water depths<br>▪ object's proximity to subsea infrastructure<br>▪ ability to recover the object (i.e. nature of object, lifting equipment or, ROV availability and suitable weather).<br>Any material dropped equipment that remains in the title will undergo an impact assessment. | Accept | Potentially reduces consequence by recovering dropped object/waste from the marine environment. | PS 15.4 |

#### 8.5.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 8-12) that when implemented are considered to manage the potential risks loss of solid hazardous and non-hazardous wastes (including dropped objects) to ALARP.

Woodside considers the control measures described above are appropriate to reduce the risks of loss of solid hazardous and non-hazardous wastes (including dropped objects). Additional reasonable control measures were identified in Table 8-12 to further reduce impacts but were rejected since the associated cost or sacrifice was grossly disproportionate to any benefit. The impacts are therefore considered reduced to ALARP.

### 8.5.5. Demonstration of Acceptability

Given the adopted controls, the risk of loss of solid waste (including dropped objects) will be reduced to a tolerable level. Further opportunities to reduce the risk have been investigated in Table 8-12.

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding the risk of loss of solid waste (including dropped objects) have been raised by relevant stakeholders. Woodside has considered information contained in recovery plans and threat abatement plans (Section 4.4.3), including the *Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans* (Commonwealth of Australia, 2018). The environmental risks meet the Woodside environmental risk acceptability criteria (Section 6.3).

The environmental risks are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- Precautionary principle: The risk of loss of solid waste (including dropped objects) is well understood, as are measures to prevent unplanned spills. The receiving environment is well understood.
- Inter-generational principle: The risk of loss of solid waste (including dropped objects) will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The risk of loss of solid waste (including dropped objects) will not impact upon biodiversity or ecological integrity in the long-term.

Woodside considers the risk to be managed to an acceptable level.

## 8.5.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 15<br>No unplanned releases of solid hazardous or non-hazardous waste or incidents of dropped objects to the marine environment greater than a Severity Level 1[27] during the petroleum activity. | C 8.2 (refer to Section 7.7.6) | PS 8.2 (refer to Section 7.7.6) | MC 8.2.1 (refer to Section 7.7.6) |
| | C 15.1<br>Drilling and Completions waste arrangements for MODU and project support vessels, which require:<br>▪ dedicated space for waste segregation bins and skips on the MODU/project support vessels<br>▪ records of all waste to be disposed, treated or recycled<br>▪ waste streams handled and managed according to their hazard and recyclability class<br>▪ all non-putrescible waste (excludes all food, grey water or sewage waste) to be transported disposed of onshore. | PS 15.1<br>Hazardous and non-hazardous waste will be managed in accordance with the Drilling and Completions waste arrangements. | MC 15.1.1<br>Records demonstrate compliance against Drilling and Completions waste arrangements. |
| | C 15.2<br>MODU work procedures implemented for lifts, bulk transfers and cargo loading, which require:<br>▪ Security of loads shall be checked before commencing lifts.<br>▪ Loads shall be covered if there is a risk of loss of loose materials.<br>▪ Lifting operations shall be conducted using the PTW and JSA systems to manage the | PS 15.2<br>All lifts conducted in accordance with applicable MODU work procedures to limit potential for dropped objects. | MC 15.2.1<br>Records show lifts conducted in accordance with the applicable MODU work procedures. |

[27] Defined as 'Measurable but limited impact (< 1 year) on marine environment, limited community impact (< 1 month)'

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | specific risks of that lift, including consideration of weather and sea state. | | |
| | C 15.3<br>MODU inductions include control measures and training for crew in dropped object prevention. | PS 15.3<br>MODU crews aware of requirements for dropped object prevention. | MC 15.3.1<br>Records show dropped object prevention training is provided to the MODU. |
| | C 15.4<br>ROV, crane or support vessel may be used to attempt recovery of solid wastes or equipment lost overboard.<br>Where safe and practicable for this activity will consider:<br>▪ risk to personnel to retrieve object<br>▪ whether the location of the object is in recoverable water depths<br>▪ object's proximity to subsea infrastructure<br>▪ ability to recover the object (i.e. nature of object, lifting equipment or, ROV availability and suitable weather).<br>Any material dropped equipment that remain in the title will undergo an impact assessment. | PS 15.4<br>Any solid waste / equipment dropped to the marine environment will be recovered where safe and practicable to do so.<br>Where retrieval is not practicable and / or safe, material equipment (property) that are lost to the marine environment will undergo an impact assessment and will be added to the inventory for the title. | MC 15.4.1<br>Records detail the recovery attempt consideration and status of any waste /equipment lost to marine environment.<br>MC 15.4.2<br>Incident reporting records demonstrate outcomes of the safe and practicable evaluation, including an impact assessment for material items lost to the marine environment.<br>MC 15.4.3<br>Records demonstrate that material equipment left in title are added to the inventory. |

# 8.6. Marine Fauna Interaction

## 8.6.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Interaction with marine fauna | Accidental collision between project vessel and marine fauna within the Operational Area. | Potential injury to or death of protected marine fauna species. | 30 | 0.1 | 3 | Type A<br>Low Order Impact | Tolerable |

## 8.6.2. Source of Risk

Movements of the project vessels in and around the Operational Area undertaking the petroleum activity may present a potential hazard to slow-moving marine megafauna (cetaceans, marine turtles, or whale sharks). Vessel movements can result in collisions between the vessel (hull and propellers) and marine fauna, potentially resulting in superficial injury, serious injury that may affect life functions (e.g., movement and reproduction) and mortality. The factors that contribute to the frequency and severity of impacts due to collisions vary greatly due to vessel type, vessel operation (specific activity, speed), physical environment (e.g., water depth), the type of animal potentially present and their behaviours.

Project vessels used during the petroleum activity may include anchor handling tug supply vessels, and general offshore support vessels. Project vessels will be stationary or moving at low speeds during the plug and abandonment activities. Project vessels will be used for preparatory activities, well removal activities (if not conducted by the MODU) and during MODU-based plug and abandonment to transport equipment and materials between the MODU and port. One offshore support vessel will remain on standby duties, within the Operational Area during the MODU based campaign. Support vessels typically move at low speed on main engines when not alongside the MODU.

The risk period is restricted to the duration that a vessel and/or MODU is on location in the Operational Area which is expected to be intermittently over approximately 45–60 days but potentially up to 160 days.

## 8.6.3. Environmental Impact Assessment

Vessel collisions have contributed to the mortality of marine fauna (Hazel and Gyuris, 2006; Hazel et al., 2007, Laist et al., 2001; Jensen and Silber, 2003). For both whales and turtles, the risk of lethal collision is a function of abundance of animals in the Operational Area, probability of a collision, and the consequence of that collision (i.e., no injury, injury, mortality).

### 8.6.3.1. Cetaceans

The likelihood of vessel-whale collision being lethal is influenced by vessel speed. The risk of a collision causing mortality of the whale increases as the vessel speed increases (Jensen and Silber, 2004; Laist et al., 2001). Vanderlaan and Taggart (2007) found that the chance of lethal injury to a large whale because of a vessel strike declines from 80% at 15 knots to about 20% at 8.6 knots.

The project vessels will be typically either stationary or moving slowly in the Operational Area; hence, the chance of a vessel-whale collision resulting in lethal outcome within these waters is much reduced. Vanderlaan and Taggart (2007) estimated the risk is less than 10% at a speed of four knots. Vessel-whale collisions at this speed are uncommon and, based on reported data contained in the United States of America National Ocean

and Atmospheric Administration database (Jensen and Silber, 2004), there are only two known instances of collisions when the vessel was travelling at less than six knots, both from whale-watching vessels that were deliberately placed among whales.

The reaction of whales to the approach of a vessel is quite variable. Some species remain motionless when in the vicinity of a vessel, while others are known to be curious and often approach vessels that have stopped or are slow-moving, although they generally do not approach, and sometimes avoid, faster moving vessels (Richardson et al., 1995). Species may also show avoidance to vessel noise as the vessel approaches (Section 7.5).

Four listed threatened and migratory species of cetacean were identified as potentially occurring in or having habitat in the Operational Area: the sei whale, blue whale, fin whale, and southern right (Table 4-3). The Operational Area intercepts a two BIAs: a southern right whale migration BIA and a pygmy blue whale foraging BIA (Table 4-6). Southern right whales are expected to be present in the region between May and September therefore there is a risk of collision between vessels and southern right whales. Pygmy blue whales are seasonally present in the region between January and March, which coincides with higher productivity in the water column due to the Bonney Upwelling. The Bonney Upwelling, and most observations of pygmy blue whales, occur to the west of the Operational Area. However, blue whales have been observed in proximity to the Operational Area and hence may be present in the Operational Area, particularly between January and March.

The worst-case consequence from a vessel strike would be the fatality of a single EPBC Act-listed individual species. However, as they would represent an individual within the population, it is not expected to result in a long-term threat to the population. Given the slow speed and relatively short duration of vessel activities in the Operational Area, a collision between a vessel and a cetacean is unlikely. The worst-case consequence is a measurable, but small, decrease in the cetacean population, which would not result in changes to ecosystem function or risk the ongoing recovery of cetacean populations.

#### 8.6.3.2. Marine Turtles

Studies have shown that turtles are less likely to flee from a fast-moving vessel than from a slow-moving vessel (Hazel et al., 2007), presumably because of poor hearing and visual senses. It is reasonable to assume that the higher the speed of collision, the greater the risk of mortality, but contact with the propeller would be lethal at almost all speeds. The *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017) identifies boat strike as a threat to marine turtles, particularly in areas where turtles occur in high density.

Only one species of turtle is reasonably expected to occur in the Operational Area – the leatherback turtle. There are no BIAs or habitat critical for the survival of leatherback turtles in the Operational Area. Leatherback turtles would only occur infrequently and in low numbers (i.e., individual turtles) in the Operational Area. Given the nature of vessel movements undertaking the petroleum activity in the Operational Area and the low number of leatherback turtles, collisions between vessels and turtles are not expected to occur.

#### 8.6.3.3. Species Recovery Plans and Approved Conservation Advice

Woodside has considered information contained in relevant recovery plans and approved conservation advice for cetaceans and marine turtles that identify vessel strike as a threat (Table 4-5).

Woodside has evaluated the impacts and risks associated with vessel strike and vessel disturbance. Woodside considers the proposed activity is not inconsistent with:

- National Strategy for Reducing Vessel Strike on Cetaceans and Other Marine Megafauna (Commonwealth of Australia, 2017)
- Recovery Plan for Marine Turtles in Australia 2017–2027 (Commonwealth of Australia, 2017)
- Conservation Management Plan for the Blue Whale (Commonwealth of Australia, 2015)
- Conservation Management Plan for the Southern Right Whale (Commonwealth of Australia, 2012)

The environmental risk assessment of vessel collisions with marine fauna aligns with the conservation objectives of the publications listed above. Controls have been adopted to manage the risk to a level that is acceptable and ALARP.

#### 8.6.3.4. Cultural Features and Heritage Values

Through consultation and review of available literature (Section 4.6.1.5), Woodside understands that marine fauna that may be affected by a collision with a project vessel, such as cetaceans, are culturally important to Traditional Custodians. Traditional Custodians value these species both tangibly as well intangibly as they can be considered a resource or linked to songlines and dreaming stories. Traditional Custodians also have connection to many marine species through kinship and totemic systems; an individual may have obligation to care for a species to which they are kin. Traditional Custodians may also have a cultural obligation to care for the environmental values of Sea Country.

For example, activities that impact turtle populations and their marine environment may have an indirect impact on some Indigenous communities if they deplete hunting areas and threaten local food security (Delisle et al., 2018).

Related intangible cultural heritage may include the transmission of cultural knowledge about whales and whale behaviour, including birthing areas, whale communication and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn, 2021). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes results in reduced sightings (e.g., through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO, 2003).

As described in the environmental impact assessment, potential impacts to marine fauna are predicted to be at an individual level, which are not considered to be ecologically significant at a population level. Impacts are not expected to occur to ecologically significant proportions of the populations of the species, nor result in a decrease of the quality of the habitat such that the extent of these species is likely to decline. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

### 8.6.4. Demonstration of ALARP

The risk of interactions with marine fauna (i.e., collisions between vessels and marine fauna) for the duration of the petroleum activity is considered a 'Type A' (lower order) impact based upon the decision context described in Section 6.1.1.

The ALARP process performed for the environmental aspect is summarised in Table 8-13. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable.

**Table 8-13: Marine fauna interaction – ALARP summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Administrate*** | | | |
| Compliance with EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.05 and 8.06) Interacting with cetaceans. | Accept | Reduces interaction risk to cetaceans (modified to include turtles and whale sharks). Controls based on legislative requirements must be accepted. Control is feasible, standard practice with minimal cost. | PS 5.2 |
| Vary the timing of the petroleum activity to avoid peak periods when pygmy blue whales and southern right whales occur in the region. | Reject | Woodside intends to avoid working during the peak seasonal presence by undertaking works in Q1-Q2 where practicable. The availability of the MODU and the requirements of General Direction 831 constrains the timing of the activity to this period. | Not applicable |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | The control is not feasible | |
| Limit vessel speeds to 6 knots or less in the Operational Area (excluding emergencies) during seasonal peaks in pygmy blue whale and southern right whale abundance. | Accept | Limiting the vessel speed during peaks in whale abundance reduces the likelihood and consequence of collisions. | PS 5.6 |
| Two dedicated Marine Fauna Observers (MFOs) to be stationed aboard MODU and/or vessel(s) | Accept | Provides reliable detection control for large marine fauna in proximity to the vessel. | PS 5.9.1, PS 5.9.2, and PS 5.9.3 |

#### 8.6.4.1. ALARP Demonstration

The risk assessment and evaluation has identified a range of controls (Table 8-13) that, when implemented, are considered to manage the risk of interactions with marine fauna during the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the risk of interactions with marine fauna during the petroleum activity. Additional control measures were identified in Table 8-13 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 8.6.5. Demonstration of Acceptability

Given the adopted controls, the marine fauna interaction risk will be reduced to a tolerable level. Further opportunities to reduce the risk have been investigated in Table 8-13.

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding marine fauna interaction risks have been raised by relevant stakeholders. Woodside has considered information contained in recovery plans and threat abatement plans (Section 4.4.3). The environmental risks meet the Woodside environmental risk acceptability criteria (Section 6.3). The environmental risks are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- Precautionary principle: The marine fauna interactions risk, and its potential impacts, are well understood, and there is no risk of serious or irreversible environmental damage from this aspect.
- Inter-generational principle: The marine fauna interactions risk will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The marine fauna interactions risk will not impact upon biodiversity or ecological integrity in the long-term.

GMTOAC and BLCAC identified whales as a cultural value during consultation (Appendix F). Woodside provided additional information on how whales have been considered while developing environmental management measures for the petroleum activity. Given impacts on a population level are not expected to occur, cultural values and intangible cultural heritage associated with these species are expected to be maintained. Woodside considers the risk to be managed to an acceptable level.

### 8.6.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 16<br>No vessel strikes with protected marine fauna (whales, sharks, and turtles) during the petroleum activity | C 5.2 (refer to Section 7.5.6) | PS 5.2 (refer to Section 7.5.6) | MC 5.2.1 (refer to Section 7.5.6) |
| | C 5.6 (refer to Section 7.5.6) | PS 5.6 (refer to Section 7.5.6) | MC 5.6.1 (refer to Section 7.5.6) |
| | C 5.9 (refer to Section 7.5.6) | PS 5.9.1 (refer to Section 7.5.6) | MC 5.9.1 (refer to Section 7.5.6) |
| | | PS 5.9.2 (refer to Section 7.5.6) | |
| | | PS 5.9.3 (refer to Section 7.5.6) | |

# 8.7. Introduction of Invasive Marine Species

## 8.7.1. Summary of Risk Assessment and Evaluation

| Aspect | Source of Risk | Potential Impact | Severity Factor | Likelihood Factor | Residual Risk | Decision Context | Acceptability |
|---|---|---|---|---|---|---|---|
| Invasive marine species | Movement of MODU and project vessels and immersible equipment from known high invasive marine species risk areas. | Introduction of invasive marine species to areas, leading to impact to native species. | 100 | 0.03 | 3 | Type A<br>Low Order Impact | Tolerable |

## 8.7.2. Source of Risk

The MODU and project vessels have the potential to introduce Invasive Marine Species (IMS) through:

- discharges of vessel ballast water containing IMS
- translocation of species through biofouling of vessel hull or niches (such as sea chests, bilges or strainers)
- translocation of species on submerged equipment.

Most IMS require hard substrate in the photic zone; hence, IMS typically require shallow waters to become established. Highly disturbed, shallow-water environments such as shallow coastal waters, ports and marinas are more susceptible to IMS colonisation, whereas IMS are generally unable to successfully establish in deep-water ecosystems and open-water environments. The petroleum activity will occur in waters approximately 50 m deep at the shallowest point. Unconsolidated sandy sediments are the most common benthic habitat type in the region, which is not conducive for many IMS.

Should a project vessel be mobilised from international waters, there is the potential for transferring IMS from international waters into the Operational Area and to Australia if the vessel is required to sail to a port. All vessels entering Australian waters are subject to IMS risk management requirements. Woodside applies additional IMS risk management requirements for all vessels undertaking the petroleum activity.

### 8.7.2.1. Ballast Water

Vessels manage ballast water in accordance with International Maritime Organisation (IMO) International Convention for the Control and Management of Ships' Ballast Water and Sediments Convention (the BWM Convention), IMO Guidelines, the mandatory *Australian Ballast Water Management Requirements* (Department of Agriculture, Water, and the Environment, 2020) are enforced under the Commonwealth *Biosecurity Act 2015* and associated local measures intended to minimise the risk of transplanting harmful aquatic organisms and pathogens from ships' ballast water and associated sediments, while maintaining ship safety.

Vessels arriving from overseas or intending to discharge internationally sourced trim or ballast water within Australian waters, are required to have undertaken a ballast water exchange as per the *Australian Ballast Water Management Requirements* (Department of Agriculture, Water, and the Environment, 2020). The requirements align with the BWM Convention:

- All vessels must carry a valid Ballast Water Management Plan and valid Ballast Water Management Certificate, as appropriate to vessel class.

- Vessels with a Ballast Water Management System should also carry a Type Approval Certificate specific to the type of system.
- All vessels must maintain a complete and accurate Ballast Water Record System detailing all ballast water movements.
- All vessels should submit a Ballast Water report. Reporting obligations differ for vessels operating domestically and vessels travelling internationally. Vessels arriving from an international location and intending to discharge internationally sourced ballast water must submit a Ballast Water Report at least 12 hours prior to arrival. Domestic trading vessels can request a low-risk exemption through a Domestic Risk Assessment.
- All applications must be submitted through the marine and aircraft reporting system (MARS).

From September 2019, all vessels that use ballast water are required to meet the Regulation D2 discharge standard of the International Convention for the BWM Convention at their next renewal survey. Vessels using ballast water exchange as their primary ballast water management method are required to phase out this management method and meet the Regulation D2 discharge standard. Vessels may meet this standard by installing an IMO type approved ballast water management system, or as specified within the BWM Convention.

#### 8.7.2.2. Biofouling

Biofouling on vessel hulls, external niche areas and immersible equipment pose a potential risk of IMS in Australian waters. Under the *National Biofouling Management Guidelines for the Petroleum Production and Exploration Industry* (Department of Agriculture, Fisheries and Forestry, 2009) and *2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species* (Marine Environment Protection Committee, 2011), and Woodside PetDW IMS Management Procedure, a risk assessment approach is applied to manage biofouling.

The Woodside IMS Management Procedure outlines:

- regulatory framework for managing IMS
- Woodside's marine activities at risk of facilitating introduction or translocation of IMS into Victorian and Commonwealth waters
- Woodside and contractors' roles and responsibilities
- management and mitigation measures to prevent IMS incursions and manage identified biofouling pre-hire and post-mobilisation:
  - All contracted vessels are required to complete the IMS risk assessment process described in the Woodside PetDW IMS Management Procedure. The IMS risk assessment assigns a final risk category of low, moderate, uncertain, or high to vessels based on a range of information listed below. If a risk category of moderate, uncertain, or high is scored, a range of management options are available, including inspections, cleaning, or treatment of internal seawater systems to bring the risk category to low.
  - All documentation must be provided to Woodside during the Marine Management Process before hire.
  - Any vessel contracted for greater than 12 months will be audited annually.
- the Woodside IMS Risk Assessment and Approval Procedure form for assessing vessel and immersible equipment for IMS risk, is in alignment with Reducing Marine Pest Biosecurity Risks through Good Practice Biofouling Management (NOPSEMA, 2020). The Woodside IMS Risk Assessment and Approval Procedure form considers the:
  - history of the vessel, including destination and time spent in the last port of call
  - equipment deployment and cleaning history
  - status of anti-fouling coating and marine growth protection system
  - independent biofouling inspection results and timing
  - ballast water management, including water exchange and origin.

The completed IMS risk assessment must show that IMS risk is low for each project vessel and associated immersible equipment, prior to entering the Operational Area.

### 8.7.3. Environmental Impact Assessment

Potential IMS vary from one region to another depending on various environmental factors such as water temperature, salinity, nutrient levels and habitat type, which dictate their survival and invasive capabilities. IMS typically require hard substrate in the photic zone; therefore, requiring shallow waters to become established. Highly disturbed, shallow-water environments such as shallow coastal waters, ports and marinas are more susceptible to IMS colonisation, whereas IMS are generally unable to successfully establish in deep water ecosystems and open-water environments where the rate of dilution and the degree of dispersal are high (Williamson and Fitter, 1996; Paulay et al., 2002).

IMS have proven particularly difficult or impossible to eradicate from areas once established. If the introduction is detected early, eradication may be effective but is likely to be expensive, disruptive and, depending on the method of eradication, harmful to other local marine life.

Epifauna, infauna, and benthic habitats are susceptible to impacts from IMS due to the risk of changes to the ecosystem dynamics such as competition for resources and predation. Once introduced, IMS may prey on local species (which had previously not been subject to this kind of predation and therefore not have evolved protective measures against the attack), may outcompete indigenous species for food, space or light and can also interbreed with local species, creating hybrids such that the endemic species is lost. These changes to the local marine environment result in changes to the natural ecosystem.

The open waters of the Operational Area are not conducive to the settlement and establishment of IMS. Water depths in the Operational Area are > 50 m and there is very little hard substrate (aside from the Minerva subsea infrastructure being removed). Therefore, the risk of establishment, whilst credible, is remote given the water depth and absence of hard substrate.

IMS may economically damaging in areas where they have become established. Such impacts include direct damage to assets (fouling of vessel hulls and infrastructure, water intakes and outfalls, etc.) and depletion of commercially harvested marine life (e.g., shellfish stocks). There is little historical and current fishing effort in the Operational Area, and no fixed facilities that may be impacted by IMS in proximity to the Operational Areal. Given the low likelihood of IMS translocation to, and colonisation within the Operational Area, the risk to other users is low.

### 8.7.4. Demonstration of ALARP

Given the offshore location in water depths of > 50 m, the potential introduction of invasive marine species during the petroleum activity is considered a ‘Type A’ (lower order) risk based upon the Decision Context described in Section 6.1.1 of this EP.

The ALARP process performed for this aspect is summarised in Table 8-14. This process was completed as outlined in Section 6.1.1 and included consideration of all controls, analysis of the risk reduction proportional to the benefit gained, and final acceptance or justification if the control was not considered suitable. The result of this ALARP assessment contributes to the overall acceptability of the impact or risk.

**Table 8-14: Introduction of IMS - ALARP summary**

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| ***Legislation, Codes and Standards*** | | | |
| International Anti-Fouling System Certificate for each vessel. | Accept | Legislative requirement in line with Marine Orders 8 – Part 98: Marine Pollution – Anti-fouling Systems:<br>International Convention on the Control of Harmful Anti-fouling Systems on Ships (IMO, 2001). | PS 17.1 |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| MODU and project vessels will manage their ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management Requirements. | Accept | Controls based on legislative requirements under the *Biosecurity Act 2015* must be accepted. Control is feasible, standard practice with minimal cost. Benefits outweigh any cost sacrifice. | PS 17.2 |
| Vessels have a Ballast Water Management Certificate | Accept | | PS 17.3 |
| Ballast Water Record System with a minimum of 2 years records retained on board. | Accept | | PS 17.4 |
| MODU and project vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements. | Accept | Reduces the likelihood of transfer of marine pests between vessels within the Operational Area. No change in consequence would occur.<br>Controls based on legislative requirements under the *Biosecurity Act 2015* – must be adopted. | PS 17.5 |
| Cleaning of Submersible Equipment:<br>Submersible equipment cleaned of biofouling prior to entry to Operational Area | Accept | Aligns with the National Biofouling Management Guidelines for the Petroleum Production and Exploration Industry (Marine Pest Sectoral Committee, 2018). | PS 17.6 |
| ***Eliminate*** | | | |
| Mandatory dry-docking and cleaning of vessels and cleaning of immersible equipment before entry to the Operational Area to reduce risk of IMS introduction. | Reject | Substantial costs and would affect schedule, resulting in potential delays. Significant cost deemed grossly disproportionate to very low risk, given controls already in place. | Not applicable |
| No discharge of ballast water during the petroleum activity | Reject | Although it would remove the risk of IMS being introduced through ballast discharge, it is not feasible as the use of ballast (including the potential discharge of ballast water) is considered to be a safety-critical requirement. | Not applicable |
| ***Substitute*** | | | |
| Source project vessels based in Australia only. | Reject | Sourcing vessels from within Australia will reduce the likelihood of IMS from outside Australian waters; however, it does not reduce the likelihood of translocation of species native to Australia but alien to the Operational Area or of IMS that have established elsewhere in Australia.<br>While the project will attempt to source vessels locally, it is not always possible. Availability cannot always be guaranteed | Not applicable |

| Control Measure | Accept / Reject | Reason | Associated Performance Standards |
|---|---|---|---|
| | | when considering competing oil and gas activities in the region.<br>The potential cost of implementing this control is grossly disproportionate to the minor environmental gain (or reducing an already remote likelihood of IMS introduction) potentially achieved by using only Australian based vessels. Consequently, this control is considered not reasonably practicable. | |
| ***Administrate*** | | | |
| Woodside's IMS risk assessment process will be applied to the MODU, project vessels and immersible equipment undertaking the petroleum activity that enter the Operational Area.<br>Based on the outcomes, management options commensurate with the risk will be implemented to minimise the likelihood of IMS being introduced. | Accept | Risk assessment process includes initial risk screening and the application of appropriate controls measures to be implemented. In doing so, the likelihood of transferring marine pests between the MODU, project vessels, and immersible equipment within Operational Area is reduced. No change in consequence would occur.<br>Control is feasible and can be implemented at minimal cost. Control is considered good practice and implemented across all of Woodside's operations. Benefits outweigh any cost sacrifice. | PS 17.7 |
| IMS inspection of all vessels | Reject | This control is feasible, however is likely to have significant cost and schedule impacts. In addition, the IMS risk assessment process is seen to be more cost effective, as this control allows Woodside to manage the introduction of marine pests through biofouling, while targeting its efforts and resources to areas of greatest concern.<br>Inspection of all vessels for IMS would reduce the likelihood of IMS being introduced to the Operational Area. However, this reduction is unlikely to be significant given the other control measures implemented. | Not applicable |

#### 8.7.4.1. ALARP Summary

The risk assessment and evaluation has identified a range of controls (Table 8-14) that, when implemented, are considered to manage the risk of introductions of IMS during the petroleum activity to ALARP.

Woodside considers the control measures described above are appropriate to reduce the risk of introductions of IMS during the petroleum activity. Additional control measures were identified in Table 8-14 to further reduce impacts but rejected since the associated cost or sacrifice was grossly disproportionate to the environmental benefit. The impacts are therefore considered reduced to ALARP.

### 8.7.5. Demonstration of Acceptability

Given the adopted controls, the risk of introductions of IMS will be reduced to a tolerable level. Further opportunities to reduce the risk have been investigated in Table 8-14.

The adopted controls are considered good oil-field practice/industry best practice. No concerns or objections regarding the risk of introductions of IMS have been raised by relevant stakeholders. Woodside has considered information contained in recovery plans and threat abatement plans (Section 4.4.3). The environmental risks meet the Woodside environmental risk acceptability criteria (Section Table 8-14).

Relevant requirements have been met, including:

- *Australian Ballast Water Management Requirements* (Department of Agriculture, Water, and the Environment, 2020), which gives effect to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention)
- *National Biofouling Management Guidelines for the Petroleum Production and Exploration Industry* (Department of Agriculture, Fisheries and Forestry, 2009)
- *2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species* (Marine Environment Protection Committee, 2011)
- *Reducing Marine Pest Biosecurity Risks through Good Practice Biofouling Management* (NOPSEMA, 2020b)

The environmental risks are consistent with the principles of ESD:

- Integration principle: Woodside has undertaken a range of studies to determine the approach to decommissioning the Minerva field, which have informed Woodside's deliberations. The decommissioning strategy being pursued by Woodside integrates long-term and short-term economic, environmental, social, and equitable considerations.
- Precautionary principle: The vectors for IMS introductions are well understood, as are measures to prevent IMS introductions. The receiving environment is well understood. While the impacts of the introduction of IMS are uncertain (as they may vary between IMS), the risk of IMS introduction is ALARP because of the controls that will be implemented and the unsuitable environment in the Operational Area (i.e., deep water with little hard substrate, hence unsuited for IMS survival)
- Inter-generational principle: The risk of introductions of IMS will not impact upon the environment such that future generations cannot meet their needs.
- Biodiversity principle: The risk of introductions of IMS will not impact upon biodiversity or ecological integrity in the long-term.

Woodside considers the risk to be managed to an acceptable level.

## 8.7.6. Environmental Performance Outcome, Performance Standards and Measurement Criteria

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| EPO 17<br>No introduction and establishment of invasive marine species into the Operational Area as a result of the petroleum activity | C 17.1<br>International Anti-Fouling System Certificate for each vessel. | PS 17.1<br>Prior to mobilisation to the Operational Area, and consistent with Marine Orders 8 – Part 98: Marine Pollution – Anti-fouling Systems and International Convention on the Control of Harmful Anti-fouling Systems on Ships (IMO, 2001), Vessel Operator shall:<br>▪ Supply a current International Anti-Fouling System Certificate for each vessel; and<br>▪ Confirm no harmful organotins in antifouling paints used on vessels. | MC 17.1.1<br>Completed IMS risk assessment for each vessel prior to entering field confirms current International Anti-Fouling System Certificate and anti-fouling systems have not used harmful organotins. |
| | C 17.2<br>MODU and project vessels will manage their ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management Requirements. | PS 17.2<br>MODU and project vessels (including foreign vessels not party to the International Convention for the Control and Management of Ships' Ballast Water and Sediments 2004 (BWM Convention) to manage ballast water using one of the approved ballast water management options, as specified in the Australian Ballast Water Management Requirements. | MC 17.2.1<br>Ballast Water Records System maintained by vessels which verifies compliance against Australian Ballast Water Management Requirements. |
| | C 17.3<br>Vessels have a Ballast Water Management Certificate | PS 17.3<br>Vessels must have a Ballast Water Management Certificate | MC 17.3.1<br>Vessels provide evidence of a Ballast Water Management Certificate |
| | C 17.4<br>Ballast Water Record System with a minimum of 2 years of records retained on board. | PS 17.4<br>Vessels must have a Ballast Water Record System with a minimum of 2 years of records retained on board. | MC 17.4.1<br>Vessels provide evidence of a Ballast Water Record System with a minimum of 2 years of records. |

| Environmental Performance Outcomes | Controls | Performance Standards | Measurement Criteria |
|---|---|---|---|
| | C 17.5<br>MODU and project vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements. | PS 17.5<br>Compliance with Australian Biofouling Management Requirements. | MC 17.5.1<br>Records of implementation of biofouling management measure and pre-arrival reporting. |
| | C 17.6<br>Submersible equipment has been cleaned of biofouling prior to commencement of the activity. | PS 17.6<br>Vessels must clean submersible equipment of biofouling prior to entering the Operational Area. | MC 17.6.1<br>Records indicate that submersible equipment cleaned of biofouling prior to entry to Operational Area. |
| | C 17.7<br>Woodside's IMS risk assessment process will be applied to the MODU, project vessels and immersible equipment undertaking the petroleum activity that enter the Operational Area.<br>Based on the outcomes, management options commensurate with the risk will be implemented to minimise the likelihood of IMS being introduced. | PS 17.7<br>Prior to entering the Operational Area, MODU, project vessels and relevant immersible equipment are determined to be low risk[28] of introducing IMS of concern and maintain this low-risk status during the petroleum activity.<br>In accordance with Woodside's IMS risk assessment process (Section 9.3), the IMS risk assessments will be undertaken by an authorised environment adviser who has completed relevant Woodside IMS training or by qualified and experienced IMS inspector. | MC 17.7.1<br>Records of IMS risk assessments maintained for the MODU, project vessels and relevant immersible equipment entering the Operational to undertake the petroleum activity.<br>MC 17.7.2<br>Records confirm that the IMS risk assessments undertaken by an Environment Adviser or IMS inspector (as relevant). |

[28] Low risk of introducing IMS of concern is defined as either no additional management measures required or, management measures have been applied to reduce the risk.

# 9. Implementation Strategy

In accordance with regulation 22 of the Environment Regulations, the Environment Plan must contain an implementation strategy for the petroleum activity and monitoring, recording and reporting arrangements. The implementation strategy presented in this section provides specific practices and procedures to ensure:

- All the environmental impacts and risks of the petroleum activity will be continually identified and reduced to a level that is ALARP
- Control measures identified in the EP are effective in reducing the environmental impacts and risks of the activity to ALARP and to acceptable levels
- That environmental performance outcomes and environmental performance standards are met
- Arrangements are in place to respond to, and monitor, impacts of oil pollution emergencies; and
- Arrangements for on-going consultation with relevant authorities, persons and organisations are in place and maintained through the activity.

## 9.1. Systems, Practices and Procedures

### 9.1.1. Woodside PetDW HSE Management System

The Woodside PetDW Health, Safety and Environment (HSE) Management System defines the boundaries within which all activities are conducted. It provides a structured framework to set common requirements, boundaries, expectations, governance and assurance for all activities. It also supports accountabilities and responsibilities as defined in the organisational structure. The overarching objective of the Woodside Management System is to aspire to zero harm to people, communities and the environment, and achieve leading industry practice. The structure of the Woodside Management System is hierarchical (Figure 9-1).


**Figure 9-1: Woodside PetDW HSE Management System**

The documents in Figure 9-1 address specific areas (e.g., corporate performance reporting, risk management, incident investigation) where it is important that activities are conducted consistently across the organisation.

The top level of the triangle shown in Figure 9-1 is the Company ‘Our Values’; a copy of which is provided in Appendix A. ‘Our Values’ directs the approach to all activities within the Company. It also provides a means of aligning Company values with strategic direction and measures of success. ‘Our Values’ are supported by the Woodside Environment and Biodiversity Policy (Appendix B).

The Woodside Our Requirements detail and define business planning, risk management, and assurance expectations of key process areas. They also serve as audit protocol against which all groups in Woodside are assessed. Categories of Our Requirements include (for example) HSE, Human Resources, Legal, Corporate Affairs, Supply, and Information Management.

The Minerva decommissioning activities will be undertaken in accordance with the objectives of Our Values, which includes compliance or exceedance with regulatory requirements, setting of objectives and targets and continual improvement.

This EP has been designed to meet the environmental aspects of the Woodside PetDW HSE Management System framework and establishes the foundation for continual improvement through the application, monitoring and auditing of consistent requirements across all aspects of the petroleum activity including:

- identification of statutory obligations and commitments to ensure maintenance of license to operate
- implementation of petroleum risk management processes, including this EP
- scheduled monitoring and auditing of control implementation
- completion of reviews, and reporting outcomes of these reviews.

## 9.2. Environment Plan Organisation, Roles, and Responsibilities

A defined chain of command with the roles and responsibilities for key Company and contractor personnel in relation to Environment Plan implementation, management and review are described below in Table 9-1. It is the responsibility of all Company employees and contractors to ensure that Company requirements and 'Our Values (Appendix A) are applied in their areas of responsibility.

**Table 9-1: Key personnel and environmental responsibilities**

| Title | Environmental Responsibilities |
|---|---|
| ***Office-based Roles*** | |
| Woodside VP of Projects Australia | Has Technical Authority and manage team of projects and decommissioning professionals.<br>▪ Ensures sufficient resources are provided to implement the commitments made in this EP |
| Woodside Decommissioning Delivery Manager (or equivalent) | The Woodside Decommissioning Delivery Manager reports to the Woodside VP of Projects Australia and is primarily responsible for:<br>▪ supervise decommissioning operations, including management of change<br>▪ be accountable for developing the decommissioning engineering and associated programs<br>▪ ensure compliance with company policies, standards and statutory requirements. |
| Woodside Project Manager | ▪ Monitor and manage the activity so it is undertaken as per the relevant standards and<br>▪ commitments in this EP.<br>▪ Notify the Woodside Environment Adviser of any scope changes in a timely manner.<br>▪ Liaise with regulatory authorities as required.<br>▪ Review this EP as necessary and manage change requests.<br>▪ Ensure all project and support vessel crew members complete an HSE induction.<br>▪ Verify that contractors meet environmental related contractual obligations.<br>▪ Confirm environmental incident reporting meets regulatory requirements (as outlined in this EP) and Woodside's Health, Safety and Environment Reporting and Investigation Procedure.<br>▪ Monitor and close out corrective actions identified during environmental monitoring or audits. |
| Woodside Head of Projects/ Region (Global | ▪ Ensure P&A operations are undertaken as per this EP and approval conditions.<br>▪ Provide sufficient resources to implement the P&A-related management measures (i.e. controls, EPOs, PSs and MC) in this EP. |

| Title | Environmental Responsibilities |
|---|---|
| Wells and Seismic) | ▪ Ensures the MODU start-up meets the requirements of the Drilling and Managing Rig Operations Process. |
| Woodside Superintendent | ▪ Ensure the P&A program meets the requirements detailed in this EP.<br>▪ Ensure changes to the P&A program are communicated to the Woodside Environmental Adviser.<br>▪ Ensure the Woodside's Well Site Manager is provided with the resources required to ensure the management measures (i.e. controls, EPOs, EPs and MC) in this EP are undertaken.<br>▪ Confirm environmental incident reporting meets regulatory requirements (as outlined in this EP) and Woodside's Health, Safety and Environment Reporting and Investigation Procedure.<br>▪ Monitor and close out corrective actions identified during environmental monitoring or audits.<br>▪ Ensure MODU personnel are given an Environmental Induction at the start of the drilling programs.<br>▪ Confirms controls and performance standards in this EP are actioned, as required, before P&A commences. |
| Woodside Drilling, Completions and Subsea Engineers | ▪ Ensure changes to the P&A program are communicated to the Woodside Environmental Adviser.<br>▪ Ensure all P&A fluid chemical components and other fluids that may be used downhole have been reviewed by the Woodside Environmental Adviser. |
| Woodside Environmental Advisor | ▪ Track compliance with performance outcomes and performance standards as per the requirements of this EP.<br>▪ Assist with the review, investigation and reporting of environmental incidents.<br>▪ Ensure environmental monitoring and inspections/audits are undertaken as per the requirements of this EP.<br>▪ Assist in preparation of external regulatory reports required, in line with environmental approval requirements and Woodside incident reporting procedures.<br>▪ Monitor and close out corrective actions (Campaign Action Register (CAR)) identified during environmental monitoring or audits.<br>▪ Provide advice to relevant Woodside personnel and contractors to assist them to understand their environment responsibilities. |
| Woodside Corporate Affairs Adviser | ▪ Prepare and implement the Consultation Plan for the petroleum activity<br>▪ Report on consultation.<br>▪ Ongoing liaison and notification as required as per Section 9.9. |
| Woodside Marine Assurance Superintendent | ▪ Conducts relevant audit and inspection to confirm vessels comply with relevant Marine Orders and Woodside Marine Charters Instructions requirements to meet safety, navigation and emergency response requirements. |
| Woodside CIMT Incident Commander (IC) | On receiving notification of an incident, the Woodside CIMT IC shall:<br>▪ establish and take control of the CIMT and establish an appropriate command structure for the incident<br>▪ assess situation, identify risks and actions to minimise the risk<br>▪ communicate impact, risk and progress to the Crisis Management Team and relevant persons<br>▪ develop the incident action plan (IAP) including setting objectives for action<br>▪ approve, implement and Manage the IAP<br>▪ communicate within and beyond the incident management structure |

| Title | Environmental Responsibilities |
|---|---|
| | ▪ manage and review safety of responders<br>▪ address the broader public safety considerations<br>▪ conclude and review activities. |
| Contractor Manager | ▪ Prepare, maintain, and implement Contractor HSE Management Plans and Procedures<br>▪ Ensure compliance with this EP, regulatory and HSE responsibilities relevant to their scope of work<br>▪ Maintain clear lines of communication with the Woodside Operations Manager |
| ***Field-based Roles*** | |
| Well Site Manager | ▪ Responsible for management and supervision of well engineering activities at the well site;<br>▪ Ensures operations are conducted according to the approved program requirements; and<br>▪ Management of change during operations. |
| Offshore HSE Advisor | ▪ Monitor and audit the activity to ensure compliance with this EP;<br>▪ Ensures environmental incidents or breaches of environmental performance outcomes, standards or measurement criteria are reported and recorded in line with Company incident reporting requirements; and<br>▪ Disseminate project-specific environmental compliance requirements to the MODU crew as required. |
| Offshore Installation Manager (OIM) – MODU Contractor | ▪ Maintains operational control of the MODU<br>▪ Manages the implementation of the Contractor MODU Management System and MODU procedural controls<br>▪ Ensures MODU personnel are appropriately trained and competent to undertake role-specific tasks<br>▪ Ensures MODU emergency response procedures are tested and implemented;<br>▪ Liaison with Well Site Manager(s) on all aspects of drilling activities; and<br>▪ Report environmental incidents or breaches of environmental performance outcomes, standards or criteria on MODU, are in line with Company incident reporting requirements. |
| Vessel Master | ▪ Manage activities and safety on-board vessel for the duration at sea, and operate under Company Marine Controls, relevant Commonwealth Acts and regulations;<br>▪ Ensure vessel operations are undertaken as per this EP and any approval conditions;<br>▪ SOPEP drills are conducted as per vessel's schedule;<br>▪ Report environmental incidents or breaches of environmental performance outcomes, standards or criteria on vessel, are in line with Company incident reporting requirements; and<br>▪ Recordable incident reporting. |
| All crew | ▪ Work in accordance with accepted HSE obligations and practices;<br>▪ Comply with this EP, and all regulatory and project obligations applicable to their assigned role;<br>▪ Report any hazardous condition, near miss, unsafe act, accident or environmental incident immediately to their supervisor;<br>▪ Report sightings of marine fauna and marine pollution to their supervisor;<br>▪ Attend HSE meetings and training/ drills when required; and<br>▪ Understand their obligation to 'stop-the-job' due to HSE concerns. |

## 9.3. Woodside IMS Risk Assessment Process

### 9.3.1. Objective and scope

To minimise the potential risk of introducing IMS because of the petroleum activity, all applicable vessels and immersible equipment will be subject to Woodside's IMS risk assessment process (unless exempt as outlined below). The objective of the risk assessment process is to identify the level of threat a contracted vessel, or immersible equipment might pose if no additional risk reduction management measures are implemented. This allows Woodside (and its contractors) to apply management options that are commensurate to the identified level of risk.

In context of the activities specified in Section 3, the IMS risk assessment process does not apply to the following:

- vessels or immersible equipment that do not plan to enter the IMS Management Area (IMSMA[29]) or Operational Areas defined in environmental approvals
- 'New build' vessels launched less than 14 days prior to mobilisation
- Vessels or immersible equipment which have been inspected by a suitably qualified IMS inspector who has classified the vessels or immersible equipment as acceptably low risk no more than 14 days prior to mobilisation
- Locally sourced vessels or immersible equipment from within Victorian coastal waters. Vessels or immersible equipment are defined as locally sourced when the same supply facilities/port have been used since their last IMS inspection, full hull clean in dry dock or application of antifouling coating (AFC[30]).

### 9.3.2. Risk Assessment Process

Woodside's IMS risk assessment process was developed with regard to:

- *Australian Ballast Water Management Requirements* (Department of Agriculture, Water, and the Environment, 2020), which gives effect to the International Convention for the Control and Management of Ships' Ballast Water and Sediments, 2004 (BWM Convention)
- *National Biofouling Management Guidelines for the Petroleum Production and Exploration Industry* (Department of Agriculture, Fisheries and Forestry, 2009)
- *2011 Guidelines for the Control and Management of Ships' Biofouling to Minimize the Transfer of Invasive Aquatic Species* (Marine Environment Protection Committee, 2011)
- *Reducing Marine Pest Biosecurity Risks through Good Practice Biofouling Management* (NOPSEMA, 2020b)

To effectively evaluate the potential for vessels and immersible equipment to introduce IMS, a risk assessment process has been developed to score and evaluate the risk posed by each project vessel, or immersible equipment planning to undertake activities within the Operational Areas. The risk assessment process considers a range of factors, as listed in Table 9-2 and Table 9-3.

The IMS risk assessments will be undertaken by a trained environment adviser who has completed relevant Woodside IMS training or by a qualified and experienced IMS inspector. A quality assurance/quality control process is implemented for all Woodside conducted IMS risk assessments where a secondary trained environment adviser verifies the assessment to minimise the risk of misapplication and errors within the risk assessment process.

[29] IMSMA is based on current legal framework and includes all nearshore waters around Australia, extending from the lowest astronomical tide mark to 12 nm from land (including Australian territorial islands). The IMSMA also includes all waters within 12 nm from the 50 metre depth contour outside of the 12 nm boundary (i.e. submerged reefs and atolls).

[30] Vessels and immersible equipment can still be classified as locally sourced even if the AFC application occurred in a different port provided the amount of time between AFC application and departure to the locally sourced area (i.e., period of time in waters < 12 nm/50 m water depth) did not exceed consecutive 7 days or the period of time the vessel or immersible equipment has spent within the locally sourced zone exceeds 1 year (i.e., the risk of introducing a species from a different location has already passed).

**Table 9-2: Key factors considered as a part of the risk assessment process for vessels**

| Factors | Details |
|---|---|
| Vessel type | The risk of IMS infection varies depending on the type of vessel undertaking the activity. A higher risk rating is applied for more complex, slow-moving vessels (e.g., dredges) in comparison to simple vessels (e.g., crew transfer vessel). |
| Recent IMS inspection and cleaning history, including for internal niches | In the case of biofouling on external hull niches, different risk ratings are applied dependant on whether out-of-water or in-water IMS inspections by qualified IMS inspectors and cleaning (if required) have been undertaken prior to contract commencement. If an IMS inspection (and clean if required) has not been undertaken in the past six months (from the time of contract commencement), the highest risk factor is applied. The risk factor then lessens for vessels as the time between inspection and mobilisation reduces. |
| Out-of-water period before mobilisation | A risk reduction factor can be applied for vessels that are hauled out and then mobilised as deck cargo or by road during mobilisation, therefore becoming air dried over an extended period. Risk reduction factor increases with exposure time out of water. |
| Age and suitability of AFC at mobilisation date | AFC manufacturers provide a range of coatings, each designed to avoid premature coating failure if it is correctly applied and matched to the vessel's normal speeds and activity profile (i.e., proportion of time spent stationary or below three knots), and its main operational region (i.e., tropical, sub-tropical temperate). If the AFC type is deemed to be unknown, unsuited or absent, the highest risk value is applied. If the AFC type is suitable the risk factor applied reduces with age since application. |
| Internal treatment systems | A risk reduction factor applied if the vessel has an internal biological fouling control system in place at the time of assessment, or evidence of manual dosing. |
| Vessel origin and proposed area of operation | Differing risk ratings are assigned in relation to the climatic relationship between the vessel's origin and the proposed climatic region of the proposed area of operation. Highest risk rating is applied to similar climatic regions. |
| Number of stationary/slow speed periods > 7 days | A risk factor is calculated based on the number of 7 day periods that the vessel has operated at stationary or at low speed (less than three knots) in port or coastal waters which is any waters less than 50 m deep outside 12 nm from land or any waters within 12 nm of land. The greater the number of periods the higher the risk factor applied. |
| Region of stationary or slow periods | A further multiplier is applied depending on the location of the stationary/slow speed periods. The highest risk rating applied if the stationary or slow speed periods occurred within ports or coastal waters of the same climatic region, |
| Type of activity – contact with seafloor. | The potential for the introduction of IMS varies on the planned vessel activity taking place. Those activities that come in contact with sediments and thus have the potential to accumulate and harbour IMS in areas such as hoppers (dredges) and spud cans (drilling rigs) are considered to have a greater risk of infection. |

**Table 9-3: Key factors considered as a part of the risk assessment process for immersible equipment**

| Factors | Details |
|---|---|
| Region of deployment since last thorough clean, particularly coastal locations | Climatic region of use since last overhaul, thorough cleaning or prolonged period out of water (> 28 days). Highest risk rating is applied to similar climatic regions. Activities occurring in nearshore areas (less than 50 m deep and/or within 12 nm from land) are given the highest risk rating. |
| Duration of deployments | Maximum duration of deployment (maximum time in water) since last overhaul or thorough cleaning. The longer the period of immersion the higher the risk rating applied. |
| Duration of time out of water since last deployment | A further risk reduction factor can be applied for immersible equipment that has been out of the water for an extended period. |

| Factors | Details |
|---|---|
| Transport conditions during mobilisation | If the equipment is stored in damp conditions, then a high-risk factor is applied, while if equipment is stored in dry and well ventilated (low humidity) conditions then a low risk factor is applied. |
| Post-retrieval maintenance regime. | A risk reduction factor is applied if the equipment/item of interest is routinely washed, cleaned, checked and/or dissembled between project sites. While a higher risk rating is applied where no routine cleaning occurs. |

Following implementation of the risk assessment process, vessels and/or immersible equipment are classified as one of three risk categories, as defined below:

- 'Low' – low risk of introducing IMS of concern and hence no additional management required, or management options have been applied to reduce the risk.
- 'Uncertain' – risk of introducing IMS is not apparent and as such the precautionary approach is adopted, and additional management options may be required.
- 'High' – high risk of introducing IMS means additional management options are required prior to this vessel mobilising to the Operational Areas.

Following the allocation of a 'low' risk rating for a vessel or immersible equipment, the information provided by the vessel operator for the purposes of risk assessment must be confirmed prior to mobilisation. For vessels or equipment classified as posing an 'uncertain' or 'high' theoretical risk, a range of management options are presented to reduce this theoretical risk to acceptable levels and achieve a low-risk status. These management options have been developed with the intention of reducing IMS risk to levels that are as low as reasonably practicable (i.e., ALARP). It is a flexible approach that allows for a range of management actions to be tailored for a specific vessel movement. These will be assessed on a case-by-case basis and may include, but not limited to, the following:

- Inspection (desktop, in-water, or dry dock) by a suitably qualified and experienced IMS inspector to verify risk status. Where practicable, the inspection shall occur within seven days (but not more than 14 days) prior to final departure to the Operational Areas.
- In-water or dry dock cleaning of the hull and other niche areas. This is typically applied where the risk assessment outcome is High risk driven by the age of the AFC on the vessel and its time spent in similar climatic region ports.
- Treatment of vessels internal seawater systems. This is typically applied in isolation for vessels with AFC applied to their hull within the last twelve months and where subsequent assessment through the process achieves a low-risk rating.
- Limiting the duration that the vessel spends within the IMSMA to a maximum of 48 hours (cumulative entries)[31]. This is applicable for Uncertain risk vessels only.
- Reject the vessel.

Project vessels and immersible equipment are required to be a low risk of introducing IMS prior to entering the Operational Areas or commencing activities defined under this EP.

[31] 48 hours is considered an appropriate and ALARP management control, as it significantly reduces the potential for any IMS associated with a vessel to successfully establish suitable habitat within the IMSMA. This reduction of risk is primarily achieved via a direct reduction of the propagule pressure associated with a particular vessel movement.

## 9.4. Unexpected Finds Procedure

In the event of the discovery of what appears to be Underwater Cultural Heritage (defined as 'any trace of human existence that has a cultural, historical or archaeological character and is located under water'); the following Unexpected Finds Procedure will apply:

- All activities with the potential to impact the suspected Underwater Cultural Heritage must cease immediately. Retain all records of the potential Underwater Cultural Heritage, including any imagery, description and location.
- Person who discovers the heritage object must inform the Activity Supervisor.
- Activity Supervisor must notify Woodside's Global Heritage Manager.
- Woodside will specify an appropriate buffer around the potential Underwater Cultural Heritage, taking into consideration the nature and scale of the potential Underwater Cultural Heritage and the activities to be managed.
- No seabed disturbance may occur within the buffer area around the potential Underwater Cultural Heritage until approved by Woodside's Global Heritage Manager.
- Woodside's Global Heritage Manager must notify a qualified underwater archaeologist and provide all available documentation of the potential Underwater Cultural Heritage.
- If the potential Underwater Cultural Heritage appears to be Aboriginal Underwater Cultural Heritage, Woodside's Global Heritage Manager must notify the appropriate Traditional Custodians to determine whether it is a heritage site and if so, how the site should be managed.
- If the potential Underwater Cultural Heritage appears to be a shipwreck or aircraft that has been wrecked for more than 75 years or is otherwise reportable under Section 40 of the UCH Act, Woodside's Global Heritage Manager must notify the Minister responsible for the UCH Act, the DCCEEW underwater archaeology section through the Australasian Underwater Cultural Heritage Database, and Heritage Victoria.
- If the suspected heritage object includes human remains, Woodside's Global Heritage Manager must also notify:
  - The Australian Federal Police (phone: 131 444) of the location of the remains, that the remains are likely to be historic or Aboriginal in origin, and that it may be appropriate that Traditional Custodians and a maritime archaeologist are present during any handling of the remains; and
  - The Office of the Federal Environment Minister in accordance with Section 20 of the ATSIHP Act.
- Work must not recommence in the vicinity of the potential heritage object until Woodside's Global Heritage Manager provides written approval. Woodside's Global Heritage Manager must only provide written approval once agreed management measures are implemented consistent with approvals and legislation or where the potential Underwater Cultural Heritage is confirmed to not be Underwater Cultural Heritage.

## 9.5. Frontline Offshore Seabird Management Plan

Woodside will implement the Frontline Offshore Seabird Management Plan, which provides:

- Advice on the potential for encounters between Woodside vessels and facilities and seabird species
- Reporting protocols for encounters and interactions with seabirds
- A decision tree for intervening with seabirds
- Adaptive management for nocturnal seabird interactions
- Roles and responsibilities for implementing the plan

The Frontline Offshore Seabird Management Plan will be available on board the vessel during the petroleum activity. MODU and support vessel crew will be made aware of the SBMP through the campaign environment

induction. This will include the requirement to report seabird sightings to the HSE advisors on the MODU and professional Marine Fauna Observers on the support vessels. It is envisioned that the Frontline Offshore Seabird Management Plan will be implemented by the offshore HSE advisor on the MODU and the Marine Fauna Observers on support vessels, under the guidance of the Woodside Environment Advisor where required.

The decision making flow-chart for seabird intervention is provided as

**Figure 9-2**. An overview of the Frontline Offshore Seabird Management Plan adaptive management process is shown in Figure 9-3. The decision-making process for Tier 1 and Tier 2 of the adaptive management process are shown in Figure 9-4 and Figure 9-5 respectively.

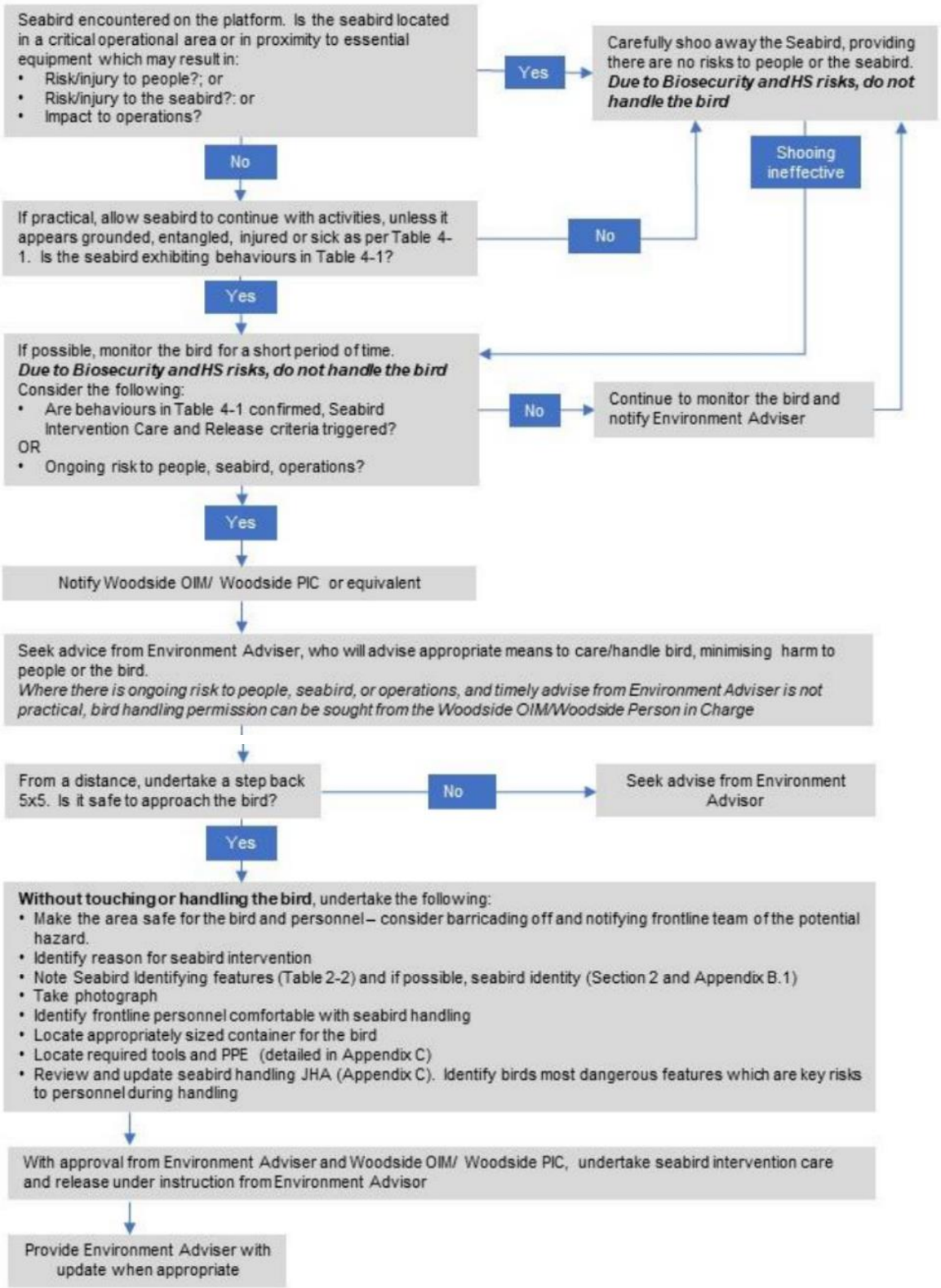


**Figure 9-2: Seabird intervention decision tree for care and release (from Frontline Offshore Seabird Management Plan)**

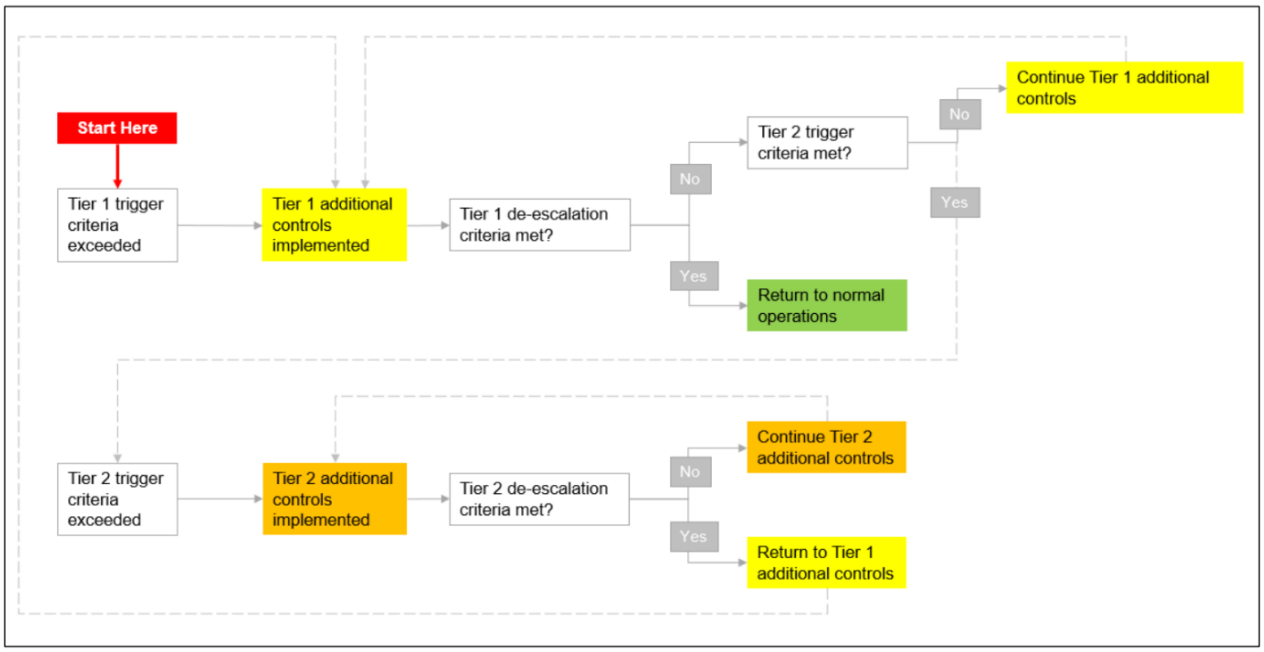


**Figure 9-3: Frontline Offshore Seabird Management Plan adaptive management framework overview**

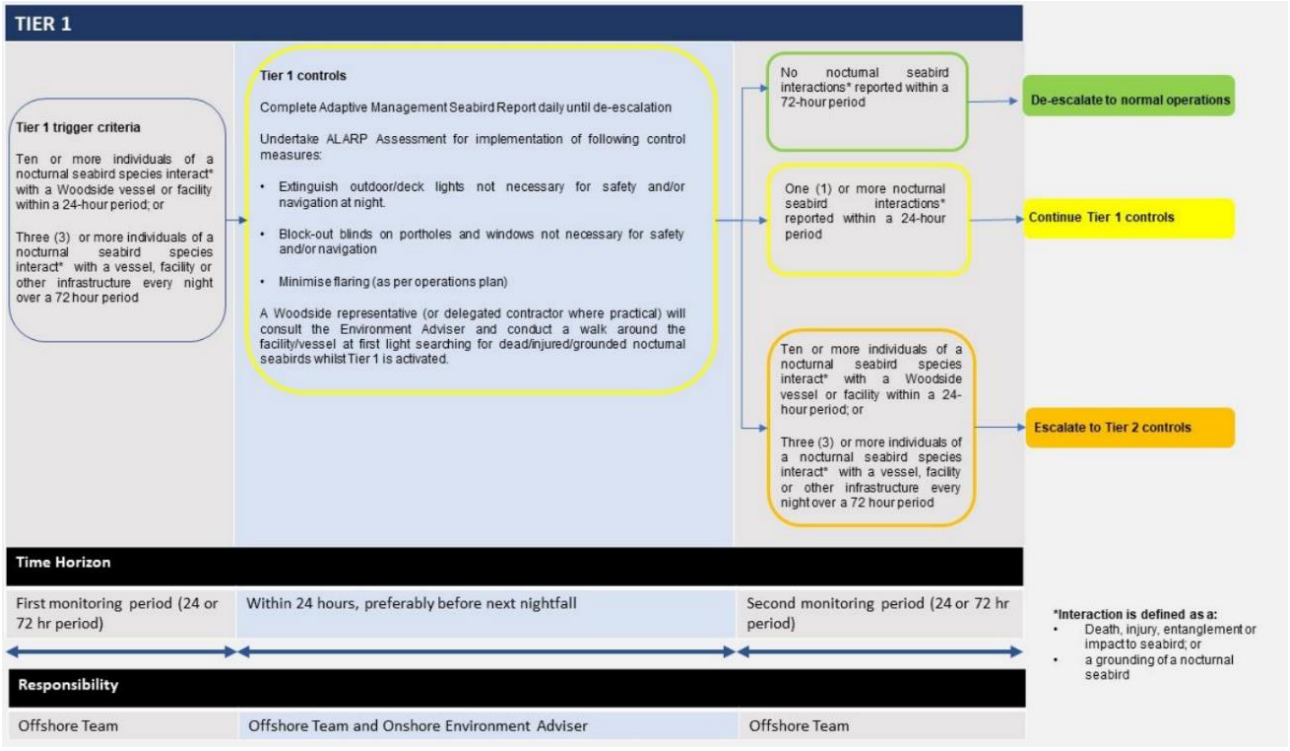


**Figure 9-4: Frontline Offshore Seabird Management Plan Tier 1 adaptive management framework**

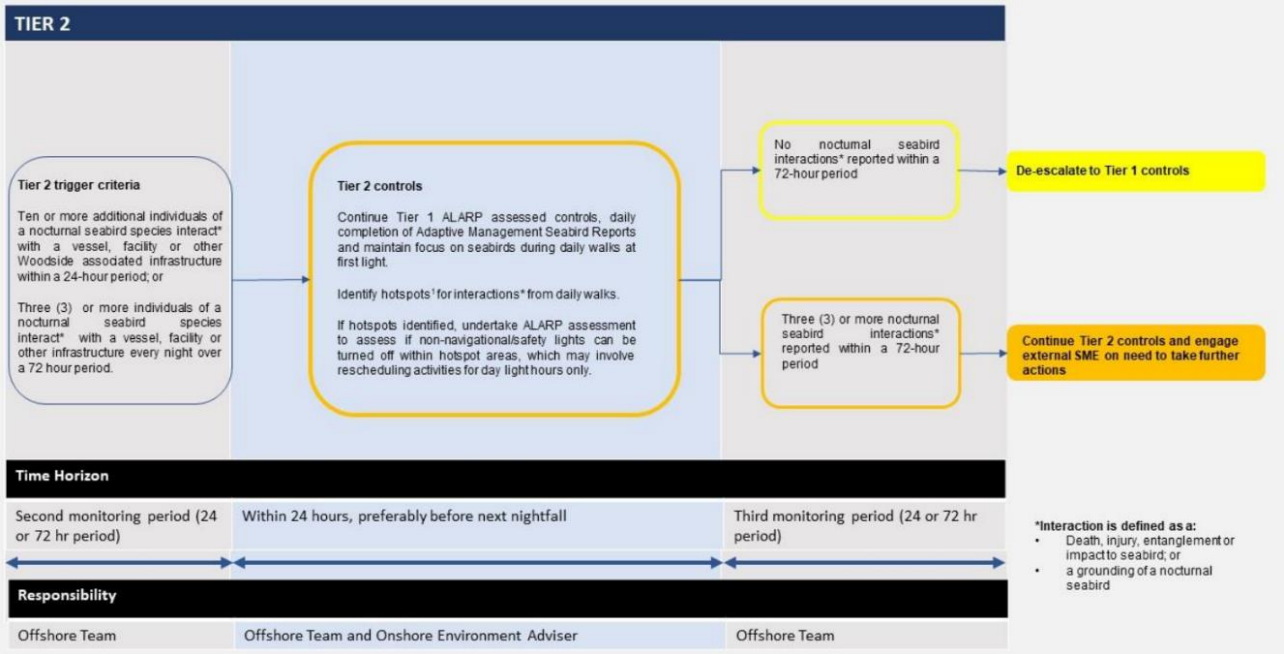


**Figure 9-5: Frontline Offshore Seabird Management Plan Tier 2 adaptive management framework activation criteria, controls and de-escalation criteria**

## 9.6. Minerva Whale Adaptive Management Plan

### 9.6.1. Purpose and Scope

Woodside will undertake marine fauna observations while undertaking the petroleum activity in accordance with the Minerva Whale Adaptive Management Plan. This procedure is how Woodside will implement the adaptive management controls (C 5.2, 5.4 – 5.7, 5.11-5.12 and C 6.3), which will contribute to realising EPO 5 and EPO 6 (detailed in Section 7.5.6. The decision-making process outlined in the procedure is provided in Figure 9-6, Figure 9-7, Figure 9-8.

The purpose of this Minerva Whale Adaptive Management Plan is to detail how Woodside will carry out the petroleum activities defined in this EP in a manner that will avoid and minimise the potential impact of underwater noise on whales undertaking biologically important behaviours in the Otway region.

The Minerva Whale Adaptive Management Plan manages impacts from the following aspects:

- Interaction with marine fauna – risk of vessel collision (Section 8.6)
- Underwater sound emissions – non impulsive sound associated with vessel activities such as anchor pre-lay and preparatory activities, MODU P&A, MODU mooring and MODU resupply (Section 7.5)

The decision-making process outlined in the WAMP for each of the sound generating activities defined above are provided in Figure 9-6, Figure 9-7 and Figure 9-8 below. The management actions defined within the plan applies to whales undertaking biologically important behaviours, with a focus on blue whales (including pygmy blue whales) and southern right whales.

The Minerva P&A WAMP will be implemented by dedicated marine fauna observers (MFOs) that will be situated onboard up to three support vessels supporting the MODU P&A activities. All observers of cetaceans will be recorded by the MFO and collated by Woodside. Fauna sighting data will be communicated to stakeholders in accordance with the ongoing consultation arrangements (Section 9.9).

#### 9.6.1.1. Assumptions

The WAMP will be finalised prior to the commencement of the Petroleum Activities Program, with input from MFOs and offshore personnel to reduce the number of assumptions and provide clear directions for implementation.

Certain assumptions have been defined below to assist in the interpretation and implementation of the WAMP:

- The plan will apply at all times of the year when activities are being undertaken in the Minerva P&A Operational Area, offshore of Victoria in the Otway Basin.
- The Vessel Masters, Well Site Manager, Drilling Superintendent and Woodside HSE Advisor will work together to minimise impacts to whales and follow decision making processes defined in the WAMP as long as the safety of operations can be maintained. Noting, at all times and without exception, safety to personnel, well integrity and vessel management takes priority over the requirements described in the WAMP.
- The observation zones defined in this WAMP have been defined based on underwater noise modelling and determined by the distance to the cetacean behavioural response threshold.

### 9.6.2. Implementation of the WAMP

This section outlines the accountabilities and responsibilities for the implementation of the WAMP, including the training and reporting requirements.

#### 9.6.2.1. Roles and Responsibilities

| Role | Accountability |
|---|---|
| Drilling Superintendent | • Accountable for the implementation of the Minerva P&A Whale Adaptive Management Plan (WAMP).<br>• Ensure all reporting required by the WAMP is completed in a timely and accurate manner.<br>• Provide input into the review of effectiveness and compliance with the WAMP. |
| GWS Environment Advisor | • Minerva P&A WAMP document owner and responsible for coordinating review of effectiveness and compliance with the plan.<br>• Ensure requirements for the implementation of the WAMP are in place prior to commencement of activities.<br>• Develop training material to communicate requirements of the WAMP to relevant personnel who have responsibilities for implementation, including specific induction material for the professional MFOs.<br>• Ensure activity inductions include overview of the WAMP and include detail on whale observation and reporting requirements.<br>• Review MFO observations and detections (daily reports) to ensure actions meet requirements of the WAMP.<br>• Verify activity is being conducted in compliance with the WAMP and report non-compliance to NOPSEMA. |
| Well Site Leader | • Decide on whether recommended actions provided by professional MFO's in accordance with the WAMP can be safely implemented and take action accordingly.<br>• If required, document reasons for not following actions as defined in the WAMP and report to Superintendent and GWS Environment Advisor on why whale mitigation could not be safely implemented.<br>• Provide input into the review of effectiveness and compliance with the WAMP. |
| Vessel Masters | • Maintain open communication with the Well Site Manager (or delegate) and vessel based MFO's for upcoming observation periods and where actions defined in the WAMP may need to be implemented.<br>• Communicate the status of activities to Well Site Manager and vessel based MFOs (i.e. upcoming resupply, vessel movements, pre activity observations) |

| | |
|---|---|
| | • For vessel movements, decide where recommended actions provided by professional MFOs in accordance with the WAMP can be safely implemented and take action accordingly.<br>• If required, document reasons for not following actions as defined in the WAMP and report to Superintendent and GWS Environment Advisor on why whale mitigation could not be safely implemented.<br>• Provide input into the review of the effectiveness and compliance with the WAMP. |
| Professional Marine Fauna Observers (MFOs) | • Undertake specific induction related to the implementation of the WAMP prior to commencing activities.<br>• Provide input into implementation of the WAMP and training/induction material prior to activities commencing.<br>• Undertake observation/detections as per the WAMP and provide daily MFO reports to relevant personnel. Maintain fauna observation records for the duration of the activity.<br>• Communicate whale sightings and advise on actions as per the WAMP to the Vessel Master and Well Site Manager (or delegate).<br>• Provide input into the review of effectiveness and compliance with the WAMP |
| Woodside Offshore HSE Advisor | • Communicate marine fauna observations from opportunistic sightings reported on the MODU to MFO's. |
| All MODU and vessel crew | • Undertake activity induction that provides an overview of the environmental sensitivities of the area, the requirements defined in the WAMP and opportunistic fauna sighting reporting requirements.<br>• Communicate whale sightings to MFOs or Woodside HSE Advisor as soon as practicable, supported by relevant information where available (location, time of sighting, number of whales, species ID). |

#### 9.6.2.2. Awareness and Inductions

All crew will be made aware of their roles and responsibilities regarding the implementation of the WAMP as part of the project induction prior to activities commencing. Personnel with key roles defined in the WAMP will be provided a more in-depth brief on the WAMP including the implementation of controls during specific activities and reporting requirements.

#### 9.6.2.3. Record Keeping and Reporting Requirements

Marine mammal sightings will be recorded and submitted to DCCEEW via the National Marine Mammal Data Portal. Sightings will be submitted no more than three months after completion of the Petroleum Activities Program.

MFOs will undertake the following reporting:

- Daily Reports – detail sightings, mitigation measures implemented, any non-compliances or other issues.
- Final Report – compilation of marine fauna sightings including bird sightings, mapped sightings, observer effort, operations, weather conditions and any issues and lessons learnt. This report will be delivered to Woodside within 1 month of completion of the petroleum activity. A spreadsheet of sighting data will also be provided with the final report.

### 9.6.3. Whale Detection

Professional Marine Fauna Observers (MFOs) will be used as the main whale detection technique. The MFOs will use binoculars and the unaided eye, primarily from the bridge of the vessel or at the highest elevation available on the vessel with the maximum viewable range to detect whales during daylight hours.

Two professional MFOs will be required on each of the support vessels during the Petroleum Activities Program. On each vessel, there will be a lead MFO and a supporting MFO. The Lead MFO will need to have the following competencies:

- Previous MFO experience in whale observation and familiarity with key species including blue whales and southern right whales.

- Completed relevant training detailing marine fauna identification and EPBC Act Policy Statement 2.1 requirements.
- Knowledge of Australian legislative requirements
- Experience with undertaking distance estimation and MFO reporting.

The supporting MFO will be required to have completed relevant third party accredited MFO training detailing marine fauna identification and EPBC Act Policy Statement 2.1 requirements.

All MFOs will be provided an induction on the whale management plan prior to campaign activities commencing.

In additional to visual observations from professional MFOs, thermal imaging cameras/night vision equipment will be available on each support vessel during low visibility and nighttime observations. This equipment is intended to supplement visual observations and will be used at the discretion of the MFO.

#### 9.6.3.1. Uncertainty in Cetacean Identification

Reliable identification of cetaceans to species-level can be difficult. Where an observed cetacean cannot definitively be identified but is reasonably suspected to be a pygmy blue or southern right whale, it should be assumed to be a pygmy blue or southern right whale. Adaptive management should be implemented accordingly. Cetaceans that are clearly not pygmy blue or southern right whales (e.g., toothed whales or dolphins) should not be assumed to be pygmy blue or southern right whales.

#### 9.6.3.2. Whale Observation Areas

Marine fauna observations are intended to determine if cetaceans, particularly pygmy blue and southern right whales, are experiencing underwater noise levels that may result in behavioural disturbance. Woodside commissioned underwater noise modelling to inform the range at which behavioural disturbance may occur (Section 7.5.2.8). The size of the observation area is determined by the distance to the cetacean behavioural response threshold. Table 9-4 specifies the observation areas (distance from the well location) for each noise generating activities defined for this Petroleum Activities Program.

**Table 9-4: Whale Observation Areas for the activities defined within the Petroleum Activities Program**

| Activity | PTS (24 hrs) | TTS (24 hrs) | Observation Area |
|---|---|---|---|
| Preparatory Activities | 0.03 km | 0.67 km | **3 km** |
| Anchor Pre-lay | 0.31 km | 3.37 km | **10 km** |
| Rig Move (Mob, Demob, Between Wells) | 0.37 km | 3.55 km | **11 km** |
| MODU P&A | Not reached | 2.57 km | **3 km** |
| MODU Resupply | 0.18 km | 2.09 km | **10 km** |

### 9.6.4. Management Measures

This section details the decision making process and mitigation actions that will be implemented by MODU and vessels undertaking the Petroleum Activities Program. The following figures have been included to demonstrate the decision making process for each of the noise generating activities defined in the Petroleum Activities Program:

- Figure 9-6 – provides decision making process for pre-activity observations that will be undertaken prior to commencing preparatory P&A activities, Anchor pre-lay, MODU rig move (including mobilisation, demobilisation and moves between well locations).
- Figure 9-7 – provides decision making process for observations that will be undertaken during the execution of all activities defined in Table 9-4.
- Figure 9-8 – provides the decision-making process for observations that will be undertaken prior to commencing MODU resupply activities either during daylight hours or night.

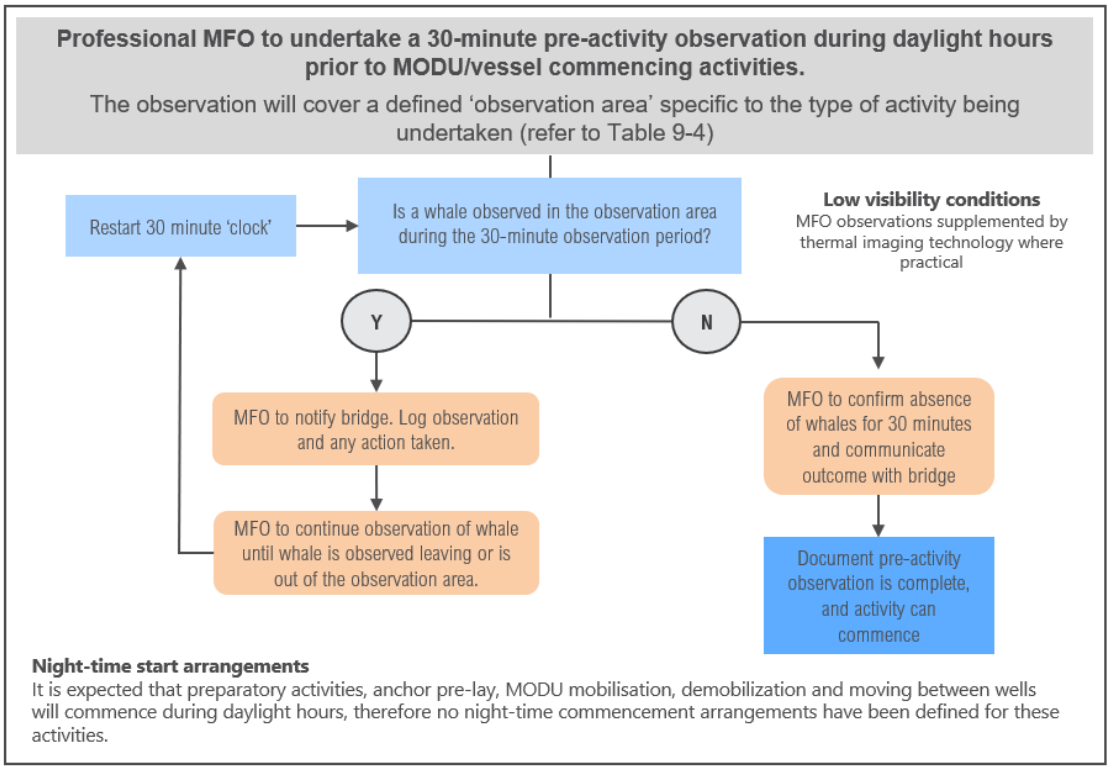


**Figure 9-6: Whale Management Decision Making Flowchart for pre-activity observations undertaken prior to commencing preparatory P&A activities, Anchor pre-lay, MODU rig move (including mobilisation, demobilisation and moves between well locations).**

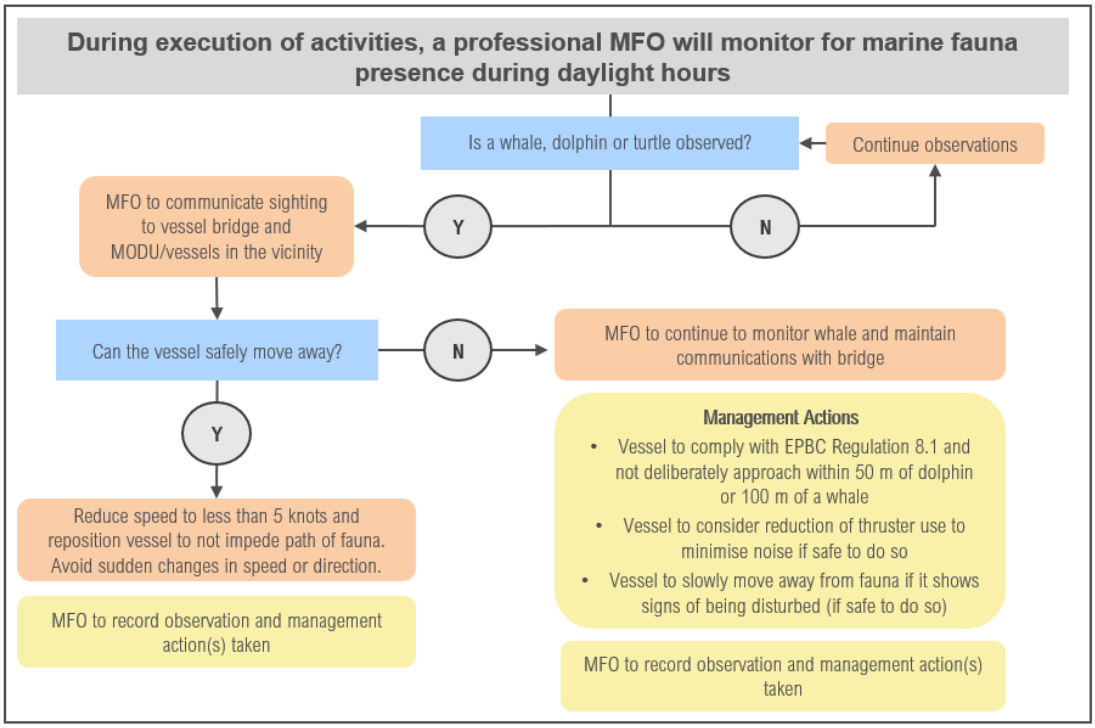


**Figure 9-7: Whale Management Decision Making Flowchart for Observation during execution of activities defined in the Petroleum Activities Program**

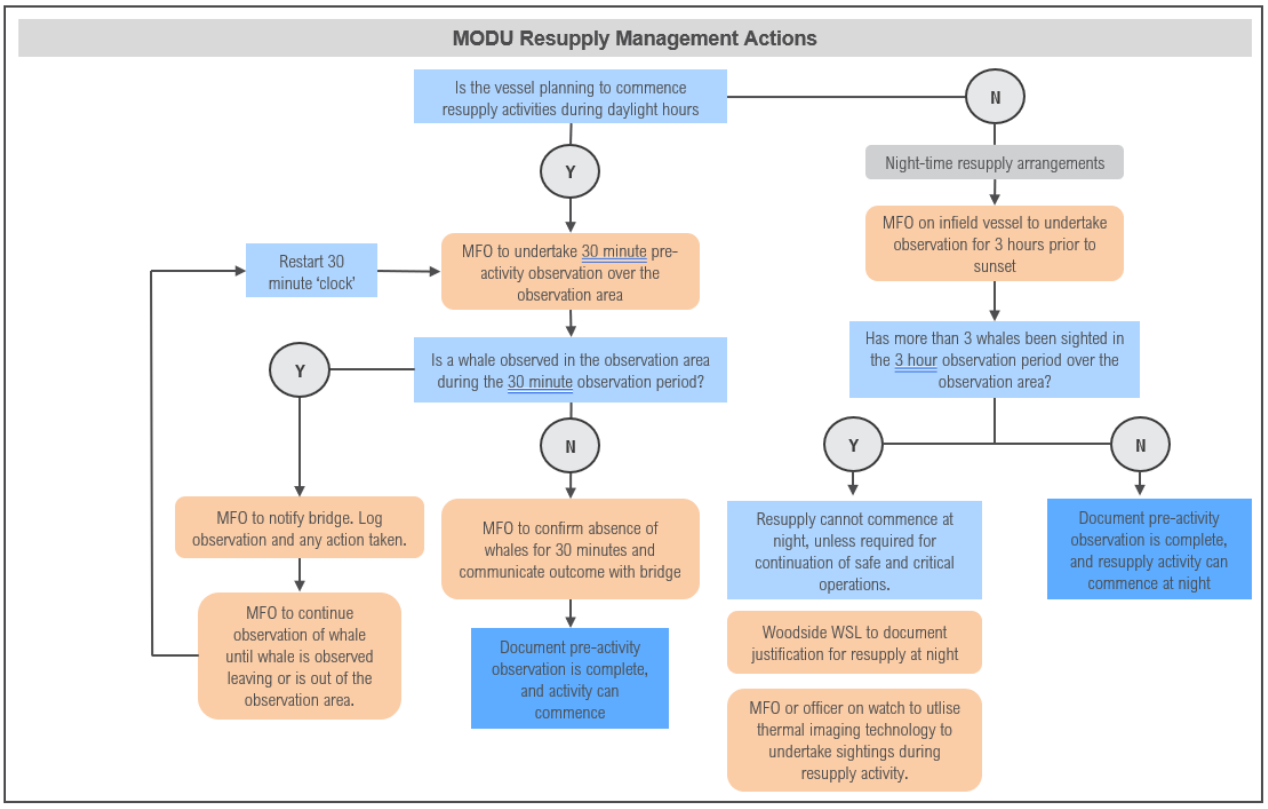


**Figure 9-8: Whale Management Decision Making Flowchart for observations prior to undertaking MODU resupply activities during daylight hours and night**

## 9.7. Training and Competency

### 9.7.1. Competence, Environmental Awareness and Training

The Woodside PetDW HSE Management System Framework establishes the foundation for continual improvement through the application of consistent requirements across all aspects of petroleum activity including the establishing and maintenance of the competencies for personnel, and provision of training to promote expected behaviours.

For contractors, environmental risks in contracts are managed in accordance with the requirements outlined in Woodside PetDW HSE Management Standard. As part of the contractor management process, the MODU Contractor's Environmental Management System is assessed to ensure it is aligned with 'Our Values', the Woodside PetDW HSE Management Standard and meets all commitments made in this EP. If, and wherever, the Contractor's Management System is found to be deficient it will be required to be modified prior to mobilisation to site.

All personnel on the MODU and vessels are required to be competent and suitably trained to undertake their assigned positions. This may be in the form of 'On the Job' or external training. Contractors are responsible for identifying training needs and keeping records of training undertaken. Environmental awareness inductions (Section 9.7.2) are required to be undertaken by all offshore personnel as part of their induction to undertaking petroleum activity.

Competence in well control is a critical factor in conducting drilling and completions in a safe manner and with minimal environmental impact. The Well Operations Management Plan (WOMP) details critical positions that are required to hold a certificate of well control competency. Before drilling commences, Well Control Competency assessments will be undertaken on the MODU. Details of processes by which the competency of supervisors, employees, and contractors to operate equipment and to execute procedures will be managed are detailed within the WOMP. The OPGGS (Resource Management and Administration) Regulations 2011

require that the WOMP must adequately demonstrate (among other matters) that competency of supervisors, employees and contractors are to a level such that risks to integrity of the well are reduced to ALARP.

### 9.7.2. Campaign Specific Environmental Awareness

Inductions are provided to all relevant personnel before the mobilisation to or on arrival at the activity location. This induction covers the HSE requirements and environmental information specific to the location of the activities.

The induction materials may cover information including:

- General description of the activity location, including any environmentally sensitive areas
- Adherence to standards and procedures, and the use of Job Safety Analysis and Permit to Work hazard identification and management process
- Incident reporting process
- Spill management including prevention, response and clean-up, location of spill kits and reporting requirements
- Waste management requirements and process (segregation of landfill, recycle and hazardous wastes) and location of bins
- Reporting of vessel-to-vessel and vessel-to-MODU interactions
- Reporting procedure for sightings of cetaceans including the location of marine fauna sighting datasheets,

All personnel who undertake the induction are required to sign an attendance sheet, which is retained by the MODU and/or vessel contractor.

The MODU will hold regular HSE meetings, which cover all crews. During these meetings, environmental incidents will be reviewed and awareness material presented. All personnel are required to attend the HSE meetings and attendance sheets are retained by the MODU Contractor. Daily Meetings held onboard the MODU also serve to reinforce environmental awareness during the decommissioning campaign.

A copy of Environment Plan is provided to the MODU and vessel contractor prior to undertaking the activity.

### 9.7.3. Well Control Training

The WOMP details critical positions that are required to hold a certificate of well control competency. Before drilling commences, Well Control Competency assessments will be undertaken on the MODU. Details of processes by which the competency of supervisors, employees, and contractors to operate equipment and to execute procedures will be managed are detailed within the WOMP. The (Resource Management and Administration) Regulations 2011 require that the WOMP must adequately demonstrate (among other matters) that competency of supervisors, employees and contractors are to a level such that risks to integrity of the well are reduced to ALARP.

### 9.7.4. Corporate Incident Management Team (CIMT) Training

A competency-based training programme and supporting systems is maintained to ensure enough competent personnel are available to manage the activities and demands of an incident or crisis.

Woodside utilises a blend of nationally recognised units of competency and subject/role specific training programs for the CIMT and CMT training and development program. Some courses are conducted using Woodside resources entirely, delivered by company Emergency Management Advisers. External providers may be utilised to deliver/co-deliver training modules/presentations as required.

Training and competency requirements are documented in the Woodside Crisis and Emergency Management Training Guideline, including a description of training modules and role-specific competency matrix for CIMT positions.

Minimum training requirements for CIMT roles are maintained within the CIMT Dashboard Role Requirements and are also detailed in **Table 9-9**.

### 9.7.5. Contractor Management

For contractors, HSE risks in contracts are managed in accordance with the requirements outlined in Woodside PetDW HSE Management Standard. As part of the contractor management process, Woodside implements pre- and post-contract award processes and activities aimed at ensuring that contracts consistently and effectively cover the management of HSE in line with Woodside PetDW HSE-related requirements, 'Our Values', and the HSE Management Standard.

Whilst the Woodside PetDW HSE Management Systems apply to the manner in which Woodside execute their responsibilities under this EP, operational control of the MODU remains the responsibility of the MODU Contractor and shall be managed in accordance with Contractor Management Systems as detailed within the NOPSEMA accepted Safety Case for the facility.

### 9.7.6. Marine Operations and Assurance

Woodside's marine assurance is managed by the Marine Assurance Team of the Logistics Business Group in accordance with Woodside's Marine Offshore Vessel Assurance Procedure. The Woodside process is based on industry standards and consideration of guidelines and recommendations from recognised industry organisations such as Oil Companies International Marine Forum (OCIMF) and International Maritime Contractors Association (IMCA).

Woodside's Marine Offshore Assurance process is mandatory for all vessels (other than tankers and floating production storage and offloading vessels) chartered directly by or on behalf of Woodside, including for short term hires (i.e. <3 months in duration). It defines applicable marine offshore assurance activities, ensuring all vessel operators operate seaworthy vessels that meet the requirements for a defined scope of work and are managed with a robust Safety Management System.

The process is multi-faceted and encompasses the following marine assurance activities:

- Safety management system assessment
- Dynamic positioning (DP) system verification
- Vessel inspections
- Project support for tender review, evaluation and pre/post contract award.

Vessel inspections are used to verify actual levels of compliance with the company's Safety Management System, the overall condition of the vessel and the status of the planned maintenance system onboard. Woodside Marine Assurance Specialist will conduct a risk assessment on the vessel to determine the level of assurance applied and the type of vessel inspection required.

Methods of vessel inspection may include, and are not limited to:

- Woodside Marine Vessel Inspection
- OCIMF Offshore Vessel Inspection Database (OVID) Inspection
- IMCA Common Marine Inspection Document (CMID) Inspection
- Marine Warranty Survey

Upon completion of the marine assurance process, to confirm that identified concerns are addressed appropriately and conditions imposed are managed, the Woodside Marine Assurance Team will issue the vessel a statement of approval. Should a vessel not meet the requirements of the Woodside Marine Offshore Vessel Assurance Process and be rejected, there does exist an opportunity to further scrutinise the proposed vessel.

Where a vessel inspection and/or Offshore Vessel Management and Self-Assessment (OVMSA) Verification Review is not available and all reasonable efforts based on time and resource availability to complete a vessel inspection and/or OVMSA Verification Review are performed (i.e., short term vessel hire), the Marine Assurance Specialist Offshore may approve the use of an alternate means of inspection, known as a risk assessment.

### 9.7.7. Risk Management

Woodside conducts a risk assessment of vessels where either an OVMSA Verification Review and/or vessel inspection cannot be completed. This is not a regular occurrence and is typically used when the requirements of the assurance process are unable to be met or the processes detailed are not applicable to a proposed vessel(s). The Marine Vessel Risk Assessment will be conducted by the Marine Assurance Specialist, where the vessel meets the short-term hire prerequisites.

The risk assessment is a semi-quantitative method of determining what further assurance process activity, if any, is required to assure a vessel for a particular task or role. The process compares the level of management control a vessel is subject to against the risk factors associated with the activity or role.

Several factors may be assessed as part of a vessel risk assessment, including:

- Management control factors:
  - Company audit score (i.e., management system)
  - Vessel HSE incidents
  - Vessel Port State Control deficiencies
  - Instances of Port State Control vessel detainment
  - Years since previous satisfactory vessel inspection
  - Age of vessel
  - Contractors' prior experience operating for Woodside.
- Activity risk factors:
  - People health and safety risks (a function of the nature of the work and the area of operation)
  - Environmental risks (a function of environmental sensitivity, activity type and magnitude of potential environment damage (e.g., largest credible oil spill scenario))
  - Value risk (likely time and cost consequence to Woodside if the vessel becomes unusable)
  - Reputation risk
  - Exposure (i.e., exposure to risk based on duration of project)
  - Industrial relations risk.
  - The acceptability of the vessel or requirement for further vessel inspections or audits is based on the ratio of vessel score to activity risk. If the vessel management control is not deemed to appropriately manage activity risk, a satisfactory company audit and/or vessel inspection may be required before awarding work.
  - The risk assessment is valid for the period a vessel is on hire and for the defined scope of work.

## 9.8. Monitoring, Auditing and Management of Non-Conformance and Review

### 9.8.1. Monitoring Environmental Performance

Environmental performance is required to be consistent with Woodside HSE Management Standard and commitments made in this EP. The on-going environmental performance of contractors is the responsibility of key personnel described in Table 9-1. Key data that will be monitored and recorded during the activity are summarised in Table 9-5.

**Table 9-5: Monitoring and record keeping summary**

| Parameter | Monitoring | Record Keeping | Frequency |
|---|---|---|---|
| MODU | Rig Move and Positioning Plan | Rig Move and Positioning Plan | Prior to commencement of activity |

| Parameter | Monitoring | Record Keeping | Frequency |
|---|---|---|---|
| Seabed Disturbance | Recovery of dropped objects where practicable to do so and where recovery will provide a net environmental benefit | Documentation of dropped object retrieval | As required |
| | Removal of all rig mooring equipment consistent with Section 572 of the OPGGS Act | Drilling report confirming removal of all rig mooring equipment from the seabed. | End of activity |
| Marine Fauna Interactions | Cetacean sightings and interactions (secondary to primary work activities/ responsibilities) | Marine Fauna Sighting Datasheet. | As required |
| | | Incident Report Form | As required |
| Introduced Marine Species | Management of biofouling | Marine Assurance Certificate to be issued prior to hire of vessels | Prior to on-hire |
| | | Record and review of IMS risk assessment by the Environmental Advisor for newly contracted MODU, vessels and immersible equipment entering the Operational Area. | Prior to mobilisation |
| | Management of ballast | Ballast Water Management Plan (BWMP), Ballast Water Management Certificate (IBWMC) and ballast water records. | Prior to entering Australian waters |
| Atmospheric Emissions | Details of diesel consumption, cold venting / flaring and monitoring/reporting of greenhouse gas, ozone-depleting substances, fluoride, nitrogen dioxide, sulphur dioxide and energy use. | MODU Bunkering Records and Fuel Consumption | As required |
| | | ODS Record Book | |
| | | End of Well Discharge Report | |
| | | Daily Vessel Report records includes vessel fuel consumption | |
| Plug and Abandonment Discharges | Volume of plug and abandonment fluids discharged from the MODU per well | End of Well Discharge Report | On Completion of each well |
| Waste | Sewage and grey water | ISPP Certificate | Prior to commencement of activity |
| | | Maintenance records for sewage/grey water equipment | Verified during monthly inspections |
| | Hazardous and non-hazardous solid waste | Garbage Record Book | Verified during monthly inspections |
| | | Maintenance records demonstrate functioning macerator | Verified during monthly inspections |
| | Oily water – Bilges and machinery spaces | Oil Record Book | Verified during monthly inspections |

| Parameter | Monitoring | Record Keeping | Frequency |
|---|---|---|---|
| | Fuels and oils | Containment and inspections, maintenance records, PMS records, checklists | Verified during monthly inspections |
| | Loss or discharge to sea of harmful materials | Incident records in Company system | As required |
| Marine user interactions | Interactions with shipping and commercial fishing vessels movements | Bridge logs.<br>Incidents recorded in Company system | As required |
| Training | Details of crew inductions | Induction Record Sheets | As completed |

### 9.8.2. Record Keeping

Compliance records will be maintained. Record keeping will be in accordance with regulation 22(5) and 22(6) that addresses maintaining records of emissions and discharges (Table 9-5).

### 9.8.3. Auditing, Assurance, Management of Non-Conformance, and Continuous Improvement

The environmental performance of Woodside activities will be reviewed in a number of ways in order to:

- Ensure all significant environmental aspects of the activity are covered in the EP;
- Ensure that management measures to achieve environmental performance outcomes are being implemented, reviewed and where necessary amended;
- Ensure that all environmental commitments have been met;
- Ensure that impacts and risks will be continuously identified and reduced to ALARP; and
- Identify potential non-conformances and opportunities for continuous improvement.

Internal auditing is performed on a MODU-specific schedule, rather than a schedule to align with each well. This enables continuous review and improvement of environmental performance over the term of the MODU contract. The following internal audits, inspections and reviews will be performed to review compliance against activity EPOs, EPSs and MCs and the overall environmental performance of the activities:

- An audit of the MODU carried out by the Woodside HSE Specialist or Woodside Site Representative prior to or during the activities to ensure that procedures and equipment are in place to enable compliance with the EP;
- Complete a minimum of monthly environmental inspections (conducted by offshore Woodside personnel or a delegate), which may include verifying:
  - bunkering/transfers between support vessels and MODU /project vessels
  - environment containment including chemical storage, spill response equipment and housekeeping
  - general MODU environment risks including waste management, drilling fluids oil/water separation, and inspection of subsea and moonpool areas.
- Perform at least one environment audit during the petroleum activity, while the MODU is on location (by a Woodside Environment Adviser or delegate). If the activity duration is greater than 3 months, one environment audit will be performed per quarter. The content of the environment audit/s may include:
  - operational compliance audits relevant to environmental risk of activities which may include compliance with training commitments, discharge requirements, bunkering activities, verification of use of approved chemicals, and satisfactory close out of items from previous audits
  - inspection of selected risk areas/activities (which may include shaker house, drill floor and mud management while commencing riser drilling or reservoir interception) during routine MODU visits

throughout the MODU campaign, determined by risk, previous incidents, or operation specification requirements.

- audit findings relevant to continuous improvement of environmental performance will be tracked through the MODU or vessel compliance action register, a contractor register between the MODU operator or vessel contractor and Woodside.

All environmental management commitments from the EP will be documented and a description of compliance with each commitment will be maintained. Environment compliance monitoring allows continuous improvement initiatives to be developed and inform the development of future EPs.

### 9.8.4. Management of Change

Management of changes are managed in accordance with Woodside's Environmental Approval Requirements Australia Commonwealth Guideline. Management of changes relevant to this EP, concerning the scope of the activity description (Section 3) will be managed in accordance with regulation 39(2) of the Environment Regulations, including:

- review of advances in technology at stages where new equipment may be selected such as vessel contracting
- changes in understanding of the environment, EPBC Act listed threatened and migratory species status, Part 13 statutory instruments (recovery plans, threat abatement plans, conservation advice, wildlife conservation plans) and current requirements for AMPs (Section 4.5.6)
- potential new advice from external relevant persons (Section 4).

Risk will be assessed in accordance with the environmental risk management methodology (Section 6) to determine the significance of any potential new environmental impacts or risks not provided for in this EP. Risk assessment outcomes are reviewed in compliance with regulation 39(2) of the Environment Regulations.

Minor changes where a review of the activity and the environmental risks and impacts of the activity do not trigger a requirement for a formal revision under regulation 39(2) of the Environment Regulations, will be considered a 'minor revision'. Minor administrative changes to this EP, where an assessment of the environmental risks and impacts is not required (e.g., document references, phone numbers, etc.), will also be considered a 'minor revision'. Minor revisions as defined above will be made to this EP using Woodside's document control process. Minor revisions will be tracked in an MOC Register to ensure visibility of cumulative risk changes, as well as enable internal EP updates/reissuing as required. This document will be made available to NOPSEMA during regulator environment inspections.

## 9.9. Ongoing Consultation

Although consultation for the purpose of regulation 25 is complete, in accordance with regulation 22(15) of the Environment Regulations, the implementation strategy must provide for appropriate consultation with relevant authorities of the Commonwealth, a State or Territory and other relevant interested persons or organisations.

Woodside proposes to undertake the engagements identified in Table 9-6 with relevant interested persons throughout the life of the EP. Relevant new information identified during ongoing consultation will be assessed using Management of Change Process (refer to Section 9.8.4).

Relevant persons, and those who are simply interested in the activities, can otherwise remain up to date on this activity through subscribing to the Woodside website, or by reading the publicly available version of the EP on NOPSEMA's website, where available.

Should consultation feedback be received following EP acceptance that identifies relevant new information or a measure or control that requires implementation or update to meet the intended outcome of consultation (see Section 4), Woodside will apply its EP Management of Change process (refer to Section 9.8.4).

**Table 9-6: Ongoing consultation engagements**

| Information / Engagement type | Recipient | Purpose | Frequency | Content |
|---|---|---|---|---|
| Start of activity notification | BLCAC | Refer to Table 9-7 | | |
| End of activity notification | BLCAC | Refer to Table 9-7 | | |
| Baseline environment monitoring data | BLCAC | As proposed by Woodside during consultation with BLCAC. | Has already been provided to BLCAC prior to EP submission. Refer Appendix F, Table 2. | Post-cessation (2021) environmental sampling and analysis report. |
| Decommissioning environmental survey data | BLCAC (BLCAC to access via titleholder's website) | As proposed by Woodside during consultation with BLCAC. | Annually as outlined in Section 9.10.2.4. | Annual environment performance reporting as outlined in Section 9.10.2.4, published on the titleholder's website. |
| Further consultation engagements | BLCAC | As requested by BLCAC during consultation. | To be proposed by BLCAC and agreed by Woodside. | To be proposed by BLCAC. Potential items identified during consultation with BLCAC include:<br>▪ Ceremonies to welcome the activities to country and to heal country;<br>▪ Consultation on women's-only matters;<br>▪ Spill response or ranger training programs;<br>▪ Support for an independent scientist to report to BLCAC on Woodside's activities, and responding to any feedback from BLCAC on any such report. |
| Further consultation engagements | GMTOAC | Ongoing consultation. | Frequency is subject to agreement between Woodside and GMTOAC. | An initial proposal for the content and mechanism of ongoing consultation has been proposed by GMTOAC by way of the "Gunditjmara Consultation and Negotiation Protocol". As detailed in Appendix F, this Protocol has been reviewed by Woodside and a response provided to GMTOAC. The timing and scope of any further consultation engagement(s) will be the |

| Information / Engagement type | Recipient | Purpose | Frequency | Content |
|---|---|---|---|---|
| | | | | subject of agreement between Woodside and GMTOAC. |
| Further consultation engagements | EMAC | If requested by EMAC.<br>As requested by BLCAC during consultation, Woodside has contacted EMAC regarding BLCAC's suggestion that EMAC engage in further consultation activities. | To be proposed by EMAC and agreed by Woodside. | To be proposed by EMAC. Potential items identified during consultation with EMAC include:<br>▪ Items raised by BLCAC for Woodside to share with to EMAC;<br>▪ Support for an independent scientist to report to EMAC on Woodside's activities, and responding to any feedback from EMAC on any such report;<br>▪ Hydrocarbon release response plans. |
| Consultation in the event of an emergency | GLAWAC | As requested by GLAWAC during consultation. | In the event of an emergency that may affect GLAWAC interests. Note that notification to Traditional Owners in the event of a hydrocarbon release that may affect their interests is already captured in the OPEP (Appendix E). | Information regarding the emergency and potential impacts to GLAWAC interests. |
| Emails / meetings | Person or organisations who provide feedback to Woodside post EP submission | Identification, assessment and consideration of feedback, claims and / or objections | As appropriate | Assessment of claims and / or objections.<br><br>Relevant new information will be assessed using the EP Management of Change Process (refer to Section 9.8.4). |

## 9.10. Reporting

To meet the environmental performance outcomes and standards outline in the EP, Woodside undertake reporting at a number of levels as described in the following sub-sections.

## 9.10.1. Routine Reporting (Internal)

### 9.10.1.1. Daily Progress Reports and Meetings

Daily reports for activities are prepared and issued to key support personnel and stakeholders, by relevant managers responsible for the field-based activities. The report provides performance information about operational activities, heath, safety, and environment, and current and planned work activities.

Meetings between key personnel are used to transfer information, discuss incidents, agree plans for future activities and develop plans and accountabilities for resolving issues.

### 9.10.1.2. Regular HSE Meetings

The project vessels will hold regular HSE meetings which cover all crews. During these meetings, environmental incidents will be reviewed, and awareness material presented. All personnel are required to attend the HSE meetings and attendance sheets are retained by the project vessel contractor. Daily meetings held onboard the project vessels also serve to reinforce environmental awareness during the petroleum activity.

Dedicated HSE Meetings will also be held with the offshore and Perth-based management to address targeted HSE incidents and initiatives.

## 9.10.2. Routine Reporting (External)

### 9.10.2.1. Start and End of Activity Notifications

In accordance with Regulation 54, Woodside will notify in writing NOPSEMA and DJSIR of the commencement of the petroleum activity at least ten days before the activity commences and again within ten days of the completion of the activity.

Woodside will:

- Notify the Australian Hydrographic Office (AHO) no less than four weeks before operations, with details relevant to the operations in order for the AHO promulgate the appropriate Notice to Mariners.
- Notify AMSA's Joint Rescue Coordination Centre (JRCC) at least 24–48 hours before operations commence, in order to promulgate radio-navigation warnings.
- Notify JRCC when operations end.
- Provide updates to AHO and the JRCC on any changes to intended operations.
- Provide Victorian Department of Jobs, Skills, Industry and Regions (DJSIR) pre-start notification confirming the start date of the proposed activity and a cessation notification upon completion of the activity to: reports@ecodev.vic.gov.au
- Request advice from Airservices Australia on the status of the airspace in relation to the petroleum activity[32].
- Notify the Department of Defence at least five weeks prior to the commencement of the activity, including advice from Airservices Australia about the status of the airspace in relation to the petroleum activity.
- Notify the following fishery-related government departments, industry representative bodies, and licenced fishers pre-start and at the completion of operations:
  - government departments: AFMA, DAFF, and VFA
  - industry representative bodies: CFA and SIV
  - Commonwealth licenced fishers in the Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery
  - Victorian licenced fishers that have requested notifications during consultation facilitated by SIV

[32] Note that there are no planned flights in relation to the petroleum activity. Helicopter flights would only be required in response to an unplanned event (e.g., medical evacuation).

- Notify BLCAC of the commencement of the petroleum activity at least ten days before the activity commences and again within ten days of the completion of the activity.

#### 9.10.2.2. Environmental Performance Review and Reporting

Routine external reporting requirements are summarised in Table 9-7.

**Table 9-7: Routine external reporting requirements**

| Report | Recipient | Frequency | Content |
|---|---|---|---|
| Monthly Recordable Incident Reports | NOPSEMA | Monthly, by the 15 of each month. | Notification of a breach of an environmental performance outcome or standard, in the environment plan that applies to the activity that is not a reportable incident.<br>Complete NOPSEMA's Recordable Environmental Incident Monthly Report form. |
| Environmental Performance Report | NOPSEMA | Annual, with the first report submitted within 12 months of the commencement of the petroleum activity covered by this EP | In accordance with the regulation 51, confirmation of compliance with the Performance Outcomes, Performance Standards and Measurement Criteria of this EP.<br>Reporting period 1 July to 30 June.<br>Report must include sufficient information to enable NOPSEMA to determine whether or not the environmental performance outcomes and performance standards in the EP have been met. |

#### 9.10.2.3. End of the Environmental Plan

The EP will end when Woodside notify NOPSEMA that petroleum activity has ended, and all of the obligations under the EP have been completed, and NOPSEMA has accepted the notification, in accordance with regulation 46 of the Environment Regulations.

Notification will be through completion and submission of NOPSEMA's regulation 46 – End of operation of environment plan form.

#### 9.10.2.4. General Direction 831 Reporting

To meet Direction 6 in Schedule 1 of General Direction 831, Woodside will undertake the following reporting defined in as outlined in Table 9-8.

To meet Direction 4 and 5, Woodside will undertake surveys of the Minerva field and surrounding environment following removal activities, as described in the Minerva Decommissioning and Field Management EP. Data from these surveys and other operational data collected over the life of the Minerva development, will be analysed to inform what, if anything, needs to be done to provide for the conservation and protection of natural resources in the licence area, and make good any damage to the seabed or subsoil in the licence area caused by any person engaged or concerned with the operations.

Woodside will provide a report to NOPSEMA within 12 months following completion of final decommissioning activities with their demonstration for how Woodside has provided for the conservation and protection of the natural resources and made good any damage to the seabed or subsoil in the licence areas relevant to the Minerva field development.

**Table 9-8: General Direction 831 Reporting Requirements**

| Report / Notification | Recipient | Frequency | Communication | Comment |
|---|---|---|---|---|
| NOPSEMA Decommissioning Annual Progress | NOPSEMA | Annually, no later than 31 December each year | Written | Submit to NOPSEMA on an annual basis, until all directions have been met, a progress report detailing |

| Report / Notification | Recipient | Frequency | Communication | Comment |
|---|---|---|---|---|
| Report in accordance with NOPSEMA General Direction 831 | | | | planning towards and progress with undertaking the actions required by Directions 1, 2, 3, 4 and 5.<br>The report submitted under Direction 6(a) must be to the satisfaction of NOPSEMA and submitted to NOPSEMA no later than 31 December each year.<br>Publish the report on the registered holders' website within 14 days of obtaining NOPSEMA satisfaction under Direction 6(b). |

### 9.10.3. Incident Reporting (Internal)

Woodside classifies non-conformances with EPOs and standards in this EP as environmental incidents. Woodside employees and contractors are required to report all environmental incidents, and these are managed as per Woodside's internal event recording, investigation and learning requirements.

An internal computerised database called First Priority is used to record and report these incidents. Details of the event, immediate action taken to control the situation, investigation outcomes and corrective actions to prevent reoccurrence are all recorded. Corrective actions are monitored using First Priority and closed out in a timely manner.

Woodside uses a severity rating for classification of environmental incidents, with the significant categories having a severity level (consequence) of 3, 4 or 5 (as detailed in Section 6). Detailed investigations are completed for all incidents classified as a 3, 4 or 5 severity (consequence) level and high potential environmental incidents.

### 9.10.4. Incident Reporting (External) – Reportable and Recordable

#### 9.10.4.1. Reportable Incidents

A reportable environmental incident is defined in regulation 5 of the Environment Regulations as:

"…reportable incident, for an activity, means an incident relating to the activity that has caused, or has the potential to cause, moderate to significant environmental damage".

A reportable incident for the petroleum activity is:

- An uncontrolled release of hydrocarbons or environmentally hazardous chemicals of more than 80 L to the marine environment
- An incident that has caused environmental damage with a severity (consequence) level of ≥3, as defined in the Woodside (PetDW) HSE Risk Matrix (refer to previous Table 6-3), or
- An incident that has the potential to cause environmental damage with a severity (consequence) level of ≥3, as defined in the Woodside (PetDW) HSE Risk Matrix (refer to previous Table 6-3)

In accordance with regulations 47, 48 and 49, Woodside will:

- Report all reportable incidents orally to NOPSEMA, as soon as practicable, and in any case not later than 2 hours after the first occurrence of the reportable incident; or if the reportable incident was not detected at the time of the first occurrence, the time of becoming aware of the reportable incident.
- Oral notifications of a reportable incident to NOPSEMA will be via telephone: 1300 674 472.
- The oral notification must contain:
  - All material facts and circumstances concerning the reportable incident known or could be obtained by reasonable search or enquiry; and

  - Any action taken to avoid or mitigate any adverse environment impacts of the reportable incident; and
  - The corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the reportable incident.
- Provide a written record of the reportable incident to NOPSEMA, as soon as practicable after making the oral notification, but within three days after the first occurrence of the reportable incident unless NOPSEMA specifies otherwise. The written report should use a format consistent with NOPSEMA's Report of an Accident, Dangerous Occurrence or Environmental Incident form FM0929.
- Within 7 days of giving a written report of a reportable incident to NOPSEMA, a copy of the same written report must be provided to the National Offshore Petroleum Titles Administrator, and the Department of Jobs, Skills, Industry and Regions (DJSIR).

#### 9.10.4.2. Recordable Incidents

A recordable environmental incident is defined in regulation 5 of the Environment Regulations as:

"…recordable incident, for an activity, means a breach of an environmental performance outcome or environmental performance standard, in the environment plan that applies to the activity, that is not a reportable incident".

In terms of the activities within the scope of this EP, a recordable incident is a breach of the performance outcome or performance standards listed in Sections 7 and 8 of this EP.

In the event of a recordable in recordable incident, Woodside will report the occurrence to NOPSEMA as soon as is practicable after the end of the calendar month in which it occurs; and in any case, not later than 15 days after the end of the calendar month. If no recordable incidents have occurred, a 'nil incident' report will be submitted to NOPSEMA. Written reporting to NOPSEMA of recordable incidents and 'nil incidents' can be via completion of NOPSEMA's Form FM0928– Recordable Environmental Incident Monthly Report. The report will contain:

- a record of all the recordable incidents that occurred during the calendar month
- all material facts and circumstances concerning the recordable incidents that are known or can, by reasonable search or enquiry, be found out
- any action taken to avoid or mitigate any adverse environmental impacts of the recordable incidents
- the corrective action that has been taken, or is proposed to be taken, to stop, control or remedy the recordable incident
- the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future.

#### 9.10.4.3. Other External Incident Reporting Requirements

In addition to the notification and reporting of environmental incidents defined under the Environment Regulations and Woodside HSE Standard, the following incident reporting requirements apply:

***Commonwealth Waters***

In accordance with the Navigation Act 2012, any oil pollution incidents in Commonwealth waters will be reported by the Vessel Master to AMSA within 2 hours via the national emergency notification contacts and a written report within 24 hours of the request by AMSA.

The national 24-hour emergency notification contact details are:

- Freecall: 1800 641 792
- Fax: (02) 6230 6868
- Email: mdo@amsa.gov.au

Any loss or discharge to sea of harmful materials is to be reported by the MODU OIM / Vessel Master using the prescribed Harmful Substances Report (POLREP) form to the Rescue Coordination Centre (RCC).

Director of National Parks (DNP) should be made aware of oil/gas pollution incidences that occur within a marine park or are likely to impact on a marine park as soon as possible. Notification should be made to:

Marine Compliance Duty Officer on 0419 293 465 (24 hours).

The notification should include:

- titleholder details
- time and location of the incident (including name of marine park likely to be effected)
- proposed response arrangements as per the Oil Pollution Emergency Plan (e.g., dispersant, containment, etc.)
- confirmation of providing access to relevant monitoring and evaluation reports when available
- contact details for the response coordinator.

In Commonwealth Waters – All suspected or known instances of introduced aquatic pests or disease detected in Commonwealth waters to be reported to DCCEEW immediately, via the online reporting form: https://www.agriculture.gov.au/pests-diseases-weeds/report

Any harm or mortality to EPBC Act-listed threatened marine fauna, whether attributable to the activity or not, within 7 days to DCCEEW via email at: Email: EPBC.permits@environment.gov.au

Any vessel strikes with cetaceans or whale sharks will be reported in the National Ship Strike Database at: https://data.marinemammals.gov.au/report/shipstrike

***Victorian State Waters***

Whilst the activity is being undertaken in Commonwealth jurisdiction, where an incident has caused, or has the potential to cause moderate to catastrophic environmental consequences within State jurisdiction;

The Vessel Master / Drilling Superintendent (or delegate) is responsible for reporting any oil pollution incident affecting or likely to affect State waters to the State Duty Officer (SDO) via the 24-hour reporting number 0409 858 715. The Duty Officer will then advise whether the following forms are required to be submitted:

- Marine Pollution Form (POLREP) and/ or
- Marine Pollution Situation Report (SITREP)

Within 3 days of oral notification provide written notification of any environmental incident that could potentially impact on any land or water in State jurisdiction via: marine.pollution@ecodev.vic.gov.au

- Suspected or confirm invasive marine species introduction contact DJSIR ASAP on 136186 or marine.pests@ecodev.vic.gov.au

## 9.11. EP Review Process

### 9.11.1. Management of Knowledge

Review of knowledge relevant to the existing environment is undertaken in order to identify changes relating to the understanding of the environment or legislation that supports the risk and impact assessments for EPs (in-force and in-preparation). Relevant knowledge is defined as:

- environmental science supporting the description of the existing environment
- socio-economic environment and consultation information
- environmental legislation.

The frequency and record of reviews, communication of relevant new knowledge and consideration of management of change are documented in the Woodside Environment Plan Guideline.

Under the Oil Spill Scientific Monitoring Program preparedness, an annual review and update to the environmental baseline studies database is completed and documented. Periodic location-focused environmental studies and baseline data gap analyses are completed and documented. Any subsequent studies scoped and executed as a result of such gap analysis are managed by the Environment Science Team and tracked via the Corporate Environment Baseline Database.

### 9.11.2. Learning and Knowledge Sharing

Learning and knowledge sharing occurs via a number of different methods including:

- event investigations
- event bulletins
- after campaign review conducted, including review of environmental incidents as relevant
- ongoing communication with vessel operators
- formal and informal industry benchmarking
- cross asset learnings
- engineering and technical authorities discipline communications and sharing.

### 9.11.3. Review of Impacts, Risks and Controls across the life of the EP

If activities described in this EP do not occur continuously or sequentially, before recommencing activities after a cessation period greater than 12 months, impacts, risks and controls will be reviewed.

The process will identify or review impacts and risks associated with the newly commencing activity and will identify or review controls to ensure impacts and risks remain/are reduced to ALARP and acceptable levels. Information learned from previous activities conducted under this EP will be considered. Controls which have previously been excluded on the basis of proportionality will be reconsidered. Any required changes will be managed by the MoC process outlined below (Section 9.11.4).

### 9.11.4. EP Management of Change

Management of changes are managed in accordance with Woodside's Environmental Approval Requirements Australia Commonwealth Guideline. Management of changes relevant to this EP, concerning the scope of the activity description (Section 3) including:

- review of advances in technology at stages where new equipment may be selected such as vessel contracting
- changes in understanding of the environment, EPBC Act listed threatened and migratory species status, EPBC Act Part 13 statutory instruments (recovery plans, threat abatement plans, conservation advice, wildlife conservation plans) and current requirements for AMPs (Section 4)
- potential new advice from external agencies (Section 4).

Risk will be assessed in accordance with the environmental risk management methodology (Section 6) to determine the significance of any potential new environmental impacts or risks not provided for in this EP. Risk assessment outcomes are reviewed in compliance with regulation 39(2) of the Environment Regulations.

Minor changes where a review of the activity and the environmental risks and impacts of the activity do not trigger a requirement for a formal revision under regulation 39(2) of the Environment Regulations, will be considered a 'minor revision'. Minor administrative changes to this EP, where an assessment of the environmental risks and impacts is not required (e.g., document references, phone numbers, etc.), will also be considered a 'minor revision'. Minor revisions as defined above will be made to this EP using Woodside's document control process. Minor revisions will be tracked in an MoC Register to ensure visibility of cumulative risk changes, as well as enable internal EP updates/reissuing as required. This document will be made available to NOPSEMA during regulator environment inspections.

### 9.11.5. OPEP Management of Change

Relevant documents from the OPEP (Appendix E) will be reviewed in the following circumstances:

- implementation of improved preparedness measures
- a change in the availability of equipment stockpiles
- a change in the availability of personnel that reduces or improves preparedness and the capacity to respond

- the introduction of a new or improved technology that may be considered in a response for this activity
- to incorporate, where relevant, lessons learned from exercises or events
- if national or state response frameworks and Woodside's integration with these framework changes.

Where changes are required to the OPEP, based on the outcomes of the reviews described above, they will be assessed against Regulation 39(2) to determine if EP, including OPEP, resubmission is required. Changes with potential to influence minor or technical changes to the OPEP are tracked in management of change records, project records and incorporated during internal updates of the OPEP or the five-yearly revision.

## 9.12. Emergency Preparedness and Response

### 9.12.1. Overview

Under Regulation 22(8), the implementation strategy must contain an oil pollution emergency plan (OPEP) and provide for the updating of the OPEP. In accordance with Regulation 22(8), the sections below detail the implementation strategy for hydrocarbon spill emergency conditions during decommissioning activities.

The section outlines the response framework in the event of a hydrocarbon spill. As part of the implementation strategy, Woodside has developed a series of spill response documents, inclusive of an OPEP (Appendix E). Specific arrangements are presented to ensure that the environmental impacts and risks of spill response activities will be continuously identified and reduced to ALARP.

### 9.12.2. Emergency Response Training

Regulation 22(4) requires that the implementation strategy includes measures to ensure that employees and contractors have the appropriate competencies and training. Woodside has conducted a risk based training needs analysis on positions required for effective emergency response (Table 9-9).

**Table 9-9: Emergency response training requirements**

| IMT Position | Minimum Competency |
|---|---|
| Corporate Incident Management Team (CIMT) Incident Commander and Deputy Incident Commander | ▪ IMT Fundamentals Course (internal course) or equivalent<br>▪ ICS 100/200<br>▪ IMO3 or equivalent spill response specialist level with an oil spill response organisation (OSRO)<br>▪ Participation in L2 activation, exercise or skills maintenance |
| Operations, Planning, Logistics and Finance Sections, and other rostered members of the CIMT | ▪ IMT Fundamentals Course or equivalent<br>▪ ICS 100/200<br>▪ Oil spill theory<br>▪ Participation in L2 activation, exercise or skills maintenance |
| Environment Unit Leader | ▪ IMT Fundamentals Course<br>▪ ICS 100/200<br>▪ IMO2 or equivalent spill response specialist level with an OSRO Participation in L2 activation, exercise or skills maintenance |

| *Note on competency/equivalency* |
|---|
| In 2023 Woodside undertook a review of incident and crisis systems, processes and tools to assess whether these were fit-for purpose and has rolled out a change to the Crisis and Emergency Management training and the oil spill response training requirements for IMT roles.<br>The revised IMT Fundamentals training Program aligns with the performance requirements of the *PMAOMIR320 – Manage Incident Response Information* and *PMAOM0R418 - Coordinate Incident Response.*<br>In 2023, Woodside took the decision to align its global incident command arrangements to the Incident Command System (ICS). As such all rostered members of the Incident Management Team are trained up to ICS 200.<br>In addition to baseline incident management training, all rostered members of the CIMT undertake a level of hydrocarbon spill response training. Depending upon the role, this may take the form of IMO training or completion of Woodside's internal oil spill training course (OSREC) which involves the completion of two online AMSA Modules (Introduction to National Plan and Incident Management; and Introduction to Oil Spills) and face-to-face training.<br>Woodside Learning Services is responsible for collating and maintaining personnel training records. The HSP Dashboard reflects the competencies required for each oil spill role (IMT/operational). |

### 9.12.3. Oil Spill Response Jurisdictional Arrangements

In the event of an oil spill, Control Agencies are assigned to respond to the various levels of spills is outlined in Table 9-10. The “Statutory Agency” and “Control Agency” are defined as follows:

- Jurisdictional Authority: State or Commonwealth Agency assigned by legislation, administrative arrangements or within the relevant contingency plan, to control response activities to a maritime environmental emergency in their area of jurisdiction.
- Control Agency: is the agency with operational responsibility in accordance with the relevant contingency plan to take action to respond to an oil and/or chemical spill in the marine environment.

**Table 9-10: Statutory and lead control agencies for oil spill pollution incidents**

| Area | Spill Source | Jurisdictional Authority | Lead Control Agency | |
|---|---|---|---|---|
| | | | *Level 1* | *Level 2/3* |
| Commonwealth Waters | Offshore Petroleum Activity | NOPSEMA | Woodside | |
| | Vessels | AMSA | Vessel | AMSA |
| State Waters | Offshore Petroleum Activity | Vic DJSIR | Woodside / Vic DTP (JSCC) | |
| | Marine Pollution Oil spills in Victorian Coastal waters up to three nautical miles | Vic DTP | | |
| | Wildlife affected by marine pollution | DEECA | | |
| Port Waters | Vessels | Port Authority | Port Authority / Vic DTP | |

Note: When a wildlife response is required in State and Commonwealth waters, DEECA will act as the lead agency and follow the relevant State legislation.

Section 3 of the Victorian State Maritime Emergencies (non-search and rescue) (MENSAR) Subplan Edition 2 details the arrangements for the management of maritime emergencies in State jurisdiction. These arrangements are not replicated within the EP but are applicable to an oil spill response in Victorian State jurisdiction. A summary of MENSAR Plan is provided in the section below.

Further detail on Victorian State oil pollution response and jurisdictional arrangements is presented within the Victorian Joint Industry and State Oil Pollution Responses Guidance Note V2 2020. These arrangements are not replicated within the EP but are applicable to an oil spill response in Victorian State jurisdiction.

## 9.12.4. External Emergency Response Plans

The following external plans have been used to inform the development of oil pollution emergency documentation for the proposed activity.

### 9.12.4.1. NatPlan – National Plan for Maritime Environmental Emergencies

Sets out the national arrangements, policies and principles for the management of marine oil pollution. It defines obligations the States and various industry sectors in respect of marine oil pollution prevention, preparation, response and recovery.

### 9.12.4.2. AMOSPlan – Australian Industry Cooperative Spill Response Arrangements

Managed by AMOSC, it details the cooperative arrangements for response to oil spills by Australian oil and associated industries.

### 9.12.4.3. Victorian State Emergency Management Plan (SEMP) (2021)

The SEMP provides for an integrated, coordinated and comprehensive approach to emergency management (EM) at the state level. The EM Act 2013 requires the SEMP to contain provisions providing for the mitigation of, response to and recovery from emergencies (before, during and after), and to specify the roles and responsibilities of agencies in relation to EM.

***Victorian SEMP Maritime Emergencies (non-search and rescue) Sub-Plan (MENSAR) (Edition 2) (2021)***

This sub-plan exists to ensure that collaboration, co-operation and resources sharing is captured and agreed to by the relevant persons and a response to a complex maritime emergency will be a shared responsibility between the agencies. The Maritime Emergencies (Non Search and Rescue (NSR)) Subplan of the State Emergency Management Plan (SEMP) is developed in accordance with the Emergency Management Act 2013 (External link), it also serves the purposes of being the Victorian Marine Pollution Contingency Plan in accordance with the Marine (Drug, Alcohol and Pollution Control) Act 1988 (the Act) (External link).

The sub-plan is two parts:

- Part A is the Maritime Emergencies (NSR) Sub-Plan:
  - It provides an overview of the arrangements for managing maritime emergencies in Victoria.
  - It describes the integrated approach and shared responsibility between state and commonwealth governments, agencies, businesses and communities.
  - The sub-plan refers to national agreements, plans and documents, including the National Plan.
- Part B is the Maritime Emergencies (NSR) Operational Plan and contains the operational details for preparing and planning for, responding to, and recovering from maritime emergencies.

The sub-plan applies to maritime emergencies (NSR) including marine pollution which results or may result in a prohibited discharge of oil, oily mixtures, undesirable or hazardous and noxious substances into state waters.

***Victorian SEMP Animal, Plant, Marine and Environmental Biosecurity Sub-Plan (2021)***

The Animal, Plant, Marine and Environmental Biosecurity Sub-Plan ('the Plan') provides an overview of the current arrangements for the management of biosecurity emergencies (excluding human health emergencies and non-Emergency Animal Disease wildlife emergencies) in Victoria and contains information on biosecurity mitigation, preparedness, response, relief and recovery. The Department of Jobs, Skills, Industry and Regions (DJSIR) has developed this Plan consistent with national arrangements for biosecurity emergencies and with input from a range of other emergency management agencies. The Plan refers to a range of existing plans and documents but does not duplicate the information contained in these, instead providing directions to websites or other sources where the reader can obtain further information if required.

### 9.12.4.4. Victorian Emergency Animal Welfare Plan (VEAWP) (Revision 2, October 2019)

The Victorian Emergency Animal Welfare Plan (the Plan) is intended to be a reference for all agencies, organisations, groups and individuals with responsibility for animal welfare during emergencies. It provides

principles and policy for use in emergency planning, response and recovery phases. It defines the roles and responsibilities of agencies and organisations.

The plan has the overarching objectives of:

- Contributing to enhanced human safety and community resilience through effective planning and management of animals in emergencies; and
- Ensuring animals are better considered and protected from suffering during and immediately following emergencies.

The plan was developed following extensive consultation with emergency management and animal welfare relevant persons including the Victorian Emergency Animal Welfare Committee. It has been developed in line with the National Planning Principles established by the National Advisory Committee for Animals in Emergencies.

The plan confirms that:

- DJSIR is the primary state agency for the provision of welfare support for all animals other than wildlife in emergencies
- DEECA is the primary state agency for the provision of welfare support for wildlife in emergencies. https://www.wildlife.vic.gov.au/wildlife-emergencies/wildlife-emergencies.

#### 9.12.4.5. Industry Joint Venture Plans

Various Plans developing general and assisted Oil Spill Response Capabilities.

#### 9.12.4.6. AMSA Australian Government Coordination Arrangements for Maritime Environmental Emergencies

Provides a framework for the coordination of Australian Governmental departments and agencies in response to a maritime environmental emergency.

The OPEP interfaces with National, State and Woodside Plans.

### 9.12.5. Internal Emergency Response Plans

#### 9.12.5.1. Woodside Corporate Emergency Response Plans

To support this requirement, the following documents have been adopted and implemented by Woodside.

***Crisis and Emergency Management Procedure***

The objective of the Crisis and Emergency Management (CEM) Procedure is to describe the CEM process requirements intended to ensure the Company remains prepared to manage incidents and crises effectively. The CEM process is based on the Prevention, Preparedness, Response and Recovery (PPRR) framework. The CEM process categorises incidents into three levels, based on an assessment of the current consequences and the potential for escalation (Levels 1 to Level 3). This enables clear escalation criteria to be established, so that appropriate support and resources can be quickly applied to manage the incident.

The CEM Procedure details the organisational structure to enable effective incident control, coordination, and communication at all levels and the key accountabilities for those responsible for the oversight and implementation of the CEM process.

***Crisis Management Guideline***

The objective of this guideline is to provide Crisis Management Team (CMT) with the appropriate resources and guidance to effectively manage a Level 3 incident. It supports the implementation of the I&CM Procedure.

***Corporate Incident Management Team Guideline***

The objective of this guideline is to provide the Corporate Incident Management Team (CIMT) members with the resources and guidance to manage a Level 2 or 3 incident effectively. It supports the implementation of the I&CM Procedure.

Activity Specific Emergency Response Plans

Activity-specific documents to be applied by Woodside in the event of an oil pollution emergency in the Otway Basin include:

***Minerva Field Well Operations Management Plan (WOMP)***

The WOMP demonstrates compliance with:

- Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011
- Weather Monitoring and Planning (PET-GDC20-DR-PRD-00061): describing extreme weather forecasting and emergency disconnect protocols and timeframes
- Well Design (PET-GDC20-DR-PRD-00062): detailing minimum design requirements to ensure well integrity
- Well Integrity Standard (DR-STD-PET-DC-0193): detailing well integrity and barrier requirements including verification of barriers and barrier elements during well construction, well suspension, temporary abandonment and permanent abandonment.
- Cementing Standard (DR-PET-STD-DC-0142): detailing minimum cementing standards to ensure formation isolation
- Well & Seismic Delivery (WSD) Organisation, Development and Training Standard (DR-STD-PET-DC-0123): covering well control training requirements for Drillers, Assistant Drillers & Supervisors involved in well control.

***Minerva Plug and Abandonment OPEP***

The following documents form the Minerva P&A hydrocarbon spill response arrangements:

- Oil Pollution Emergency Arrangements (OPEA) (Australia)
- The Minerva Plug and Abandonment Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA)
- The Minerva Plug and Abandonment Oil Pollution First Strike Plan (FSP)
- Relevant Operational Plans for selected response techniques
- Relevant Tactical Response Plans (TRPs)
- Source Control Emergency Response Plan (SCERP) – The SCERP is consistent with the requirements of the Critical Control Performance Standards: Source Control (PET-GDC20-DR-PRD-00063), the Source Control Framework detailed within the International Oil and Gas Producers (IOGP) Report 594 - Subsea Well Source Control Emergency Response Planning Guide for Subsea Wells (2019) and the AEP Australian Offshore Titleholder's Source Control Guideline (June 2021). The SCERP details:
  - Woodside's access to industry resources under the AEP Memorandum of Understanding: Mutual Aid;
  - A program-specific evaluation of WCD consistent with Society of Petroleum Engineers (SPE), Technical Report on Calculation of Worst-Case Discharge, SPE-174705-TR
  - Primary well design details for identified blowout scenarios
  - An evaluation of surface access to undertake source control operations including subsea intervention and relief well locations
  - Detail the planning and resourcing requirements to initiate source control operations including: the subsea first response toolkit, & relief well drilling
  - A detailed timeline for the implementation of source control operations to the point of successful well kill.
- The SCERP is in a format consistent with the AEP Australian Offshore Titleholder's Source Control Guideline (June 2021) and includes:
  - Purpose & objectives
  - Scope & overview of source control / kill strategy

  - References & applicable supporting documents
  - Source control incident levels & notification actions
  - Source control response actions & interface arrangements with the Woodside Incident and Crisis Management Procedure (I&CMP) & MODU Emergency Response Plans (ERP)
  - Source Control Section (SCS) roles & responsibilities
  - Source control resources available via the AEP Mutual Aid MoU, specialist contractors & organisations, contractual and mobilisation arrangements
  - MODU & vessel availability including tracking, securing, regulatory approvals and mobilisation
  - Detailed logistics (national and international) & SIMOPS plans including field exclusions and coordination
  - A Subsea Intervention Plan
  - A separate Relief Well Plan
  - SCERP training, exercises, & readiness validation
- Supporting technical appendices, including:
  - Primary Tactical Response Plans (TRPs) for the Otway Region including the Aire River Primary TRP, Curdies Inlet Primary TRP, Gellibrand River Primary TRP and Warrnambool Primary TRP
  - Contractor Emergency Response Plans (ERPs), SOPEPs and bridging documents.

## 9.12.6. Notifications and IMT Activation

- For Level 1 incidents, the MODU and/or vessel contractor responds to the incident and immediately notifies the Drilling Superintendent and/or Head of Drilling & Completions Australia.
- For Level 2/3 incidents, the MODU and/or vessel contractor immediately notifies the Woodside Communications Centre (WCC).

The Woodside Communications Centre (WCC) is a 24/7, central communication and coordination point for personnel and sites. Initial notification of a potential or actual incident must be made through the WCC. The activation of the CIMT (and supporting functions) will be actioned by the WCC. The CIMT provides operational level incident coordination and/or incident control of response and recovery activities and is supported by Section Chiefs.

## 9.12.7. Government Agency Notification

Emergency response teams are hierarchical in nature, and response teams and resources are progressively activated depending on the severity of an incident. Government agencies and industry organisations may also be mobilised. A relevant persons database will be used to maintain contact with identified relevant persons.

## 9.12.8. Industry Joint Venture Programmes

Woodside undertakes Joint Venture Programmes with other operators and organisations including, but not limited to, Santos, Vermillion, and AMOSC. These programmes aim to develop operational guidelines, operational tests, training processes and plans to inform and prepare oil spill response strategies. The programmes also provide guidance and training around First Strike incident plans, key operational considerations, understanding of shoreline sensitivities and lists of resources required to implement response.

## 9.12.9. Review and Testing of the Oil Pollution Emergency Arrangements

### 9.12.9.1. Review and update of the OPEP and SCERP

The duration of the activity is expected to be approximately 45 to 60 days but potentially may extend to 160 days.

The Company HSE Lead is responsible for assessing any changes during this period and deciding if a resubmission of the OPEP is required under regulation 22(12) of the Environment Regulations. The Head of Global Wells and Seismic Australia is responsible for the review, and where applicable, update of the SCERP.

#### 9.12.9.2. Emergency and Spill Response Drills and Exercises

Testing of Woodside's capability to respond to incidents will be conducted in alignment with the Emergency and Crisis Management Procedure. The scope, frequency and objective of these tests is described in Table 9-11. Woodside's emergency response testing regime is aligned to existing or developing risks associated with Woodside's operations and activities. Corporate hazards/risks outlined in the corporate risk register, respective Safety Cases or project Risk Registers, are reference point for emergency management and crisis management exercising schedule development. External participants may be invited to attend exercises (e.g. government agencies, specialist service providers, hydrocarbon spill response organisations or industry members with which Woodside has mutual aid arrangements).

The overall objective of exercising is to tests procedures, skills and teamwork of the Emergency Response and Command Teams in their ability to respond to a major event. After each exercise, the team holds a debrief session, during which the exercise is reviewed. Any lessons learnt or areas for improvement are identified and incorporated into revised procedures where appropriate.

**Table 9-11: Testing of Response Capability to Incidents**

| Response Category | Scope | Response Testing Frequency | Response Testing Objective |
|---|---|---|---|
| **Level 1 Response** | Exercises are vessel specific | At least one Level 1 First Strike drill must be conducted during an activity. For campaigns with an operational duration of greater than one month this will occur within the first two weeks of commencing the activity and then at least every 6 month hire period thereafter. | • Comprehensive exercises test elements of the Oil Pollution First Strike Plan (Appendix E).<br>• Emergency drills are scheduled to test other aspects of the Emergency Response Plan. |
| **Level 2 Response** | Exercises are MODU specific | Level 2 Emergency Management exercises are relevant to activities with an operational duration of one month or greater. At least one Emergency Management exercise per MODU per campaign must be conducted one month prior to or within the first month of commencing the activity and then every 6 month hire period thereafter, where applicable based on duration. | • Testing both the facility IMT response and/or that of the CIMT following handover of incident control. |
| **Level 3 Response** | Exercises are relevant to all Woodside assets | The number of CMT exercises conducted each year is determined by the Chief Executive Officer, in consultation with the Vice President of Security and Emergency Management. | • Test Woodside's ability to respond to and manage a crisis level incident. |

#### 9.12.9.3. Hydrocarbon Spill Response Testing of Arrangements

There are a number of arrangements which, in the event of a spill, will underpin Woodside's ability to implement a response across its petroleum activities. In order to ensure these arrangements are adequately tested, the Capability Development Team within Security and Emergency Management ensures tests are conducted in alignment with the Hydrocarbon Spill Testing of Arrangements Schedule.

Woodside's arrangements for spill response are common across its Australian operating assets and activities to ensure the controls are consistent. The overall objective of testing these arrangements is to ensure that Woodside maintains an ability to respond to a hydrocarbon spill, specifically to:

- ensure relevant responders, contractors and key personnel understand and practise their assigned roles and responsibilities
- test response arrangements and actions to validate response plans
- ensure lessons learned are incorporated into Woodside's processes and procedures and improvements are made where required.

If new response arrangements are introduced, or existing arrangements significantly amended, additional testing is undertaken accordingly. Additional activities or activity locations are not anticipated to occur; however, if they do, testing of relevant response arrangements will be undertaken as soon as practicable.

In addition to the testing of response capability described in Table 9-9, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment.

### 9.12.9.4. Testing of Arrangements Schedule

Woodside's Testing of Arrangements Schedule (Figure 9-9) aligns with international good practice for spill preparedness and response management; the testing is compatible with the International Petroleum Industry Environmental Conservation Association Good Practice Guide and the Australian Institute for Disaster Resilience (AIDR) Australian Emergency Management Arrangements Handbook. If a spill occurs, enacting these arrangements will underpin Woodside's ability to implement a response across its petroleum activities, including the Otway Basin.

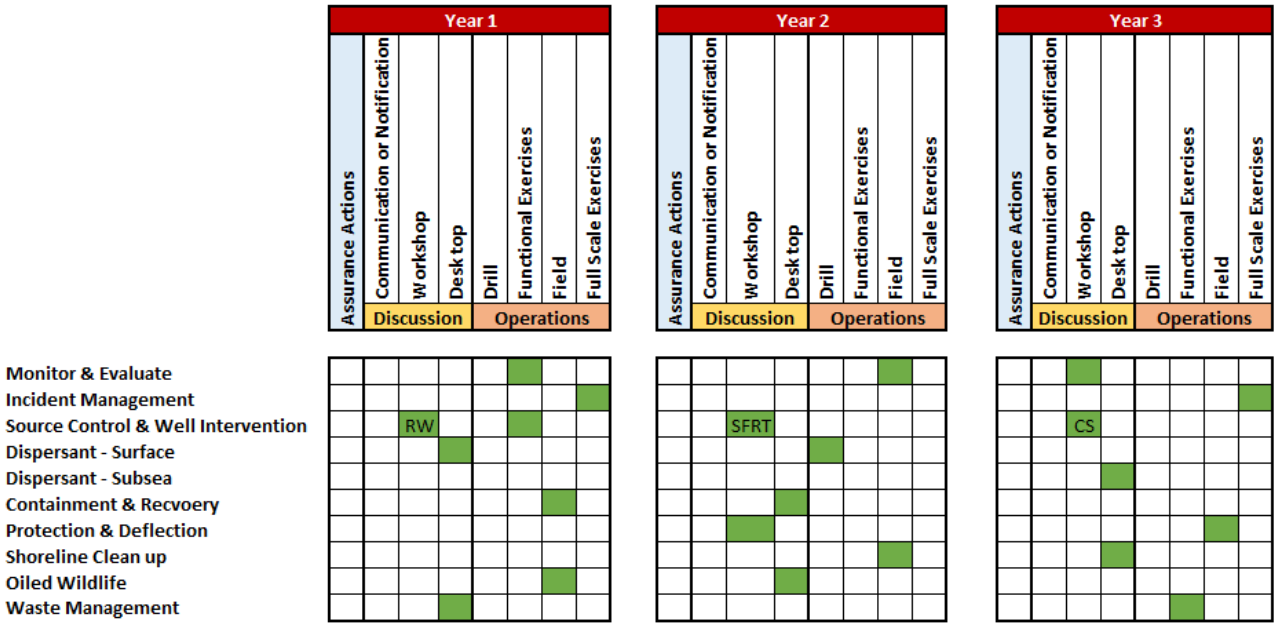


**Figure 9-9: Indicative three-yearly testing of arrangements schedule**

The hydrocarbon spill arrangements shown in the rows of the schedule are tested against Woodside's regulatory commitments. Each arrangement has a support agency/company and an area to be tested (e.g., capability, equipment and personnel). For example, an arrangement could be to test Woodside's personnel capability for conducting scientific monitoring, or the ability of the Australian Marine Oil Spill Centre to provide response personnel and equipment.

The vertical columns relate to how hydrocarbon spill arrangements will be tested over the three year rolling schedule. The sub-heading for the column describes the standard method of testing likely to be undertaken (e.g., discussion exercise, desktop exercise), and the green cells indicate the arrangements that could be tested for each method.

Some arrangements may be tested across multiple exercises (e.g., critical arrangements) or via other 'additional assurance' methods outside the formal Testing of Arrangements Schedule that also constitute sufficient evidence of testing of arrangements (e.g., audits, no-notice drills, internal exercises, assurance drills).

The schedule identifies the type of test which will be conducted annually for each arrangement, and how this type will vary over a three-year rolling schedule. Testing methods may include (but are not limited to): audits, drills, field exercises, functional workshops, assurance reporting, assurance monitoring, and reviews of key external dependencies.

Woodside Energy will conduct an exercise, inclusive of source control arrangements as detailed within the SCERP, at least 1 month prior to the commencement of P&A activities based upon a WCD (LOWC) scenario within the Minerva Field. Additionally, provision will be made to test response arrangements:

- if they are significantly amended following the acceptance of the EP/ OPEP, including the command structure and functional arrangements of the CIMT and interface/ contracting arrangements with OSROs and/ or response service providers
- if a new location for the activity is added to the EP after the response arrangements have been tested, and before the next test is conducted. Testing the response arrangements at the new location will be undertaken as soon as practicable after incorporation into the EP.

#### 9.12.9.5. Response Testing Objectives

The exercise will incorporate the Perth CIMT, Source Control Section (SCS) resources and selected support specialist contractors. The exercise may be conducted in a phased approach, or as a single oil spill response exercise. Where Company response strategies and CIMT have been subject to an exercise in the past 12 months, and the testing scenario is comparable to that of a Minerva Field oil pollution emergency in relation to oil type and resources at risk from oil pollution, results from previous exercises may be used to validate the response testing objectives detailed below.

The exercise objectives will include:

- Test establishment of Victorian Forward Operating Bases and interface with Perth CIMT
- Test establishment of Source Control Section and interface arrangements with CIMT
- Test ability to secure alternate MODU for theoretical deployment to Otway Basin
- Test incident reporting protocols in relation to both internal and external requirements
- Test activation of source control oil spill response organisations and readiness to mobilise personnel and equipment within specified timeframes as detailed within the SCERP
- Test communications with OSROs including arrangements for remote working
- Test CIMT communications and interface relationships with Victorian DTP IMT via JSCC

#### 9.12.9.6. Evaluation of effectiveness of response arrangements

Exercise evaluation of a functional workshop will be undertaken to determine if the exercise objectives have been achieved. Lessons learned throughout the exercise and during the post exercise debrief will be recorded including identified strengths and areas for improvement.

#### 9.12.9.7. Response testing recommendations

Any actions from exercises will be tracked and lessons learnt incorporated into subsequent tests. Where required, response documentation shall be updated to incorporate learnings derived during response testing.

#### 9.12.9.8. Audits

***Audits of External Organisations***

A formal audit of AMOSC is done by representatives of member companies annually. At the conclusion of an audit, improvement opportunities and corrective actions are formally noted and corrective actions assigned. In some instances, changes may be required to the OPEP, but changes will only be made in accordance with the Environment Regulations.

***Audits of Internal Actions***

Following an emergency spill incident there may be a requirement for legal and/ or other regulatory or formal HSE incident investigations to be conducted in accordance with the Woodside HSE Management System.

In addition to this, it is essential that the CIMT response actions are reviewed as soon as practicable after an incident. The aim of the incident review is to identify any particular lessons that should be shared across the Company, and that can be used to improve the plans or response actions in the future.

Post-spill debriefs address:

- spill causes, if known
- spill response
- speed
- operation
- effectiveness
- equipment suitability
- health and safety issues, as appropriate
- integration of plan and procedures with other response organisations, consultants, and or agencies.

### 9.12.10. Emergency Preparedness Consultation

Woodside has undertaken relevant person engagement during the development of the EP and associated OPEP consistent with the Victorian Joint Industry and State Oil Pollution Responses Guidance Note V2.4 2023. Additionally, a copy of the OPEP and associated emergency response documents was supplied to the Victorian DTP for review on the 11 December 2023. The outcome of this review was incorporated into the subsequent revisions of the OPEP in January 2024.

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# Appendix A Our Values

# OUR VALUES

## One team

We are inspired by our common purpose.

We challenge, respect, and back each other.

We are inclusive, value diversity, and can be ourselves.

## We care

We keep each other safe.

We listen and respond with humility.

We respect the environment, operate responsibly, and care for communities.

We adapt to the world's expectations of us.

## Innovate every day

We explore ideas, find creative solutions, and try new ways of doing things to provide the energy the world needs today and low-cost, lower-carbon energy for tomorrow.

## Results matter

We go after opportunities and show courage by taking the right risks and learning from our mistakes.

We spend and invest as if it's our money.

We are proud of our achievements.

## Build and maintain trust

Trust takes time and effort and will not be taken for granted.

We nurture relationships and act with integrity – doing what we say and doing it well.

PART OF A BETTER FUTURE

Woodside Energy

# Appendix B Woodside Environment and Biodiversity Policy

# Environment and Biodiversity Policy

## OBJECTIVE

Woodside recognises the intrinsic value of nature and the importance of conserving biodiversity and ecosystem services to support the sustainable development of our society. We are committed to doing our part. We understand and embrace our responsibility to undertake activities in an environmentally sustainable way.

## PRINCIPLES

Woodside commits to:

- Implementing a systematic approach to the management of the impacts and risks of our operating activities on an ongoing basis, including emissions and air quality, discharge and waste management, water management, biodiversity and protected areas.
- Applying the mitigation hierarchy principle (avoid, minimise, restore) and a continuous improvement approach to ensure we maintain compliance, improve resource use efficiency and reduce our environmental impacts.
- Embedding environmental and biodiversity management, and opportunities, in our business planning and decision making processes.
- Complying with relevant laws and regulations and applying responsible standards where laws do not exist.
- Not undertaking new exploration or development of hydrocarbons within the boundaries of natural sites on the UNESCO World Heritage List (as specified at 1 December 2022). Existing activity may continue if compatible with maintenance of the listed outstanding universal values.
- Not undertaking new exploration or development of hydrocarbons within IUCN Protected Areas (as specified at 1 December 2022) unless compatible with management plans in place for the area. Existing activity may continue if compatible with management plans in place for the area.
- Achieving net zero deforestation[1] associated with new projects that take a Final Investment Decision (FID) after 1 December 2022.
- Developing Biodiversity Action Plans for all new major projects (CAPEX >USD$2 billion) that take a FID after 1 December 2022.
- Supporting positive biodiversity outcomes in regions and areas in which we operate.
- Setting targets and publicly reporting on our environmental and biodiversity performance.

## APPLICABILITY

Responsibility for the application of this Policy rests with all Woodside employees, contractors and joint venturers engaged in activities under Woodside operational control. Woodside managers are also responsible for promotion of this Policy in non-operated joint ventures.

This Policy will be reviewed regularly and updated as required.

*Approved by the Woodside Energy Group Ltd Board in December 2022.*

[1] Definition of Forest: 'trees higher than 5 metres and a canopy cover of more than 10 percent on the land to be cleared'.

# Appendix C Relevant Legislation, Regulations, and Other Requirements

## Commonwealth Legislation

| Legislation or Regulation | Description | Relevance |
|---|---|---|
| *Australian Maritime Safety Authority Act 1990* | AMSA is a Commonwealth agency responsible for regulation of maritime safety, search and rescue, and ship sourced pollution prevention functions under the *Navigation Act 1912* (Cth), protection of the sea legislation, including the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* (Cth) and subordinate legislation made pursuant to these Acts. | Applies to the use of any vessel associated with operations and is relevant to the activity in regard to the unplanned pollution from ships. |
| Australian Ballast Water Management Requirements (Commonwealth of Australia, 2020), Version 8 | The Australian Ballast Water Management Requirements (Version 8) set out the obligations on vessel operators with regards to the management of ballast water and ballast tank sediment when operating within Australian seas. | Applies to all internationally sources vessels operating in Australian Waters which could have the potential for the introduction of IMS and potential ballast water exchange. |
| *Biosecurity Act 2015* | This Act is about managing diseases and pests that may cause harm to human, animal or plant health or the environment. The proposed amendments also strengthen Australia's ability to manage ballast water in ships. They will provide additional protection for coastal environments from the risk of marine pest incursions by fostering new ballast water treatment technologies and phasing out ballast water exchange. | Applies to all internationally sources vessels operating in Australian Waters which could have the potential for the introduction of IMS and potential ballast water exchange. |
| Biosecurity Regulation 2016 | The Biosecurity Regulation prescribes a number of measures and obligations that are common between the *Biosecurity Act*. Pre-arrival reporting, cost recovery and the isolation and export power provisions all support business as usual activities that were available under the *Quarantine Act* and therefore represent no substantive change. | Applies to all internationally sources vessels operating in Australian Waters which could have the potential for the introduction of IMS and potential ballast water exchange. |
| *Corporations Act 2001* | This Act is the principal legislation regulating matters of Australian companies, such as the formation and operation of companies, duties of officers, takeovers and fundraising. | The titleholder has provided ACN details within the meaning of the Act. |

| Legislation or Regulation | Description | Relevance |
|---|---|---|
| *Environment Protection & Biodiversity Conservation Act 1999 (EPBC Act)*<br>Environment Protection and Biodiversity Conservation Regulations 2000 | Commonwealth Department of Sustainability, Environment, Water, Population & Communities administers Act that provides legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places—defined in the EPBC Act as matters of national environmental significance (NES). These include nationally threatened species and ecological communities, migratory species and Commonwealth marine areas. The Act regulates assessment and approval of proposed actions likely to have a significant impact on a matter of NES. The approval decision is made by a delegate of the Australian Government Environment Minister.<br>Regulations provide for a wide range of detail essential for the operation of the Act, including regulations relating to management of Commonwealth reserves, information requirements for assessment processes, enforcement, granting of various permits, publication requirements and criteria that need to be met in relation to a wide variety of decision-making processes provided for under the Act. | This Act applies to all aspects of the activity that have the potential to impact MNES. NOPSEMA manages compliance with the relevant regulations and plans under the Act for this EP.<br>Where activities have existing approvals under the Act, these will continue to apply. |
| *Hazardous Waste (Regulation of Exports and Imports) Act 1989* | Relates to controls over import and export of hazardous waste material. Permits are required to import waste into Australia. | Activity does not involve transboundary movement of hazardous wastes. |
| *Navigation Act 2012* | This Act establishes framework for controls on navigation, marine safety and shipping for ships in Australian waters or territories primarily proceeding on international or interstate voyages. | Vessel movements will be governed by marine safety regulations and Marine Orders under the Act |
| Marine Orders | Marine Orders are subordinate rules made pursuant to the *Navigation Act 1912* and *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* affecting the maritime industry. They are a means of implementing Australia's international maritime obligations by giving effect to international conventions in Australian law. | Vessel movements, safety, discharges and emissions will be governed by the Marine Orders |

| Legislation or Regulation | Description | Relevance |
|---|---|---|
| Marine Order 91 – Marine Pollution Prevention – Oil | MO91 gives effect to Annex I of the International Convention for the Prevention of Pollution from Ships 1973, as amended by the Protocol of 1978 (MARPOL 73/78). | Applies to pollution prevention on vessels. |
| Marine Order 95 - Marine Pollution Prevention - Garbage | MO95 gives effect to Regulation 8 of Annex V (dealing with port State control on operational requirements) and prescribes matters in relation to Regulation 9 of Annex V (dealing with placards, garbage management plans and garbage record-keeping) to the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78). | Applies to operational discharges and waste management on vessels. |
| Marine Order 96 Marine Pollution Prevention – Sewage | MO96 sets out MARPOL requirements in relation to survey and certification requirements; how sewage should be treated or held aboard ship; and the circumstances in which discharge into the sea may be allowed. | Applies to operational discharges from vessels. |
| Marine Order 97 – Marine Pollution Prevention – Air Pollution | MO96 sets out MARPOL requirements in relation to air pollution. | Applies to air pollution from vessels. |
| *Offshore Petroleum and Greenhouse Gas Storage Act 2006* | Legislation concerning Australian offshore petroleum exploration & production in Commonwealth Waters. National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) is an independent safety and environmental management Authority funded by levies on industry participants and regulates matters with powers conferred directly from OPGGS Act and via Regulations concerned with:<br>• occupational health & safety law at facilities and offshore operations under Schedule 3<br>• environmental management<br>• structural integrity of Wells under Resource management regulations. | Applies to the activity assessed under this Environment Plan. |

| Legislation or Regulation | Description | Relevance |
|---|---|---|
| | NOPSEMA may also declare a 500 metre petroleum safety zone around wells associated with drilling operations. | |
| Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 | Regulations administered by NOPSEMA to ensure offshore petroleum activity is carried out in a manner consistent with the principles of ecologically sustainable development and in accordance with an accepted environment plan, in particular:<br>• assessment of EPs, including associated OPEPs (previously oil spill contingency plans)<br>• investigation of accidents, occurrences and circumstances with regard to deficiencies in environmental management. | Applies to the activity assessed under this Environment Plan. |
| *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* | Act administered by AMSA, deals with the protection of the marine environment from ship-sourced pollution. The Act implements the International Convention for the Prevention of Pollution from Ships 1973 and the subsequent 1978 Protocol to the Convention (collectively MARPOL 73/78) and setting operational and construction standards for ships to prevent pollution and regulating normal operational discharges from ships. MARPOL 73/78 annexes regulate the discharge of oil (Annex I), noxious liquid substances (Annex II), the disposal from ships of sewage (Annex IV) and garbage (Annex V) and prohibit the disposal of harmful substances carried by sea in packaged forms (Annex III). | This Act applies to vessel discharges and movements associated with the activity. |
| *Underwater Cultural Heritage Act 2018* | The Act replaces the *Historic Shipwrecks Act 1976* with a modernised framework for protecting and managing Australia underwater culture heritage. The Act protects shipwrecks, sunken aircraft that are at least 75 years old, whether their location is known or unknown, and associated relics. It also enables the Minister to protect shipwrecks that have been sunk for less than 75 years if they are of historic significance, such as ships wrecked | Anyone who finds the remains of a vessel or aircraft, or an article associated with a vessel or aircraft, needs to notify the relevant authorities, as soon as possible but ideally no later than after one week, and to give them information about what has been found and its location. |

| Legislation or Regulation | Description | Relevance |
|---|---|---|
| | during World War II. All relics associated with historic shipwrecks are protected both while associated with the shipwreck and after their removal, provided that they went down with the ship. The Act also enables the Minister to declare protected zones around historic shipwrecks. A permit is required to carry out prescribed activities, such as trawling, diving or mooring or using ships in a protected zone. The Act prohibits conduct that may interfere with protected shipwrecks and their associated relics. | |

## International Conventions

| International Convention | Description |
|---|---|
| Agreement between the Government of Australia and the Government of Japan for the Protection of Migratory Birds in Danger of Extinction and their Environment, 1974 (commonly referred to as JAMBA) | JAMBA provides for cooperation between Japan and Australia to minimise harm to major areas used by birds that migrate between the two countries. The EPBC Act gives effect to JAMBA by listing migratory birds recognised by the agreement as migratory under the EPBC Act. Migratory species are MNES. |
| Agreement between the Government of Australia and the Government of the People's Republic of China for the Protection of Migratory Birds and their Environment, 1986 (commonly referred to as CAMBA) | CAMBA provides for cooperation between China and Australia to minimise harm to major areas used by birds that migrate between the two countries. The EPBC Act gives effect to CAMBA by listing migratory birds recognised by the agreement as migratory under the EPBC Act. Migratory species are MNES. |
| Agreement between the Government of Australia and the Government of the Republic of Korea for the Protection of Migratory Birds and their Environment, 2002 (commonly referred to as ROKAMBA) | ROKAMBA provides for cooperation between the Republic of Korea and Australia to minimise harm to major areas used by birds that migrate between the two countries. The EPBC Act gives effect to ROKAMBA by listing migratory birds recognised by the agreement as migratory under the EPBC Act. Migratory species are MNES. |
| Convention on the Conservation of Migratory Species of Wild Animals, 1979 (Bonn Convention) | The Bonn Convention aims to conserve migratory species within their migratory ranges. The Bonn Convention provides specific protection for migratory species threatened with extinction or requiring international cooperation to conserve effectively. The EPBC Act gives effect to the Bonn Convention through listing species as migratory under Part 3 of the Act. Migratory species are MNES. |
| Convention on the Control of Harmful Anti-fouling Systems on Ships, 2001 | The convention prohibits the use of harmful organotins in anti-fouling paints used on ships and establishes a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems. The Commonwealth *Protection of the Sea (Harmful Anti-fouling Systems) Act 2006* and subsidiary Marine Order give effect to the Convention. |
| Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, 1972 (London Convention) | The London Convention is an agreement to control pollution of the sea by dumping. The Commonwealth *Environment Protection (Sea Dumping) Act 1981* gives effect to the London Convention. |
| Convention on Wetlands of International Importance (Ramsar Convention) | The Ramsar Convention provides for the conservation and sustainable use of wetlands. The EPBC Act gives effect to the Ramsar Convention by providing specific protection for wetlands recognised by the Convention under Part 3 of the EPBC Act. These wetlands are termed "wetlands of international importance" and are MNES. |
| International Convention for the Control and Management of Ships' Ballast Water and Sediment, 2004 | The Convention aims to prevent the spread of harmful aquatic organisms from one region to another via ballast water and sediment. The Commonwealth *Biosecurity Act 2015* gives effect to the Convention. |

| International Convention | Description |
|---|---|
| International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL 73/78) | MARPOL 73/78 aims to minimise pollution of the sea from ships. All ships flagged under countries that are signatories to MARPOL 73/78 are subject to its requirements, regardless of where they sail. Member nations are responsible for vessels registered on their national ship registry. Several Annexes apply directly to offshore petroleum activities:<br>• MARPOL 73/78 Annex I (Prevention of pollution by oil),<br>• MARPOL 73/78 Annex II (Control of pollution by noxious liquid substances in bulk),<br>• MARPOL 73/78 Annex III (Prevention of pollution by harmful substances carried by sea in packaged form),<br>• MARPOL 73/78 Annex IV (Pollution by sewage from ships),<br>• MARPOL 73/78 Annex V (Pollution by garbage from ships),<br>• MARPOL 73/78 Annex VI (Prevention of air pollution from ships).<br>The Commonwealth *Protection of the Sea (Prevention of Pollution from Ships) Act 1983* and subsidiary Marine Orders give effect to MARPOL 73/78. |
| International Convention for the Safety of Life at Sea 1974 (SOLAS Convention) | The SOLAS Convention sets minimum safety standards for construction, equipment and operation of merchant ships. The convention requires signatory flag states to ensure that ships flagged by them comply with these standards as a minimum. The Commonwealth *Navigation Act 2012* and subsidiary Marine Orders give effect to the convention. |
| International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW Convention) | The STCW Convention sets out minimum standards for masters, officers and watch personnel on merchant vessels. The Commonwealth *Navigation Act 2012* and subsidiary Marine Orders give effect to the convention. |
| International Regulations for Preventing Collisions at Sea 1972 (COLREGS) | The COLREGS outline internationally recognised navigation rules to be used by vessels at sea to avoid collisions. The regulations are published by the International Maritime Organization (IMO). The Commonwealth *Navigation Act 2012* and subsidiary Marine Orders give effect to the regulations. |
| Minamata Convention on Mercury (Minamata Convention) | The Minamata Convention on Mercury requires parties to address adverse effects of mercury to protect human health and the environment. Australia is a signatory to, and has ratified, the Convention. No specific federal legislation has been introduced to give effect to the Minamata Convention, with effect given by existing Commonwealth, state and territory legislation. |
| The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, 1972 (Basel Convention) | The Basel Convention reduces the movement of hazardous wastes (excluding radioactive wastes) between nations, particularly from developed to less developed countries. The Commonwealth *Hazardous Waste (Regulation of Exports and Imports) Act 1989* gives effect to the convention. |

# Appendix D Existing Environment and EPBC Act Protected Matters Search Report

# Description of Environment for the Minerva Field

# Contents

# List of Tables



# List of Figures

# 1. Introduction

Woodside Energy (Victoria) Pty Ltd (Woodside) is a titleholder for the VIC/L22 petroleum title, in which the Minerva field is situated.

This document describes the existing environment that may be affected (EMBA) by petroleum activities undertaken within the Minerva field and includes details of the relevant values and sensitivities of that environment as required by the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023*.

The EMBA encompasses the environmental values and sensitivities that have the potential to be contacted by low hydrocarbon thresholds in the event of worst-case release from petroleum activities in the Otway Basin.

This document describes the environmental values and sensitivities within the operational area, and the EMBA that may be contacted by either a marine diesel oil (MDO) release from a project vessel, and/or a worst-case loss of well control (LOWC) event from a gas-condensate well within the Minerva Field (permit area VIC/L22).

This document is informed by a search of the EPBC Act protected matters search tool (PMST) provided by the Department of Agriculture, Water and the Environment (DAWE) in February 2024, as well as published scientific literature and studies where applicable.

# 2. Geographic Extent

The EMBA is presented in Figure 2-1, noting the spatial extent of the EMBA is an over-representation of a single potential worst-case spill scenario.

The spatial extent of the EMBA has been defined using stochastic hydrocarbon fate and transport modelling of the worst-case hydrocarbon spills, based on the hydrocarbon exposure values (concentrations) for two scenarios: a subsea release of condensate from a LOWC from the Minerva-4 well, and a MDO surface spill at the Minerva-1 well arising from a vessel-to-vessel or vessel-to-MODU collision in VIC/L22.

Each scenario consisted of 200 individual oil spill simulations based upon five years of historical hydrodynamic and wind data and covering both summer and winter seasonal variations.

The oil spill modelling considered four key hydrocarbons phases that pose differing environmental and socio-economic risks: surface (floating) oil, total submerged hydrocarbons (entrained oil droplets in the water column), dissolved oil in the water column, and shoreline accumulated oil. The modelling used defined oil exposure values (concentrations) to aid interpretation of the modelling, to identify when and where areas might be contacted by oil and to inform the subsequent environmental risk evaluation and spill response planning. The oil exposure values used to define the EMBA were guided by NOPSEMA's *Environment Bulletin – Oil Spill Modelling Guideline* (NOPSEMA, 2019) and are provided in Table 2-1.

**Table 2-1: Hydrocarbon exposure values**

| Hydrocarbon phase | Exposure Value | | |
|---|---|---|---|
| | Low | Moderate | High |
| Surface (floating) oil | 1 g/m$^2$ | 10 g/m$^2$ | 50 g/m$^2$ |
| Shoreline (accumulated) oil | 10 g/m$^2$ | 100 g/m$^2$ | 1,000 g/m$^2$ |
| Total submerged oil in the water column (a combination of entrained and dissolved oil components) | 10 ppb | 100 ppb | - |
| Dissolved oil in the water column | 10 ppb | 50 ppb | 400 ppb |

The EMBA presented in Figure 2-1, shows the combined stochastic modelling outputs for the worst-case condensate spill and marine diesel oil (MDO) spills, based on 200 individual spills for each spill scenario. By overlaying all of the individual spills onto a single figure, the stochastic modelling shows all the potential areas that could be affected in the event of a spill. While the EMBA represent the area that could be contacted in the event of a spill, a single spill event would have a much smaller spatial extent.

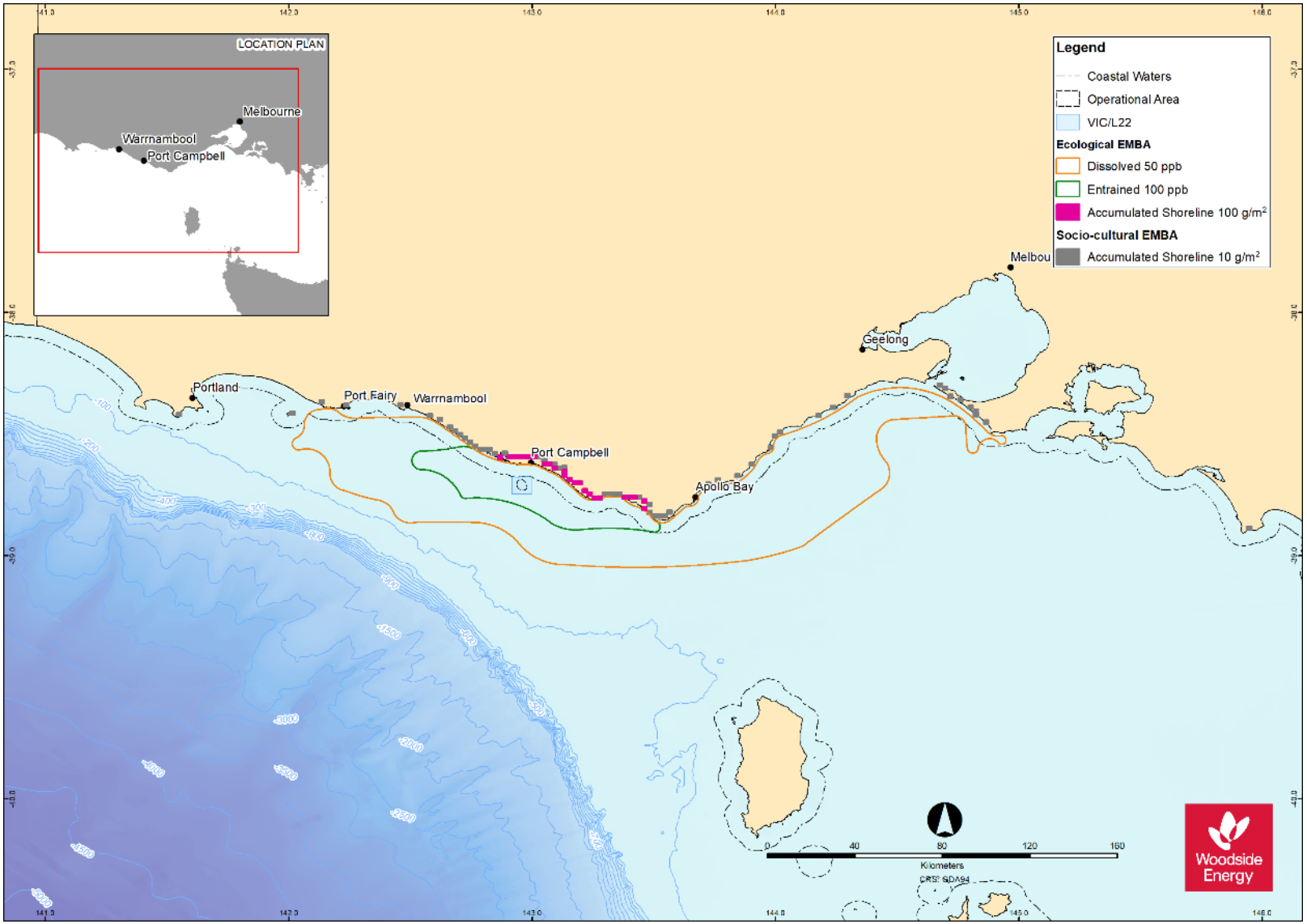



**Figure 2-1: Environment that May Be Affected (EMBA) by the petroleum activity**

# 3. South East Marine Region

Australia's offshore waters have been divided into six marine regions to facilitate their management by the Australian Government under the EPBC Act. The EMBA intersects the South East Marine Region (SEMR), which extends from the south coast of New South Wales to Kangaroo Island in South Australia and around Tasmania (DNP, 2013). The SEMR shows significant variation in seafloor features and water depth, contributing to the high level of species diversity in the region (DoE, 2015). There are areas of continental shelf, which includes Bass Strait and Otway Shelf, where rocky reefs and soft sediments support a wide range of species. The shelf break increases currents, eddies and upwelling, and the area is especially biodiverse, including species that are fished recreationally and commercially. There are seafloor canyons along the continental shelf which provide habitat for sessile invertebrates such as temperate corals (DNP, 2013).

Compared to other marine areas, Australia's South East Marine Region is relatively low in nutrients and primary productivity; however, in some locations, water bodies converge and mix to create areas of relatively high biological productivity (DNP, 2013). One of these is the Bonney Upwelling Key Ecological Feature (KEF) (Section 14.14.1.9) in south-eastern South Australia which occurs during autumn and summer. This season of higher primary productivity attracts whale species and other species (including EPBC Act-listed species) to the area to feed on the plankton swarms (krill) (DoE, 2015).

The SEMR is recognised as a major marine biogeographic region with a high diversity of species and also a large number of endemic species (DNP, 2013). There is an abundance of fish species in the region of approximately 600 species, of which 85% are thought to be endemic. Additionally, approximately 95% of molluscs, 90% of echinoderms, and 62% of macroalgae (seaweed) species are endemic to these waters (DNP, 2013).

The SEMR is further regionalised by the Integrated Marine and Coastal Regionalisation of Australia (IMCRA) version 4.0, with the Minerva field located in the Western Bass Strait Shelf Transition provincial-scale bioregion (Figure 3-1).

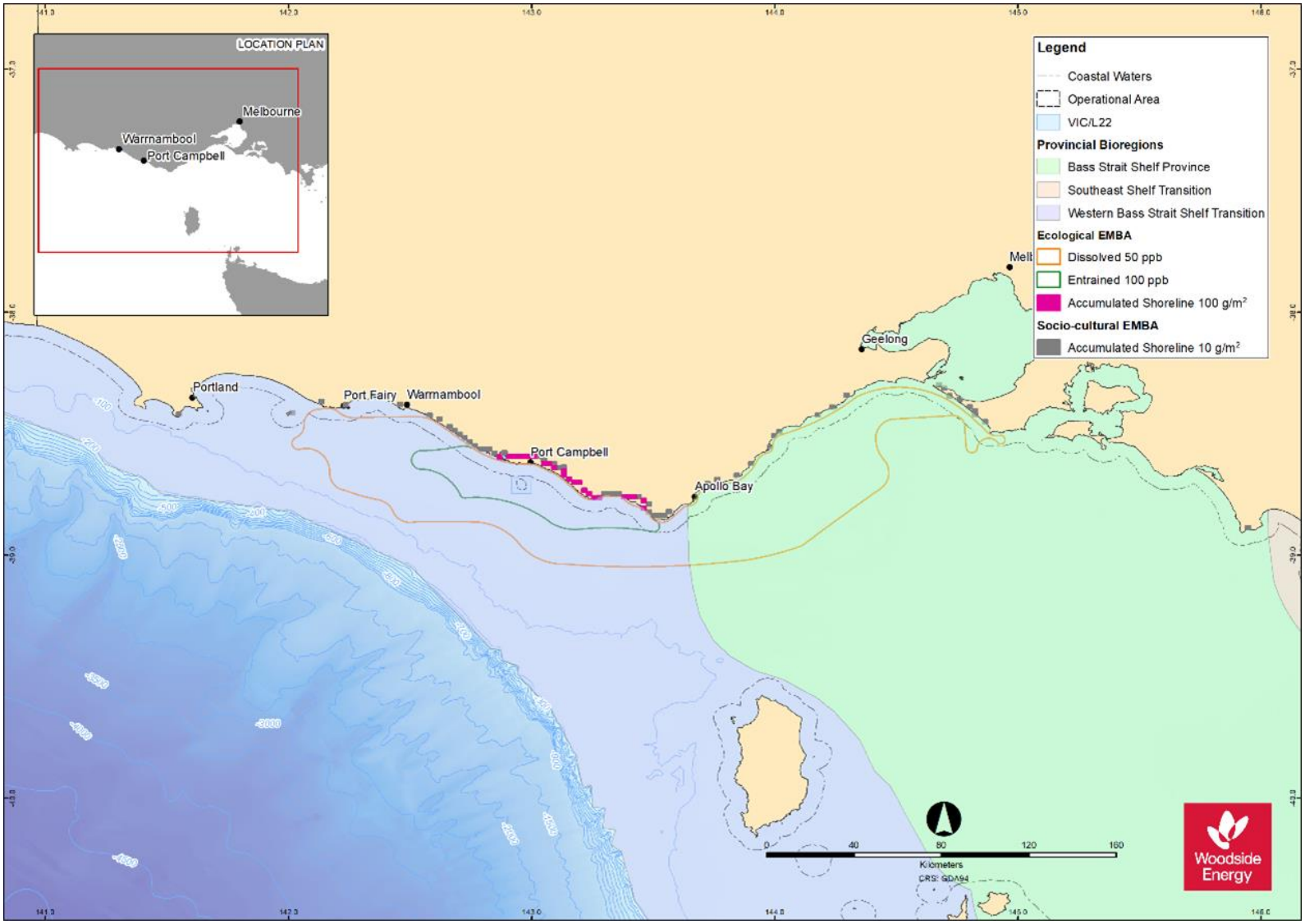



**Figure 3-1: IMCRA 4.0 Bioregions in the South East Marine Region**

# 4. Values and Sensitivities

This section summarises environmental values and sensitivities, including physical, biological, socio-economic and cultural features in the marine and coastal environment that are relevant to the operational area and the EMBA. Searches for matters of national environmental significance (MNES) and other matters protected by the EPBC Act were undertaken for the operational area and the EMBA using the Protected Matters Search Tool (PMST).

## 4.1 Matters of National National Environmental Significance (EPBC Act)

A number of EPBC Act areas and species within the operational area and EMBA boundaries are protected under state and federal legislation.

Table 4-1 summaries the MNES areas identified as potentially occurring within the operational area and EMBA, as determined by the PMST results. Table 4-2 highlights the Australian IUCN reserve management principles for the relevant IUCN categories associated with the marine parks identified by the PMST results.

The EPBC Act protected species that may be present and affected by planned and unplanned events within the operational area and EMBA are presented in Table 4-4.

Additional information on identified MNES are provided in the following sections.

**Table 4-1: Summary of protected areas in waters within the EMBA**

| Area Type | Title | IUCN Classification | Operational Area | EMBA | Relevant Section |
|---|---|---|---|---|---|
| **World Heritage Areas** | N/A | - | - | - | N/A |
| **Wetlands of International Importance (RAMSAR)** | N/A | - | - | - | N/A |
| **Wetlands of National Importance** | Aire River | - | - | ✓ | Section 4.1.5 |
| | Princetown Wetlands | - | - | ✓ | |
| | Lower Aire River Wetlands | - | - | ✓ | |
| **National Heritage Places** | Point Napean Defence Sites and Quarantine Station Area | - | - | ✓ | Section 4.1.2 |
| | Great Ocean Road and Scenic Environs | - | - | ✓ | |
| **Commonwealth Heritage Places** | N/A | - | - | - | N/A |
| **Threatened Ecological Communities (TEC)** | Subtropical and Temperate Coastal Saltmarsh | - | - | ✓ | Section 4.1.6 |

| Area Type | Title | IUCN Classification | Operational Area | EMBA | Relevant Section |
|---|---|---|---|---|---|
| | Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community | - | - | ✓ | |
| | Giant Kelp Marine Forests of South East Australia | - | - | ✓ | |
| **Key Ecological Features (KEFs)** | N/A | - | - | - | N/A |
| **Australian Marine Parks (AMP)** | Apollo | Multiple Use Zone (IUCN VI) | - | ✓ | Section 4.1.7 |
| **State Marine Parks** | Twelve Apostles Marine National Park | National Park (IUCN II) | - | ✓ | Section 4.1.8 |
| | The Arches Marine Sanctuary | Natural Monument or Feature (IUCN III) | - | ✓ | |
| | Port Campbell National Park | National Park (IUCN II) | - | ✓ | |
| | Bays of Islands Coastal Park | National Park (IUCN II) | - | ✓ | |
| | Great Otway National Park | National Park (IUCN II) | - | ✓ | |
| | Marengo Reef Marine Santuary | Natural Monument or Feature (IUCN III) | - | ✓ | |
| | Point Addis Marine National Park | National Park (IUCN II) | - | ✓ | |
| | Port Phillip Heads Marine National Park | National Park (IUCN II) | - | ✓ | |
| | Point Nepean National Park | National Park (IUCN II) | - | ✓ | |
| | Mornington Peninsula National Park | National Park (IUCN II) | - | ✓ | |

Note: the PMST also identified several protected areas which were deemed to be irrelevant to petroleum activities in the Otway Basin due to their terrestrial location and have been excluded.

**Table 4-2: Australian IUCN Reserve Management Principles**

| IUCN Classification | Description | IUCN Principles |
|---|---|---|
| **National Park**<br>**(IUCN II)** | Natural area of land and/or sea, designated to:<br>(a) protect the ecological integrity of one or more ecosystems for this and future generations,<br>(b) exclude exploitation or occupation inimical to the purposes of designation of the area, and<br>(c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible. | The reserve or zone should be protected and managed to preserve its natural condition according to the following principles. |
| | | Natural and scenic areas of national and international significance should be protected for spiritual, scientific, educational, recreational or tourist purposes. |
| | | Representative examples of physiographic regions, biotic communities, genetic resources, and native species should be perpetuated in as natural a state as possible to provide ecological stability and diversity. |
| | | Visitor use should be managed for inspirational, educational, cultural and recreational purposes at a level that will maintain the reserve or zone in a natural or near natural state. |
| | | Management should seek to ensure that exploitation or occupation inconsistent with these principles does not occur. |
| | | Respect should be maintained for the ecological, geomorphologic, sacred and aesthetic attributes for which the reserve or zone was assigned to this category. |
| | | The needs of Indigenous people should be taken into account, including subsistence resource use, to the extent that they do not conflict with these principles. |
| | | The aspirations of traditional owners of land within the reserve or zone, their continuing land management practices, the protection and maintenance of cultural heritage and the benefit the traditional owners derive from enterprises, established in the reserve or zone, consistent with these principles should be recognised and taken into account. |
| | Area containing one or more specific natural or natural / cultural feature | The reserve or zone should be protected and managed to preserve its natural or |

**Description of Environment for the Minerva Field**

| IUCN Classification | Description | IUCN Principles |
|---|---|---|
| **Natural Monument or Feature** **(IUCN III)** | which is of outstanding value because of its inherent rarity, representative or aesthetic qualities or cultural significance. | cultural features based on the following principles. |
| | | Specific outstanding natural features should be protected or preserved in perpetuity because of their natural significance, unique or representational quality or spiritual connotations. |
| | | Opportunities for research, education, interpretation and public appreciation should be provided to an extent consistent with these principles. |
| | | Management should seek to ensure that exploitation or occupation inconsistent with these principles does not occur. |
| | | People with rights or interests in the reserve or zone should be entitled to benefits derived from activities in the reserve or zone that are consistent with these principles. |
| **Multiple Use Zone** **(IUCN VI)** | Area containing predominantly unmodified natural systems, managed to ensure long-term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs. | The reserve or zone should be managed mainly for the sustainable use of natural ecosystems based on the following principles. |
| | | The biological diversity and other natural values of the reserve or zone should be protected and maintained in the long-term. |
| | | Management practices should be applied to ensure ecologically sustainable use of the reserve or zone. |
| | | Management of the reserve or zone should contribute to regional and national development to the extent that this is consistent with these principles. |

Source: Environment Australia, 2002

### 4.1.1 World Heritage Properties

There are no World Heritage Properties within the operational area or EMBA.

### 4.1.2 National Heritage Places

National Heritage Places are natural, historic and Indigenous places of outstanding significance to the nation. Point Napean Defence Sites and Quarantine Station Area

**Point Napean**

The Point Napean National Heritage Property is located along the Victorian coastline which intersects the EMBA. Point Nepean is the site of the oldest, surviving, purpose-built, barracks-style, quarantine accommodation buildings in Australia, as well as fortifications demonstrating the primary importance of coastal defence to the Australian colonies. As an island-nation, quarantine has played an important part in controlling the impact of ship-borne diseases on Australia from the early 1800s (DAWE, 2006). Point Nepean is an historic landscape, which features a range of values relating to both Victorian and national quarantine processes from the 1850s and to the history of coastal defence from the 1870s (DAWE, 2006).

Point Nepean is recognised for its broad historic landscape, featuring a considerable array of historic values relating to national quarantine and defence (DAWE, 2006). The historic fabric at Point Nepean includes mid-nineteenth century archaeological remains and over one hundred year's evidence of quarantine processes and defensive fortifications, which contribute to a richly layered historic cultural landscape (DAWE, 2006).

### Great Ocean Road and Scenic Environs

The Great Ocean Road and Scenic Environs National Heritage Place is an important Australian coastal journey, constructed as a memorial to First World War serviceman by more than 3,000 returned servicemen. The Great Ocean Road and Scenic Environs National Heritage Place extends for approximately 242 km between Torquay (south of Geelong) and Allansford (east of Warnambool). The Ocean Road Planning Scheme facilitated an integrated approach to protect the exceptional scenery of the region. The diverse landscapes and views from the route have made it a famous coastal drive. The Great Ocean Road offers spectacular views of the coastline, hinterland, and Bass Strait seascape, with few intrusive built structures. Lookout points along the route provide travellers to experience the natural beauty of the coastline, including the Twelve Apostles and Johanna Beach. The Otway Ranges Coastal Cretaceous site contains rare polar dinosaur fossil sites. Beels Beach, on the Great Ocean Road, is an internationally renowed surfing location.

The Great Ocean Road and Scenic Environs National Heritage Place lies approximately 5 km from the operational area at the closest point

## 4.1.3 Commonwealth Heritage Places

There are no Commonwealth Heritage Places in the operational area or EMBA.

## 4.1.4 Wetlands of International Importance

There are no Ramsar Wetlands that intersect the operational area or EMBA.

## 4.1.5 Wetlands of National Importance

### Princetown Wetlands

The Princetown wetlands are located within the Gelibrand River estuary near Princetown on the Great Ocean Road. The estuary is a low-energy environment and separated from the sea by a sand bar, which inhibits the exchange of water between the estuary and the sea. The wetlands support a range of species, including migratory shorebirds.

### Aire River

The Aire River is one of the largest rivers in south-western Victoria and is part of the Otway Coast catchment (DAWE, 2019b). Originating in the Otway Ranges, south-east of the township of Beech Forest, it has high water quality and low turbidity providing a high value habitat for a variety of flora and fauna species, some of which are considered threatened species (DAWE, 2019b).

The area is popular for recreational activities such as fishing, picnicking, camping and sight-seeing. There are also approximately 18 archaeological sites in the area, most of which are Aboriginal shell middens (DAWE, 2019b).

### Lower Aire River Wetlands

The Lower Aire River Wetlands are in the Aire River estuary, which enters the sea west of Cape Otway. The estuary is separated from the sea by a sand bar, which inhibits water exchange between the estuary and the sea. The estuary is a popular camping ground.

### 4.1.6 Threatened Ecological Communities

Threatened Ecological Communities (TECs) provide wildlife corridors and / or habitat refuges for many plant and animal species, and listing a TEC provides a form of landscape or systems-level conservation (including for threatened species). The PMST Report did not identify any TEC within the operational area. Although several TECs were identified with a presence in the EMBA, only three have coastal connections and include:

- Giant kelp marine forests of South East Australia – listed as Endangered and may occur in the area,
- Subtropical and temperate coastal saltmarsh – listed as Vulnerable and likely to occur in the area, and
- Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community – listed Endangered and likely to occur in the area.

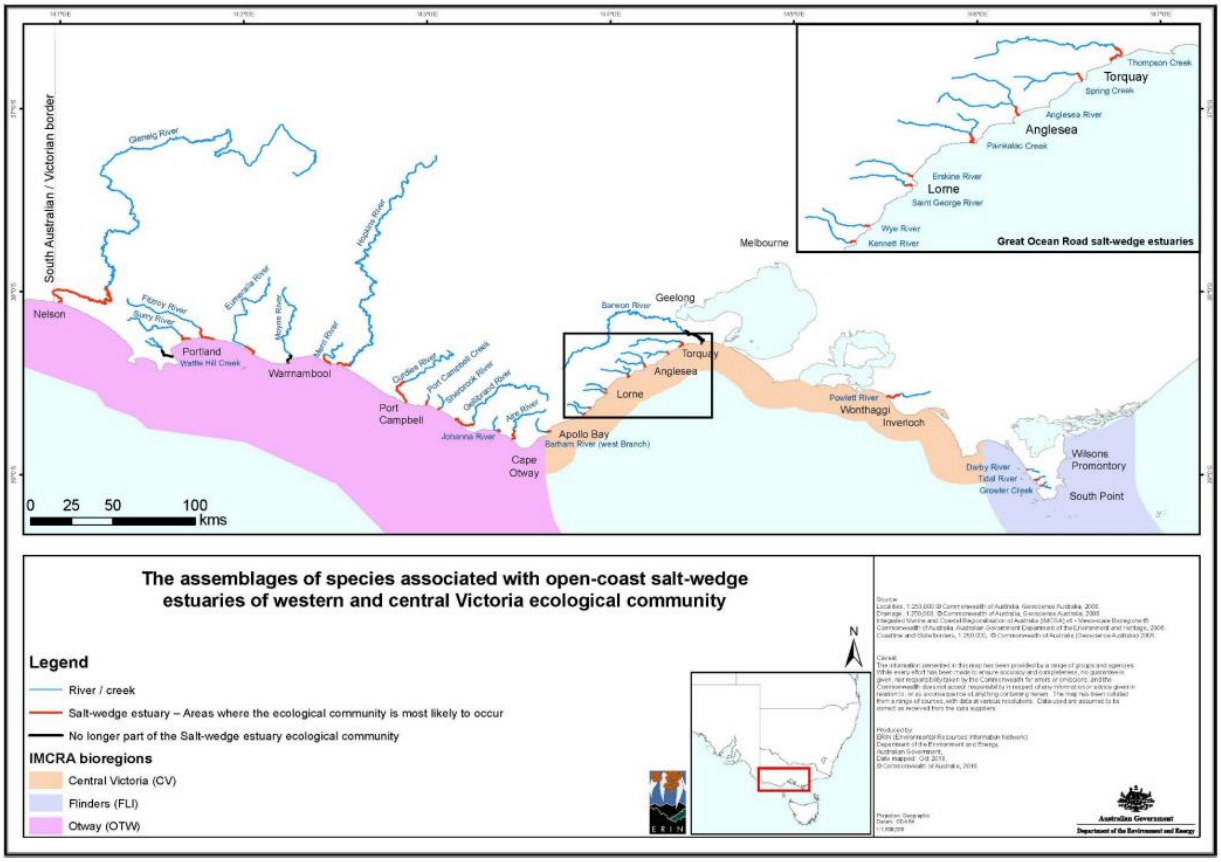
TECs that are not linked to the shoreline, but occur in the EPBC Act Protected Matters search of the EMBA, have been excluded from the description below as they are not relevant to consideration of potential affects from marine hydrocarbon spills. Refer to complete EPBC Act Protected Matters searches results.

The three TECs of relevance are described below.

#### Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community

This ecological community is the assemblage of native plants, animals and micro-organisms associated with the dynamic salt-wedge estuary systems that occur within the microtidal (<2 m) coastline of western and central Victoria (DoEE, 2018). The ecological community currently encompasses 25 estuaries in the region defined by the border between South Australia and Victoria and the most southerly point of Wilsons Promontory (Figure 4-1) (DoEE, 2018).

Salt-wedge estuaries are usually highly stratified, with saline bottom waters forming a ‘salt-wedge’ below the inflowing freshwater layer of riverine waters (DoEE, 2018). The wedge of heavier marine waters is introduced into the estuary by high wave energy and tides. The dynamic nature of salt-wedge estuaries has important implications for their inherent physical and chemical parameters, and ultimately for their biological structure and ecological functioning (DoEE, 2018). Some species are dependent on the dynamics of these salt-wedge estuaries for their existence, refuge, increased productivity and reproductive success. This ecological community is characterised by a core component of obligate estuarine taxa, with associated components of coastal, estuarine, brackish and freshwater taxa that may reside in the estuary for periods of time and/or utilise the estuary for specific purposes (e.g. reproduction, feeding, refuge, migration) (DoEE, 2018).




Source: DoEE, 2018

**Figure 4-1: Distribution of Salt-wedge Estuaries in the SEMR**

## Giant Kelp Marine Forests of South East Australia

The ecological community is defined by the species *Macrocystis pyrifera,* or Giant Kelp, which grows in the nutrient rich waters of the temperate south east of Australia (DSEWPaC, 2012). Giant Kelp are defined by the 'forest-like' structures it forms from the rocky sea floor to the sea surface (DSEWPaC, 2012). However, the kelp species itself is not protected, rather, it is communities of closed or semi-closed giant kelp canopy at or below the sea surface that are protected (DSEWPaC, 2012).

Giant Kelp is the largest and fastest growing marine plant. Their presence on a rocky substrate adds vertical structure to the water column and altering the immediate light and hydrological environment that creates significant habitat for marine fauna, thereby increasing local marine biodiversity (DSEWPaC, 2012). Species known to shelter within the kelp forests include weedy sea dragons (*Phyllopteryx taeniolatus*), six-spined leather jacket (*Mesuchenia freycineti*), brittle stars (*ophiuroids*), sea urchins, sponges, blacklip abalone (*Tosia* spp) and southern rock lobsters (*Jasus edwardsii*) (TSSC, 2012). The high primary and secondary productivity of the giant kelp forests create and provide a number of ecosystem services to the coastal environment, including habitat for juvenile life stages of commercially important fishes, improvements in local water quality, and coastal protection by acting as a buffer for strong waves (DSEWPaC, 2012).

James *et al.* (2013) undertook extensive surveys of macroalgal communities along the Otway Shelf from Warrnambool to Portland in south-west Victoria. Sites were adjacent to shore or on offshore rocky reefs covering a depth range of 0 to 36 metres water depth. These surveys did not locate giant kelp at any site but identified that other brown algae species (*Durvillaea, Ecklonia, Phyllospora, Cystophora*, and *Sargassum*) are prolific to around 20 m water depth. Brown algae tend to be replaced by red algae in deeper waters.

Surveys of the Arches Marine Sanctuary (Edmunds *et al*., 2010) and Twelve Apostles Marine National Park (Holmes *et al*., 2007 cited in Barton *et al*., 2012) have not located Giant Kelp. The species has been recorded in Discovery Bay National Park forming part of a mixed brown algae community (Ball and Blake, 2007) (not part of the TEC), on basalt rocky reefs. An assemblage dominated by the species has been recorded from Merri Marine Sanctuary occupying a very small area (0.2 ha) of rocky reef (Barton *et al*., 2012).

## Subtropical and Temperate Coastal Saltmarsh

The Subtropical and Temperate Coastal Saltmarsh TEC consists of organisms including and associated with saltmarsh in coastal regions of sub-tropical and temperate Australia (DSEWPaC, 2013). The ecological community spans six state jurisdictions: Queensland (southern), New South Wales, Victoria, Tasmania, South Australia and Western Australia (south-western) (DSEWPaC, 2013). Occupying a relatively narrow strip along the Australian coast, in areas which have an intermittent or regular tidal influence.

The coastal saltmarsh community consists mainly of salt-tolerant vegetation including grasses, herbs, sedges, rushes and shrubs. Succulent herbs, shrubs and grasses generally dominate and vegetation is generally less than 0.5 m in height (Adam, 1990). In Australia, the vascular saltmarsh flora may include many species, but is dominated by relatively few families, with a high level of endism at the species level (Saintilan, 2009a,b).

A wide range of infaunal and epifaunal invertebrates and low and high tide visitors such as fish, birds and prawns also inhabit the TEC (DSEWPaC, 2013). It is reported as an important nursery habitat for fish and prawn species. The dominant marine residents are benthic invertebrates, including molluscs and crabs (Ross *et al*., 2009) with insects also abundance and considered an important food source for fauna (DSEWPaC, 2013).

The coastal saltmarsh community provides extensive ecosystem services such as the filtering of surface water, coastal productivity and the provision of food and nutrients for a wide range of adjacent marine and estuarine communities and stabilising the coastline and providing a buffer from waves and storms (DSEWPaC, 2013). Most importantly, the saltmarshes are one of the most efficient ecosystems globally in sequestering carbon, due to the biogeochemical conditions in the tidal wetlands being conducive to long-term carbon retention and loss of saltmarsh habitat could release stored carbon to the atmosphere (DSEWPaC, 2013).

### 4.1.7 Australian Marine Parks

The operational area does not intersect any AMPs. The EMBA overlaps the Apollo AMP (Table 4-1)(Figure 4-3).Information on the AMPs is provided below.

## Apollo AMP

The Apollo AMP is located in Bass Strait south of Cape Otway and Apollo Bay in western Victoria, and north-west of King Island in waters 80 m to 120 m deep on the continental shelf (DNP, 2013). The reserve covers 1,184 km$^2$ of Commonwealth ocean territory and is considered a Multiple Use Zone (IUCN VI) (DNP, 2013). This classification allows mining activities subject to approval in accordance with an Environment Plan accepted under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 by NOPSEMA.

The Apollo AMP is a relatively shallow reserve with waters less than 50 m deep near Cape Otway and up to 100 m at the Otway Depression, an undersea valley that joins the Bass Basin to the open ocean (DNP, 2013). The reserve is a part of the continental shelf ecosystem that extends from South Australia to the west of Tasmania where the region is exposed to big waves and strong tidal flows (DNP, 2013). The sea floor has many rocky reef patches interspersed with areas of sediment and, in places, has rich, benthic fauna dominated by sponges providing ideal foraging for seabirds, dolphins, seals and white sharks (DNP, 2013). Various whale species are also known to migrate through the region.

The major conservation values of the Apollo AMP include:

- Ecosystems, habitats and communities associated with the Western Bass Strait Shelf Transition and the Bass Strait Shelf Province and associated with the seafloor features: deep/hole/valley and shelf.
- Important migration area for blue, fin, sei and humpback whales.
- Important foraging area for black-browed and shy albatross, Australasian gannet, short-tailed shearwater and crested tern.
- Cultural and heritage site – wreck of the *MV City of Rayville* (DNP, 2013).

### 4.1.8 Victorian State Protected Areas

The operational area does not intercept any Victorian State Protected Areas. The EMBA overlaps ten Victorian State Protected Areas.Figure 4-2and Figure 4-3). These are described below.

Table 4-2 shows the relevant principles for each IUCN category for the protected state marine areas identified within the EMBA.

## Twelve Apostles Marine National Park

The Twelve Apostles Marine National Park covers 75 km$^2$ and showcases the iconic pillars of the Twelve Apostles. Located 7 km east of Port Campbell, the marine park covers 16 km of coastline from east of Broken Head to Pebble Point and extends offshore to 5.5 km (Plummer et al, 2003).

The area is representative of the Otway Bioregion and is characterised by a submarine network of canyons, caves, arches and walls housing a variety of seaweed and sponge gardens (Visit Victoria, NA). The underwater structures providing habitat for resident schools of reef fish as well as the greatest diversity of intertidal and sub-tidal invertebrates in Victoria (Visit Victoria, NA).

The park also includes large sandy sub-tidal areas consisting of predominantly fine sand with some medium to coarse sand and shell fragment (Plummer *et al*., 2003). Benthic sampling undertaken within the park in soft sediment habitats at 10 m, 20 m and 40 m water depths identified 31, 29 and 32 species respectively based upon a sample area of 0.1 m$^2$. These species were predominantly polychaetes, crustaceans and nematodes with the mean number of individuals decreasing with water depth (Heisler & Parry, 2007). No visible macroalgae species were present within these soft sediment areas (Plummer *et al*., 2003; Holmes *et al*., 2007). These sandy expanses support high abundances of smaller animals such as worms, small molluscs and crustaceans; larger animals are less common.

## The Arches Marine Sanctuary

The Arches Marine Sanctuary protects 45 ha of ocean directly south of Port Campbell. Approximately 5-25 m below the water surface is a labyrinth of limestone formations, rocky arches and canyons that have been formed over time by high-energy waves (Parks Victoria, 2016). The complex limestone structures provide a foundation for seaweeds and sponges to grow in turn providing additional habitat to support schools of reef fish, seals and a range of invertebrates such as lobster, abalone and sea urchins (Parks Victoria, 2016). The

Arches Marine Sanctuary is managed in conjunction with the Twelve Apostles Marine Park under the Management Plan for Twelve Apostles Marine National Park and The Arches Marine Sanctuary.

## Port Campbell National Park

Port Campbell National Park is a coastal national park in Victoria, Australia. The park is known for its impressive rock formations, including the famous Twelve Apostles. Visitors can explore other popular landmarks such as Loch Ard Gorge and London Arch. The park offers opportunities for hiking, birdwatching and wildlife viewing, including Southern right whales and seals. The park has a rich cultural history, with evidence of Aboriginal occupation dating back at least 22,000 years.

## Bay of Islands Coastal Park

Bay of Islands Coastal Park is a coastal national park located in Victoria, Australia. The park is characterised by a rugged coastline with unique rock formations and a divers range of wilidlife, including whales, dolphins and seals. Coastal habitats are characterised by rocky shores interspersed with sheltered bays containing sandy beaches. Visitors can explore hiking trails that offer scenic views of the coastline and surrounding landscape. There are also opportunities for beach activities such as swimming, fishing and surfing. The park is home to a rich and diverse range of plant species, including several that are rare or threatened. Interpretive signs throughout the park provide insight into the park's natural and coastal history.

## Great Otway National Park

Great Otway National Park covers an area of over 100,000 hectares and features coastal cliffs, beautiful beaches, rainforest, and waterfalls. Visitors can hike through several different trails that provide scenic views of the coast and the surrounding landscape. The majority of the coastline within the park consists of steep rocky cliffs, which are interspersed with bays containing sandy beaches. The park is also home to several popular attractions, including the famous Otway Fly Treetop Walk and the spectacular Triplet Falls. The park has a rich cultural history, with evidence of Aboriginal occupation dating back at least 6,500 years. Additionally, the park is home to a diverse range of wildlife, including koalas, wallabies, kangaroos, and several bird species.

## Marengo Reefs Marine Sanctuary

The Marengo Reefs Marine Sanctuary is located 150 m offshore from Apollo Bay in Victorian State waters and covers 12 ha (Parks Victoria, 2007a). The sanctuary protects two small reefs and a wide variety of microhabitats. The two sections of reef, known as the Inner Reef and the Outer Reef, are usually exposed and are separated by a narrow channel known as 'The Gap' (Parks Victoria, 2007a). This area supports many reefs species including sea snails, tubeworms, abalone, corals, sponges and sea urchins, while deeper waters allow for dense growths of bull kelps and other seaweed. There is an abundance of soft corals, sponges, and other marine invertebrates, and over 56 species of fish have been recorded in and around the sanctuary. Seals rest on the outer island of the reef and there are two shipwrecks (the *Grange* and the *Woolamai*) in the sanctuary (Parks Victoria, 2007a).

The Marengo Reefs Marine Sanctuary Management Plan (Parks Victoria, 2007a) identifies the environmental, cultural and social values as:

<u>Natural Values</u>

- Subtidal soft sediments, subtidal rocky reefs and intertidal reefs.
- High diversity of algal, invertebrate and fish species.
- Australian fur seal haul out area.

<u>Cultural Values</u>

- Evidence of a long history of Indigenous use, including many Indigenous places and objects nearby.
- Wrecks of coastal and international trade vessels in the vicinity of the sanctuary.

<u>Tourism and Recreational Values</u>

- Spectacular underwater scenery for snorkelling and scuba diving.
- Intertidal areas for exploring rock pools.

- Opportunities for a range of aquatic recreational activities including seal watching.

## Point Addis Marine National Park

Point Addis Marine National Park lies on the eastern side of the EMBA and covers 4,600 hectares. This park protects representative samples of subtidal soft sediments, subtidal rocky reef, rhodolith beds and intertidal rocky reef habitats. Providing a suitable environment for a range of invertebrates, fish, algae, birds and other wildlife. The world-famous surfing destination of Bells Beach is within Point Addis Marine National Park.

It is managed under the Management Plan for Point Addis Marine National Park, Point Danger Marine Sanctuary and Eagle Rock Marine Sanctuary (Parks Victoria, 2005) and is classified as IUCN II. The Plan identifies the following environmental, cultural and social values for the parks and sanctuaries:

Natural Values

- Sandy beaches, subtidal soft sediments, subtidal rocky reefs, rhodolith beds and intertidal reefs.
- A high diversity of algal, invertebrate and fish species.
- A high diversity of sea slugs (opisthobranchs) and other invertebrates.

Cultural Values

- Evidence of a long history of Indigenous use, including many Indigenous places and objects adjacent to the park and sanctuaries near dunes, headlands, estuaries and creeks.
- Coastal seascapes of significance for many who live in the area or visit.

Tourism and Recreational Values

- Surf breaks, including those at Bells Beach.
- Spectacular underwater scenery for snorkelling and scuba diving.
- Intertidal areas for exploring rock pools.
- Opportunities for a range of recreational activities.
- A spectacular seascape complementing well-known visitor experiences on the Great Ocean Road.

## Port Phillip Heads Marine National Park

Port Phillip Heads Marine National Park is located at the southern end of Port Phillip bay and occupies an area of 3,580 ha.The park is divided into six separate areas and protects a wide range of marine habitats, including rocky intertidal and subtidal reef, underwater gorges, sponge gardens, kelp forests, and seagrass beds (Parks Victoria, NA). These habitats support a high diversity and abundance of marine flora and fauna that provides a migratory site for wader birds (Visit Victoria, 2019b). The park also presents a range of recreational opportunities including internationally recognised dive sites (Parks Victoria, NA).

## Port Nepean National Park

Point Nepean National Park is located 90 km south of Melbourne near Portsea at the tip of the Mornington Peninsula and occupies an area of 560 ha. The park offers panoramic views of the ocean and bay, rugged coastal landscapes and a variety of walking and cycling trails. The park includes the Quarantine Station, which operated from the 1850s to 1979 and Fort Nepean, a former military defense facility. The park preserves large areas of remnant coastal vegetation, including Moonah woodlands and coastal banksia, it is also home to several native species of fauna including the endangered Hooded Plover (Parks Victoria, NA).

## Mornington Peninsula National Park

Mornington Peninsula National Park is a located about 90 km south of Melbourne near Portsea and occupies an area of 2,686 ha. The park boasts dramatic ocean beaches, rugged cliffs and scenic coastal walks. Popular spots include Cape Schanck, Bushrangers Bay and the Two Bays Walking Track. The park supports a wide range of native plants and animals, including several endangered species like the Hooder Plover. The park is also part of the traditional lands of the Bunurong People (Parks Victoria, NA).

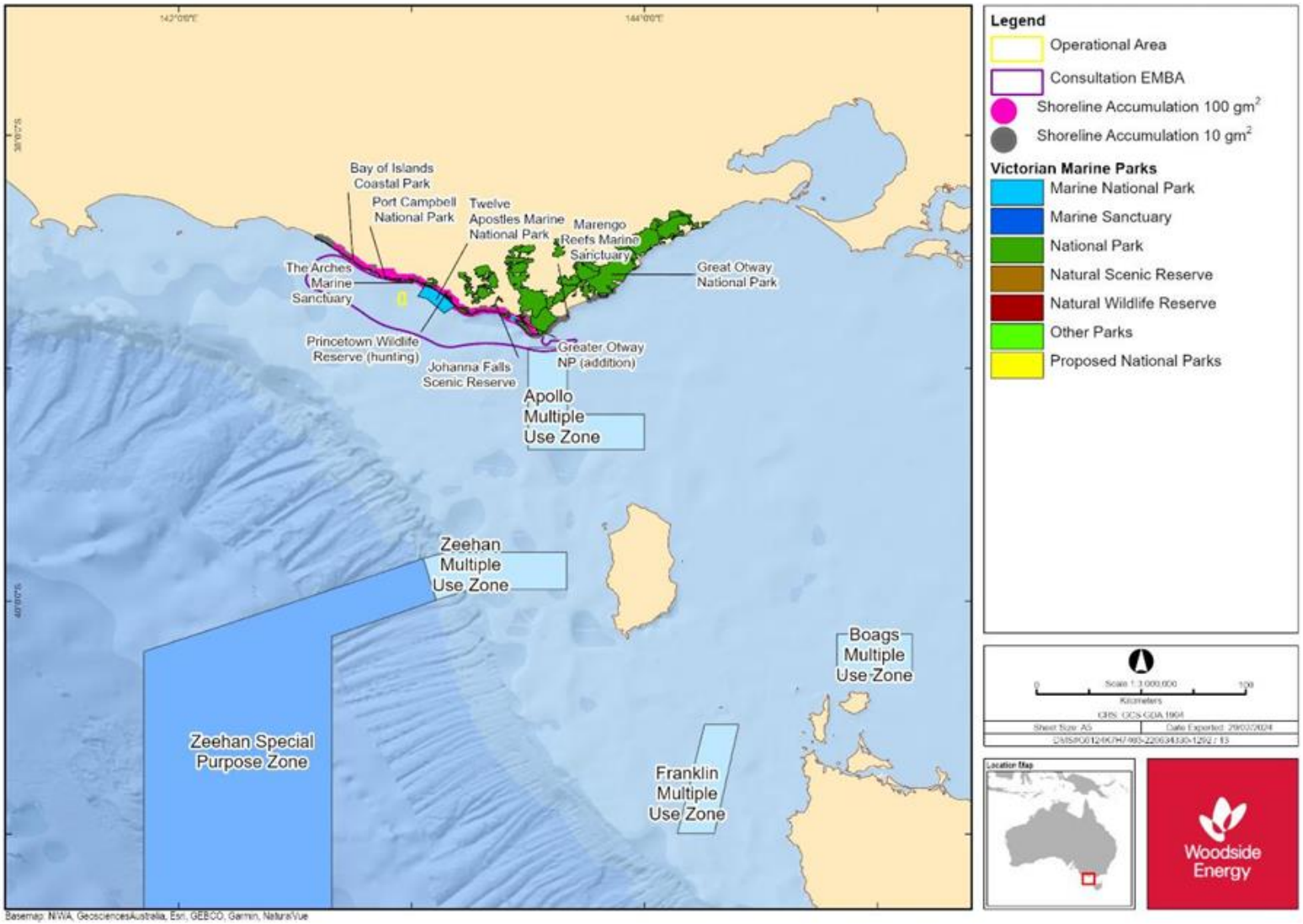



**Figure 4-2: Protected Areas within the EMBA (Figure 1 of 2)**

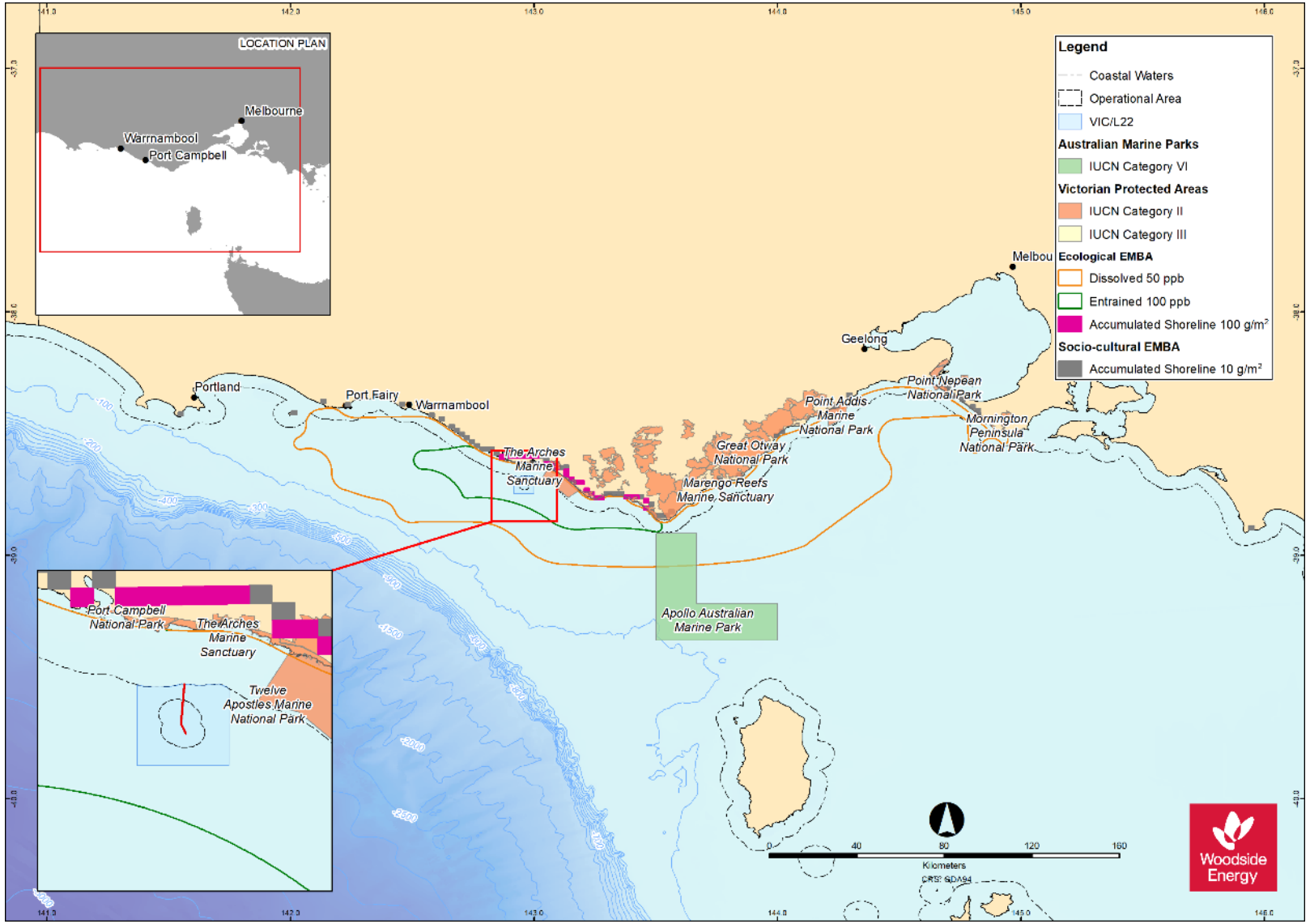



**Figure 4-3: Protected Areas within the EMBA (Figure 2 of 2)**

### 4.1.9 Key Ecological Features

No Key Ecological Features occur in the Operational Area or EMBA.

## 4.2 Physical Environment

### 4.2.1 Climate and Meteorology

The Otway bioregion is typical of a cool temperate region with cold, wet winters and warm dry summers (NOO, 2002). The area experiences a mean maximum temperature of 21.5ºC (February) and a mean minimum temperature of 7.6ºC (July) (Table 4-3). The annual average rainfall is 895 mm with the predominate rainfall occurring between June and August (Table 4-3).

Sub-tropical high-pressure systems dominate this region in the summer with sub-polar low-pressure systems in the winter. The low-pressure systems are accompanied by strong westerly winds and rain-bearing cold fronts that move from south-west to north-east across the region, producing strong winds from the west, north-west and south-west. Meanwhile, the day-to-day variation in weather conditions is caused by the continual movement of the highs from west to east across the Australian continent roughly once every 10 days.

The Bass Strait is located on the northern edge of the westerly wind belt known as the Roaring Forties. In winter, when the subtropical ridge moves northwards over the Australian continent, cold fronts generally create sustained west to south-westerly winds and frequent rainfall in the region (McInnes & Hubbert, 2003). In summer, frontal systems are often shallower and occur between two ridges of high pressure, bringing more variable winds and rainfall.

Winds in this section of the Otway basin and western Bass Strait generally exceed 13 knots (23.4 km/hr) for 50% of the time and are typically between the range of 10-30 km/hr. Winds contribute to the predominant moderate to high wave-energy environment of area and are predominantly south-westerly cycling to north-westerly. Occasionally, intense mesoscale low-pressure systems occur in the region, bringing very strong winds, heavy rain, and high seas. These events are unpredictable in occurrence, intensity, and behaviour, but are most common between September and February (McInnes & Hubbert, 2003).

**Table 4-3: Meteorological conditions representative of the operational area within the Otway Region**

| Month | Mean Maximum Monthly Temperature (ºC) | Mean Minimum Monthly Temperature (ºC) | Mean Rainfall (mm) |
|---|---|---|---|
| January | 21.4 | 13.4 | 44.7 |
| February | 21.5 | 14.0 | 41.3 |
| March | 20.4 | 13.3 | 55.7 |
| April | 18.0 | 11.7 | 70.4 |
| May | 15.6 | 10.1 | 91.5 |
| June | 13.7 | 8.5 | 96.6 |
| July | 13.0 | 7.6 | 106.2 |
| August | 13.8 | 7.9 | 104.1 |
| September | 15.2 | 8.5 | 90.2 |
| October | 17.0 | 9.6 | 80.4 |
| November | 18.3 | 10.8 | 62.6 |
| December | 19.9 | 12.1 | 52.2 |
| **Annual Average** | 17.3 | 10.6 | 895.0 |

Source: BOM, 2022

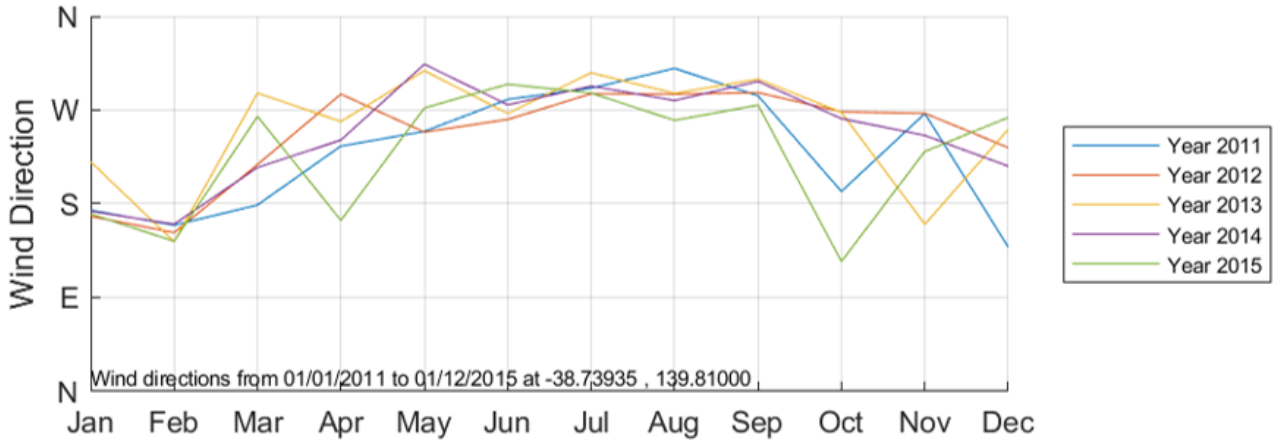



**Figure 4-4: Average monthly wind direction (GHD, 2022)**

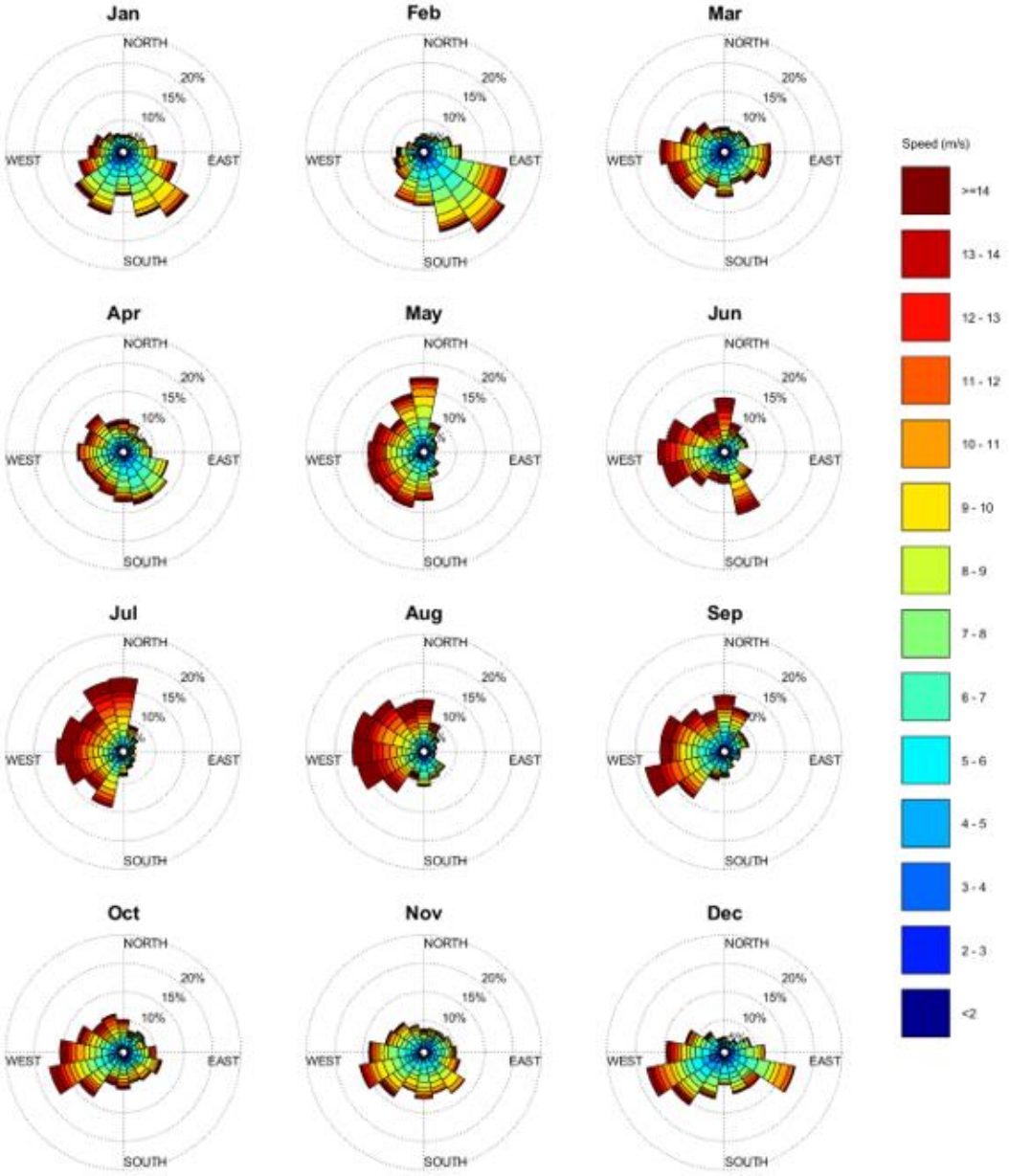


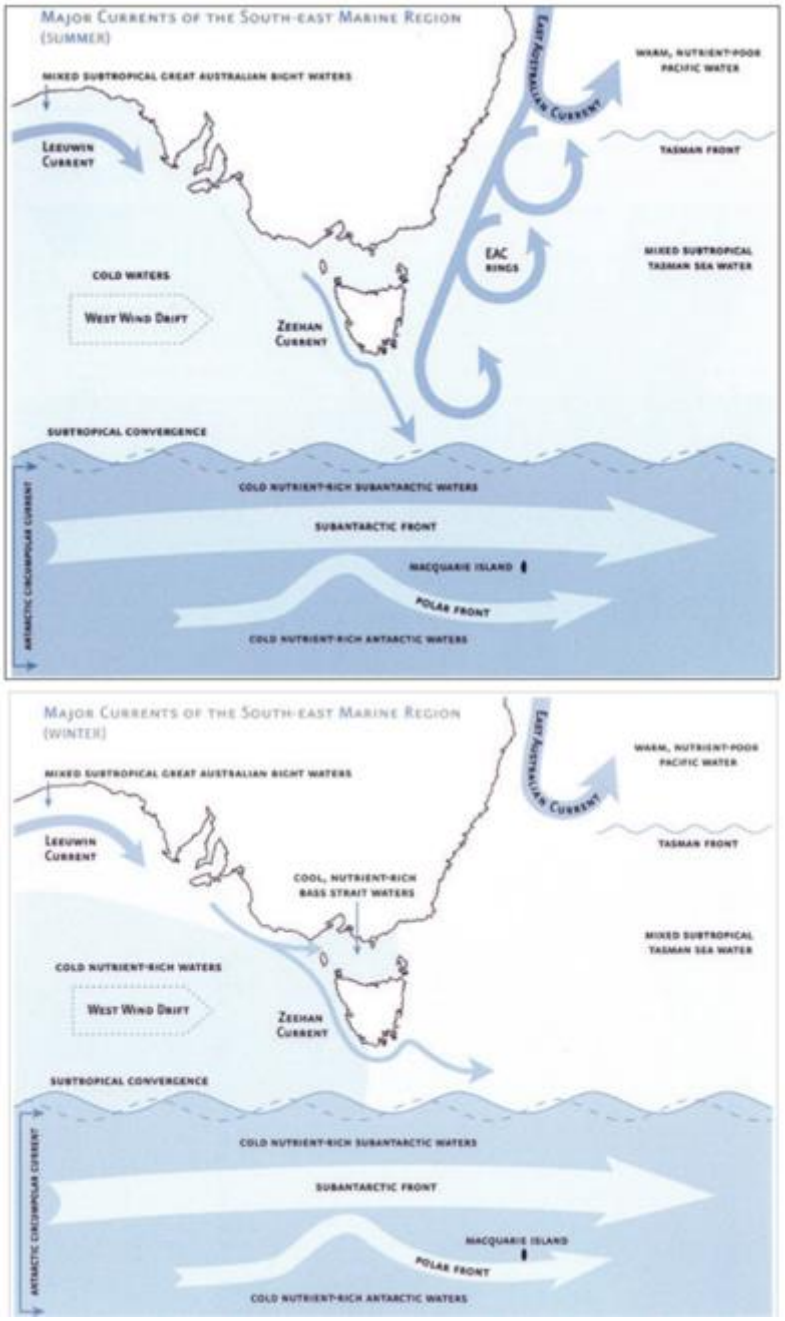

**Figure 4-5: Average monthly wind roses (GHD, 2022)**

### 4.2.2 Oceanography

## Currents and Tides

Currents and oceanic properties, such as temperature and nutrients, play a vital role in the ecosystems of the Region. Ocean currents link marine systems, while fronts and upwellings drive the productivity of open ocean environments (DNP, 2013). The western reserves of the South-east Marine region, including the Otway, are predominantly influenced by the Leeuwin and Zeehan currents where there is a slow easterly flow of waters in the Bass Strait and a large anti-clockwise circulation (DNP, 2013). The Leeuwin Current transports warm, sub-tropical water southward along the Western Australian (WA) coast and then eastward into the Great Australian Bight (GAB), where it mixes with the cool waters from the Zeehan Current running along Tasmania's west coast (DNP, 2013). The Leeuwin and Zeehan currents are stronger in winter than in summer, with the latter flowing into Bass Strait during winter (Figure 4-6).

Tides in this region are semi-diurnal with some diurnal inequalities (Jones and Padman, 2006; Easton, 1970), generating tidal currents along a north-east/south-west axis with speeds generally ranging from 0.1 to 2.5 m/s (Baines and Fandry, 1983). The tides in the Otway are considered microtidal with a a range of approximately 0.8 to 1.2 m, however the tidal ranges and velocities vary rapidly in the western entrance to Bass Strait (DNP, 2013).




Source: DoE, 2015

**Figure 4-6: Major ocean currents influencing Southern Australia (Summer and Winter)**

## Waves

The Otway coast has a predominantly south-westerly aspect and is highly exposed to swell from the Southern Ocean.

There are two principal sources of wave energy in the Otway Basin:

- Westerly swell from the Great Australian Bight and Southern Ocean; and
- Locally generated winds, generally from the west and east.

This region is typically one of high energy and is fully exposed to wave heights ranging from 1.5 m to 2 m with periods of 8 s to 13 s. Although waves heights up to 10 m can occur during storm events and a combination of wind forcing against tidal currents can cause greater turbulence.

## Water Temperature and Salinity

The South East Marine Region (SEMR) is oceanographically complex, with subtropical influences from the north and subpolar influences from the south (Hosack & Dambacher 2012). Sea surface water temperatures in this region vary seasonally from a minimum of 12.6ºC to a maximum of 18.4ºC (APASA, 2013). While salinity remains at approximately 35.0 practical salinity units (PSU) year-round when tested at a water depth range of 30 m (RPS, 2020). During winter, the South Australian current moves dense, salty warmer water eastward from the Great Australian Bight into the western margin of Bass Strait. In winter and spring, waters within the strait are well mixed with no obvious stratification, while during summer the central regions of the straight become stratified (RPS, 2020). The southwest region of Victorian area has significant upwelling of colder, nutrient rich deep water during summer that can cause sea surface temperatures to decrease by 3°C compared with offshore waters (Butler *et al*., 2002).

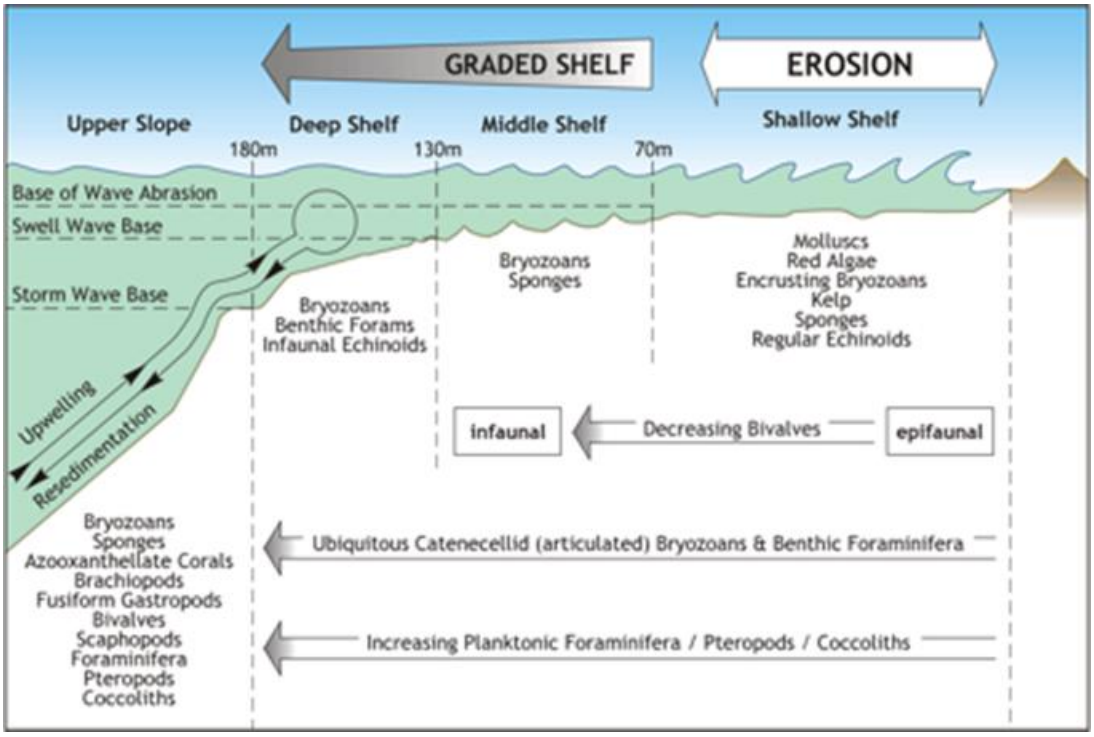
## Bathymetry and Geomorphology

The SEMR shows significant variation in water depth and sea floor feaures (DNP, 2013). Included is the south-eastern section of Australia's continental margin comprising the Otway Shelf and the Bonney Coast, Bass Strait, and the western shelf of Tasmania. The Minerva field is located within the 400 km long Otway shelf, which lies between 37° and 43.5°S and 139.5°E (Cape Jaffa) and 143.5°E (Cape Otway).

The narrowest point is off Portland, where the shelf is less than 20 km wide. It broadens progressively westward, to 60 km off Robe, SA, and eastward to 80 km off Warrnambool (James *et al*., 2013). The Otway shelf is comprised of Miocene limestone below a thin veneer of younger sediments.

Boreen *et al.* (1993) examined 259 sediment samples collected over the Otway Basin and the Sorell Basin of the west Tasmanian margin. Samples were taken during two research cruises (January/February 1987 and March/April 1988) on the RV *Rig Seismic* using dredges, corers, grabs and a heatflow probe. Based on assessment of the sampled sediments the authors concluded the Otway continental margin is a swell-dominated, open, cool water, carbonate platform. A conceptual model was developed that divided the Otway continental margin into five depth-related zones – shallow shelf, middle shelf, deep shelf, shelf edge and upper slope (Figure 4-7).

The shallow shelf consists of exhumed limestone substrates that host dense encrusting mollusc, sponge, bryozoan and red algae assemblages. The middle shelf is a zone of swell-wave shoaling and production of mega-rippled bryozoan sands. The deep shelf is described as having accumulations of intensely bioturbated, fine, bioclastic sands. At the shelf edge and top of slope, nutrient-rich upwelling currents support extensive, aphotic bryozoan/sponge/coral communities. The upper slope sediments are a bioturbated mixture of periplatform bioclastic debris and pelleted foraminiferal/nanno-fossil mud. The lower slope is described as cross-cut by gullies with low accumulation rates, and finally, at the base of the slope the sediments consist of shelf-derived, coarse grain turbidites and pelagic ooze.




Source: Boreen *et al*., 1993

**Figure 4-7: Model of the Geomorphology of the Otway Shelf**

### 4.2.3 Air Quality

Air quality in the offshore Otway region is expected to be high given that air flow originates in the Southern Ocean, and there are no intervening land masses that could influence the quality of air from any anthropogenic or natural terrestrial sources. However, offshore anthropogenic activities (shipping, industry developments) would contribute to local variation in air quality.

Air quality data for the region is available from the Environment Protection Authority (EPA) Victoria air quality monitoring stations, and Cape Grim Baseline Air Pollution Station on Tasmania's west coast, which is one of the three premier baseline air pollution stations in the World Meteorological Organisation-Global Atmosphere Watch (WMO-GAW) network, measuring greenhouse and ozone depleting gases and aerosols in clean air environments.

The Victorian air quality data is collected at 15 performance monitoring stations representing predominantly urban and industrial environments in the Port Phillip and Latrobe Valley regions of Victoria. Results are assessed against the requirements of the National Environment Protection (Ambient Air Quality) Measure for the pollutants carbon monoxide (CO), nitrogen dioxide ($NO_2$), ozone ($O_3$), sulfur dioxide ($SO_2$), lead (Pb), particles less than 10 micrometres in diameter (PM10) and particles less than 2.5 micrometres in diameter (PM2.5). Air monitoring reports shows Victoria's air quality is generally good with AAQ NEPM goals and standards being met, however, there were some exceedances for particles.

It is expected that air quality within the vicinity of the operational area and EMBA will be typical of the Victorian offshore marine environment (i.e. high).

### 4.2.4 Ambient Noise

Ambient noise within the offshore Otway region is expected to be dominated by natural physical (e.g. wind, waves, rain) and biological (e.g. echolocation and communication noises generated by cetaceans and fish) sources. The southern ocean is also subject to iceberg calving, shoaling and disintegration which is identified as a dominant source of low-frequency (<100 Hz) noise.

Ambient ocean noise levels can vary considerably due to prevailing metocean conditions. For example, wind is a major contributor to noise between 100 Hz and 30 kHz (WDCS, 2004) and can reach 85-95 dB re 1µ$Pa^2$/Hz under extreme conditions. Rain may also produce short periods of high underwater sound with a flat frequency

spectrum to levels of 80 dB re 1μPa$^2$/Hz. In exposed areas of ocean, ambient noise levels are frequently around 90–110 dB re 1 μPa (APPEA, 2005) and can vary on a daily basis by 10 to 20 dB re 1 μPa (Richardson *et al*., 1995).

Anthropogenic noise sources is also expected in the region with the SEMR supporting a range of marine industries including commercial fishing and aquaculture, offshore oil and gas production, shipping, ports, as well as recreation and tourism activities (DoE, 2015). Many vessels are expected, with the SEMR considered one of the busiest shipping regions in Australia (DoE, 2015). This anthropogenic influence is expected to affect ambient noise levels.

### 4.2.5 Sediment Quality

Marine sediment quality within the vicinity of the Minerva field and broader Otway region is expected to be representative of the typically pristine offshore Victorian waters. Variations to this state (e.g. increased metal concentrations) may occur closer to coastal regions that are subject to large tidal ranges, terrestrial run-off or anthropocentric factors (i.e. ports, industrial discharges, etc.).

### 4.2.6 Water Quality

Marine water quality considers chemical, physical and biological characteristics with respect to its suitability to support marine life, or for a purpose such as swimming or fishing. Marine water quality can be measured by several factors, such as the concentration of dissolved oxygen, the salinity, the amount of material suspended in the water (turbidity or total suspended solids) as well as the concentration of contaminants such as hydrocarbons and heavy metals.

The nutrient concentrations are considered to be relatively low in the South-east Marine Region with the exception of localised areas of high productiveity (DoE, 2015). It is hypothesised that this could be due to the biological demands of the Bass Strait waters consuming much of the nutrients before moving into Central Bass Strait (Gibbs, 1992). The Otway coastline is known for high energy wave activity and strong ocean currents (NOO, 2002), and therefore water column turbidity in this region is subject to high natural variability. Weather conditions in the coastal environment around Port Campbell and Port Ferry are known to influence offshore hydrodynamic conditions and are a driver of sediment dynamics, impacting benthic and pelagic habitats and changing water column turbidity. Wave-driven sediment resuspension generates high turbidity levels within coastal zones, commonly exceeding 50 mg/L (Larcombe *et al*., 1995; Whinney, 2007; Browne *et al*., 2013), but coastal communities appear generally well adapted to deal with these extrinsic stresses.

Marine water quality within the vicinity of the Minerva field and broader Otway region is expected to be representative of typical offshore Victorian waters. Variations to this state (e.g. increased metal concentrations) may occur closer to coastal regions that are subject to large tidal ranges, terrestrial run-off or anthropocentric factors (i.e. ports, industrial discharges, etc.).

## 4.3 Ecological Environment

### 4.3.1 Benthic Habitats and Infauna

Benthic communities are biological communities that live in or on the seabed. These communities typically contain light-dependent taxa such as algae, seagrass and corals, which obtain energy primarily from photosynthesis, and/or animals such as molluscs, sponges and worms that obtain their energy by consuming other organisms or organic matter. Benthic habitats are the seabed substrates that benthic communities grow on or in; these can range from unconsolidated sand to hard substrates (e.g. limestone) and occur either singly or in combination.

Benthic communities across the Bass Strait are determined by the seafloor habitat and have a wide distribution with high diversity. A series of benthic surveys were conducted by the Victorian Museum on the continental shelf of the Bass Strait between 1979 and 1984 (Poore *et al*., 1985; Wilson and Poore, 1987).

The Otway continental margin is a swell-dominated, open, cool-water carbonate platform which was divided into five depth-related zones by Boreen *et al*. (1993) (Figure 4-7):

- Shallow shelf: consisting of exhumed limestone substrates that host encrusting mollusc, sponge, bryozoan and red algae assemblages.
- Middle shelf: a zone of swell wave shoaling and production of mega-rippled bryozoan sands.

- Deep shelf: accumulations of intensely bioturbated, fine bioclastic sands.
- Shelf edge and top of slope: nutrient-rich upwelling currents support extensive, aphotic bryozoan / sponge / coral communities.

The dominant benthic habitat throughout the continental shelf, as described by the SEMR profile (DoE, 2015) is rocky reef and soft sediment.

## Soft Sediment

Unvegetated soft sediments are a widespread habitat in both intertidal and subtidal areas, particularly in areas beyond the photic zone. Factors such as depth, light, temperature and the type of sediment present can vary the biodiversity and productivity of soft sediment habitat.

The Middle Otway Shelf (70-130 m depth) is a zone of large tracts of open sand with little or no epifauna to characterise the area: infaunal communities and bivalves, polychaetes and crustaceans dominate in the open sand habitat. The Deep Otway Shelf (130 – 180 m) sediments consist of accumulations of intensely bioturbated, fine, bioclastic sands. The Upper Slope of Otway Shelf (>180 m) incorporates the edge/ top of the shelf which displays nutrient-rich upwelling currents support extensive, aphotic bryozoan / sponge / coral communities. The upper slope is dominated by bioturbated mixture of periplatform bioclastic debris and pelleted foraminiferal / nannofossil mud. Turbidites and resedimentation features are common. Bioturbation and shelf-derived skeletal content decrease progressively downslope and pelagic muds dominate below 500 m.

Scientific surveys have shown that some shallow Victorian sandy environments have the highest levels of animal diversity ever recorded (Parks Victoria, 2016a). Some of the larger animals found associated with these soft sediment environments in Victoria include smooth stingray (*Dasyatis brevicaudata*), pipi (*Plebidonax deltoids*), dumpling squid (*Euprymna tasmanica*), common stargazer (*Kathetostoma leave*) and heart urchin (*Echinocardium cordatum*) (Parks Victoria, 2016a).

## Seagrass

Seagrasses are marine flowering plants, with around 30 species found in Australian waters (Huisman, 2000). While seagrass meadows are present throughout southern and eastern Australia, the proportion of seagrass habitat within the south-eastern sector is not high compared to the rest of Australia (in particular with parts of South Australia and Western Australia) (Kirkham, 1997).

Seagrass generally grows in soft sediments within intertidal and shallow subtidal waters where there is sufficient light and are common in sheltered coastal areas such as bays, lees of islands and fringing coastal reefs (McClatchie *et al*., 2006; McLeay *et al*., 2003). Known seagrass meadows within the spill EMBA include Corner Inlet, Port Phillip Bay and Western Port Bay. Seagrass meadows are important in stabilising seabed sediments, and providing nursery grounds for fish and crustaceans, and a protective habitat for the juvenile fish and invertebrates species (Huisman, 2000; Kirkham, 1997).

Seagrass is expected in the EMBA along the Victorian coastline.

## Algae

Benthic microalgae are present in areas where sunlight reaches the sediment surface. Benthic microalgae are important in assisting with the exchange of nutrients across the sediment-water interface; and in sediment stabilisation due to the secretion of extracellular polymetric substances (Ansell *et al*., 1999). Benthic microalgae can also provide a food source to grazers such as gastropod and amphipods (Ansell *et al*., 1999).

Macroalgae communities occur throughout the Australian coast and are generally found on intertidal and shallow subtidal rocky substrates. Macroalgal systems are an important source of food and shelter for many ocean species; including in their unattached drift or wrack forms (McClatchie *et al*., 2006).

Macroalgae are divided into three groups: *Phaeophyceae* (brown algae), *Rhodophyta* (red algae), and *Chlorophyta* (green algae). Brown algae are typically the most visually dominant and form canopy layers (McClatchie *et al*., 2006). The presence and growth of macroalgae are affected by the principal physical factors of temperature, nutrients, water motion, light, salinity, substratum, sedimentation and pollution (Sanderson, 1997). Macroalgae assemblages vary, but *Ecklonia radiata* and *Sargassum* sp. are typically common in deeper areas. Macroalgae is expected in the EMBA along the Victorian coastline.

## Coral

Corals are generally divided into two broad groups: the zooxanthellate ('reef-building', 'hermatypic' or 'hard') corals, which contain symbiotic microalgae (zooxanthellae) that enhance growth and allow the coral to secrete large amounts of calcium carbonate; and the azooxanthellate ('ahermatypic' or 'soft') corals, which are generally smaller and often solitary (Tzioumis and Keable, 2007). Hard corals are generally found in shallower (<50 m) waters while the soft corals are found at most depths, particularly those below 50 m (Tzioumis and Keable, 2007).

Corals do not occur as a dominant habitat type within the EMBA, however their presence has been recorded around areas such as Wilsons Promontory National Park and Cape Otway. Reef development by hard corals does not occur further south than Queensland (Tzioumis and Keable, 2007). Soft corals are typically present in deeper waters throughout the continental shelf, slope and off-slope regions, to well below the limit of light penetration.

Reproduction methods for cold water corals are not as well understood as warm water corals such as those of the Great Barrier Reef, but it is likely that some are still broadcast spawners (like their tropical counterparts), while others brood and release formed larvae (Roberts *et al*., 2009).

## Carbonate sands and exposed limestone

Boreen *et al*., (1993) reported that carbonate sands in the Otway middle shelf support a benthic fauna dominated by bryozoans, infaunal echinoids and assemblages of sponges. Other components include bivalves (commonly *Mysella donaciformis* and *Legrandina bernadi*), *Chlamys sp*. scallops and small gastropods. The sand octopus (*Octopus kaurna*) also inhabits sandy sediments.

Within the inner shelf, Boreen *et al*. (1993) reported that the benthic communities associated with hard limestone substrates were comprised of sponges, encrustlng and branching corailine algae, poysonellid algae, bryozoa, benthic forams, robust sarpullds, brachiopods, bivalves, gastropods, fleshy red algae and kelp.

A benthic survey of inner shelf sediments in the vicinity of the Minerva Gas Field development, found that the seafloor was composed of course, well-sorted sand (Currie and Jenkins, 1994). This survey identified 196 species and a total of 5,035 individuals comprised of 63% crustaceans, 15% polychaetes, 8% molluscs and 5% echinoderms. The most abundant species were the bivalve *Katlysia* sp. (12.4 individuals/$m^2$), the sarconid *Triloculina affinis* (8.9 individuals/$m^2$), the tanaid isopod *Apsuedes* sp. (8.3 individuals/$m^2$) and the spionid polychaete *Prionospio coorilla* (4.8 individuals/$m^2$) (Currie, 1995).

Demersal fishes likely to be associated with carbonate sands on the middle and inner shelf include (LCC, 1993) eastern stargazer (*Kathetostoma laeve*), elephant shark (*Callorhynchus milli*), greenback flounder (*Rhombosolea taoarina*), gummy shark (*Mustelus antarcticus*), long-snouted flounder (*Ammotretis rostraus*), saw shark (*Pristiophorus nudipinnis*), southern sand flathead (*Platycephalus bassensis*) and southern school whiting (*Sillago bassensis*).

## Basalt rises

There is no published information on the species assemblages of the basalt rises in the south-east and east of the EMBA, other than general information on their importance as a southern rock lobster fishing area. Following the classification system of Hutchinson *et al*. (2010), these rises can be classified as deep reefs, defined as rocky habitat at depths greater than 20 m.

In general, deep reef biota is typified by invertebrate animals rather than algae, usually in the form of sessile, filter feeding fauna. Organisms such as sponges, octocorals, bryozoans and ascidians usually dominate rock faces on deep reefs (Hutchison *et al*., 2010). This is partly due to the ability of species such as sponges to survive in low light conditions that algae are unable to survive in. The most common algae present on deep reefs are encrusting coralline red algae which is able to tolerate low levels of penetrating light (Hutchison *et al*., 2010).

The distribution of fish fauna is governed by biologically formed habitat structure as well as by food. Fish assemblages typically begin to change at depths greater than 20 m, with the loss of the kelp-associated wrasses and leatherjackets, and the appearance of deeper water fishes such as boarfishes (family *Pentacerotidae*), splendid perch (*Callanthias australis*) and banded seaperch (*Hypoplectrodes nigroruber*). Schools of barber perch (*Caesioperca razor*) are replaced by the related butterfly perch (*Caesioperca lepidoptera*) (O'Hara *et al*., 1999). While fish present on shallow subtidal reefs include algavores, omnivores and carnivores, those on deep reefs are typically carnivorous as algae are typically not abundant at depth.

Although common on rocky reefs, sponges, hydrozoans, anthozoans, bryozoans, and ascidians are thought to be largely unpalatable to reef fish. It is therefore likely that fish at these depths are feeding on associated mobile invertebrate fauna. Edmunds *et al*. (2006) suggests that mobile invertebrate organisms play an ecologically significant role, providing food for carnivorous fishes on deep reefs in Port Phillip Bay, and are likely to include a variety of crustaceans and molluscs.

Information from the few specific studies of specific deep reef habitats in Bass Strait can be assessed to draw broad conclusions about the species assemblages likely to occur on the basalt rises, noting that assemblages of reef species are likely to differ based on geology, habitat structure, exposure to tidal and wave motion and nutrient availability. These studies are generally limited to one off video surveys with little or no temporal replication. More generally little is known about deep reefs in the Bass Strait, or the biology and ecology of organisms that live on them, due in part to difficulties associated with conducting observational work or manipulative experiments *in situ*.

Beaman *et al*. (2005) undertook video surveys of the New Zealand Star Bank in the eastern Bass Strait. This feature is comprised of granite outcrops between approximately 30 to 40 m water depth, rising from the surrounding relatively flat seabed of mainly unconsolidated quartz sands with variable amounts of shell debris. Underwater video footage revealed a structurally complex surface of crevices and steep slopes, which is densely covered in erect large and small sponges and encrusting calcareous red algae. Encrusting red algae are usually the greatest occupier of space due to tolerance of low light conditions (< 1% of surface) found at these depths (Andrew, 1999). Mobile benthos observed were crinoids within crevices and the black sea urchin (*Centrostephanus rodgersii*) in low numbers on high slope surfaces and dense encrustations on low relief lower slopes. Underwater video showed a draughtboard shark (*Cephaloscyllium laticeps*) cruising above the crevices of high-relief granite outcrop as well as schools of butterfly perch feeding on plankton in the water column above the bank.

This study demonstrated a significant difference between communities that live on hard-ground granite outcrops of the New Zealand Star Bank and those which exist on soft substrate surrounding the rocky bank. These granite outcrops support a diverse sessile fauna of large and small sponges, bryozoans, hydroids and ascidians which prefer stable attachment surfaces (Underwood, 1991; Andrew 1999; Andrew and O'Neill, 2000). It is likely that similar species assemblages occur within the EMBA between the flat carbonate sands of the seabed and the basalt rises.

Edmunds *et al*. (2006) investigated assemblages of benthic fauna at near shore deep reefs within Central Victoria (Point Addis and Wilsons Promontory) and Port Phillip Bay. The Port Phillip Bay deep reef assemblages were dominated by sponges, occupying 70 to 90% of the rocky substratum. The Point Addis assemblage was dominated by upright sponges (arborescent, massive and flabellate growth forms), but cnidarians including hydroids were entirely absent. Wilsons Promontory had a low coverage of encrusting sponges and hydroids, with high abundances of red and brown algae and the gorgonian fan (*Pteronisis sp*.). The Port Phillip Head assemblage was dominated by encrusting sponges, hydroids, ascidians and bryozoans.

In summary, the species assemblages associated with the basalt rises in the south-east and east of the EMBA are likely to be significantly different to the species assemblages of the surrounding flat seabed supporting carbonate sands. The depth of the basalt rises is likely to preclude significantly algal growth, with red algae likely to be most abundant. Sponges, hydrozoans, anthozoans, bryozoans, and ascidians are likely to occur though the relative abundances of these groups are not known. Targeting of the rises for rock lobster fishing indicates presence of this species in relatively high densities. The trophic effects of long-term targeting of this species at these rises is not known. Site attached fishes are not likely to include kelp-associated wrasses and leatherjackets. Further statements cannot be made with sufficient confidence as site specific data for these rises are not available.

### 4.3.2 Shoreline Habitats

The coastal environment throughout southern and eastern Australia is varied, and includes areas of rocky cliffs, sandy beaches, and tidal flats. Each of these shoreline types has the potential to support different flora and fauna assemblage due to the different physical factors (e.g. waves, tides, light etc.) influencing the habitat.

#### Sandy Beaches

Sandy beaches are dynamic environments, naturally fluctuating in response to external forcing factors (e.g. waves, currents etc). Sandy beaches can support a variety of infauna and provide nesting habitat to birds and turtles. Sand particles vary in size, structure and mineral content; this in turn affects the shape, colour and

inhabitants, of the beach. Sandy beaches within the EMBA are expected to vary in length, width and gradient, and to be interspersed among areas of hard substrate (for example, sandstone) that form intertidal platforms and rocky outcrops. There is a wide range of variation in sediment type, composition, and grain size along the EMBA.

Sandy beaches are present along the Victorian coastline and intercept the EMBA. The following areas have known stretches of sandy beach:

- Portland to Port Fairy
- Port Fairy to Lady Bay (Warrnambool) coastline
- Small sections of sandy beach between Warrnambool and Cape Otway
- Marengo east to Anglesea

## Rocky Shores and Limestone Platforms

Hard and soft rocky shores, including bedrock outcrops, platforms, low cliffs (less than five metres), and scarps. Depending on exposure, rocky shores can be host to a diverse range of flora and fauna, including barnacles, mussels, sea anemones, sponges, sea snails, starfish and algae.

Rocky shore habitats are present along the Victorian coastline and intercept the EMBA. The following areas have known stretches of rocky shore:

- The Cape Nelson to Portland coastline
- The section of coast between Warrnambool and Cape Otway (covering a distance of ~100 km)
- Intertidal rocky shores stretch east to Marengo
- Interspersed areas between Marengo east to Anglesea

## Wetlands

Wetlands are areas of land where water covers the soil – all year or just at certain times of the year. Wetlands may be natural or artificial and the water within a wetland may be static or flowing, fresh, brackish, saline or underground.

Wetlands perform an important range of environmental, social and economic services, such as protecting our shores from wave action, reducing the impacts of floods, absorbing pollutants and improving water quality. They also provide habitat for a variety of plants and animals, including nurseries for fish and other freshwater and marine life, and are critical to Australia's commercial and recreational fishing industries.

The operational area does not overlap any wetlands.The EMBA overlaps three wetlands of national importance (Section 4.14.1.5).

## Saltmarsh

Saltmarshes are terrestrial halophytic (salt-adapted) ecosystems that mostly occur in the upper-intertidal zone and are widespread along the coast. Saltmarshes are typically dominated by dense stands of halophytic plants such as herbs, grasses and low shrubs. In contrast to mangroves, the diversity of saltmarsh plant species increases with increasing latitude. The vegetation in these environments is essential to the stability of the saltmarsh, as they trap and bind sediments. The sediments are generally sandy silts and clays and can often have high organic material content. Saltmarshes provide a habitat for a wide range of both marine and terrestrial fauna, including infauna and epifaunal invertebrates, fish and birds.

### 4.3.3 Plankton

Plankton consists of microscopic organisms typically divided into phytoplankton (algae) and zooplankton (fauna including larvae). Plankton play a major role in the trophic system with phytoplankton being a primary producer and zooplankton a primary consumer. They are both in turn consumed by other fauna species.

Phytoplankton are autotrophic planktonic organisms living within the photic zone and spend either part or all of their lifecycle drifting with the ocean currents. Phytoplankton are dependent on oceanographic processes (e.g. currents and vertical mixing), that supply nutrients needed for photosynthesis. Thus, phytoplankton biomass is typically variable (spatially and temporally) (Evans *et al*., 2016), but greatest in areas of upwelling, or in shallow waters where nutrient levels are high. Peak primary productivity, however, varies on a local and regional scale.

The carrying capacity of marine ecosystems (the mass of fish resources) and recruitment of individual stocks is strongly related to plankton abundance, timing and composition. The Bonney coast upwelling, located within the EMBA, is a productivity hotspot, with high densities of zooplankton and are important for fish and whales. Of particular importance in the region is the coastal krill, *Nyctiphanes australis*, which swarms throughout the water column of continental shelf waters primarily in summer and autumn, feeding on microalgae and providing an important link in the blue whale food chain.

There have been relatively few studies of plankton populations in the Otway and Bass Strait regions, with most concentrating on zooplankton. Watson and Chaloupka (1982) reported a high diversity of zooplankton in eastern Bass Strait, with over 170 species recorded. However, Kimmerer and McKinnon (1984) reported only 80 species in their surveys of western and central Bass Strait.

Plankton distribution is dependent upon prevailing ocean currents including the East Australia Current, flows into and from Bass Strait and Southern Ocean water masses. Plankton distribution in the region is expected to be highly variable both spatially and temporally and are likely to comprise characteristics of tropical, southern Australian, central Bass Strait and Tasman Sea distributions.

### 4.3.4 Invertebrates

There is a very large number of marine invertebrates in deep waters around Australia. Knowledge of the species in different habitats is extremely patchy; the number of deep-water benthic fauna is large but almost unknown. Throughout the region, a variety of seabed habits support a range of animal communities such as sparse sponges to extensive 'thickets" of lace corals and sponges, polychaete worms and filter feeders (DNP, 2013).

Characteristics of large species of crustacea, such as lobster, prawn and crab, which are significant commercial species in southern Australia, are well known. Mollusc species, such as oysters, scallops and abalone are also commercially fished, and their biology and abundance are well known. Major fisheries for the blacklip and to a lesser extent, greenlip abalone and scallops have been founded. The cooler waters of southern Australia also support the Maori octopus commercial fishery, which is one of the largest octopuses in Australia (with arm spans longer than 3 m and weighing more than 10 kg. Other molluscs are abundant in southern Australia and Tasmania such as the sea slug with more than 500 species. Volutes and cowries represent a relic fauna in southern Australia, with several species being very rare and can be highly sought after by collectors.

Echinoderms, such as sea stars, sea urchins and sea cucumbers are also an important fauna species of the southern Australian and Tasmanian waters, with several species at risk of extinction (DPIPWE, 2016).

Studies by the Museum of Victoria found that invertebrate diversity was high in southern Australian waters although the distribution of species was patchy, with little evidence of any distinct biogeographic regions (Wilson and Poore, 1987). Results of sampling in shallower inshore sediments reported high diversity and patchy distribution (Parry *et al*., 1990). In these areas, crustaceans, polychaetes and molluscs were dominant.

### 4.3.5 Invasive / Introduced Marine Species

Invasive marine species are marine plants or animals that have been introduced into a region beyond their natural range and have the ability to survive, reproduce and establish. More than 200 non-indigenous marine species including fish, molluscs, worms and a toxic alga have been detected in Australian coastal waters (AMSA, NA).

It is widely recognised that IMS can become pests and cause significant impacts on economic, ecological, social and cultural values of marine environments. Impacts can include the introduction of new diseases, altering ecosystem processes and reducing biodiversity, causing major economic loss and disrupting human activities (Brusati and Grosholz, 2006).

In the South-east Marine Region, 115 marine pest species have been introduced and an additional 84 have been identified as possible introductions, or 'cryptogenic' species (NOO, 2002). Several introduced species have become pests either by displacing native species, dominating habitats or causing algal blooms.

Key known pest species in the South-East Marine Region include (NOO, 2001):

- Northern pacific sea star (*Asterias amurensis*);
- Fan worms (*Sabella spallanzannii* and *Euchone* sp.);
- Bivalves (*Crassostrea gigas* (Pacific oyster), *Corbula gibba* and *Theora fragilis*);
- Crabs (*Carcinus maenas* (European shore crab) and *Pyromaia tuberculata* (spider crab);
- Macroalgae (*Undaria pinnatifida* (Japanese giant kelp) and *Codium fragile* ssp.*tormentosoides*; and

- The introduced New Zealand screw shell (*Maoricolpus roseus*), known to form extensive and dense beds on the sandy sea-floor in eastern Bass Strait spreading to the 80 m depth contour off eastern Victoria and NSW (Patil *et al*., 2004).

Other introduced species tend to remain confined to sheltered coastal environments rather than open waters (Hayes *et al*., 2005).

The Marine Pests Interactive Map (DAFF, 2016) indicates that the ports likely to be used by support vessels (Warrnambool, Apollo Bay or Port Fairy) do not currently harbour any marine pests.

### 4.3.6 Threatened and Migratory Species

Table 4-4 presents the environmental values and sensitivities (threatened and migratory species) within the EMBA. These include all relevant Matters of National Environmental Significance (MNES) protected under the EPBC Act 1999 as identified in the PMST search for the EMBA. For each species identified, the extent of likely presence is provided.

The BIAs and habitats critical to the survival of a species are which overlap the EMBA are shown in Table 4-5. BIAs such as an aggregation, breeding, resting, nesting or feeding areas or known migratory routes for these species are shown in Figure 4-8 to Figure 4-22.

Note that terrestrial species (such as terrestrial mammals, reptiles and bird species) that appear in the EPBC Act protected matters search of the EMBA and do not have habitats along shorelines are not relevant to the activity impacts and risks have been excluded from Table 4-4.

Relevant conservation advices, recovery plans and management plans for marine fauna identified in the PMST is provided in the EP, along with a description of it's relevance to the petroleum activity.

Table 4-4: EPBC Act threatened and migratory species potentially occurring within the EMBA

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| ***Fishes, Sharks, and Rays*** | | | | | |
| White Shark, Great White Shark | *Carcharodon carcharias* | Vulnerable | Migratory | Migration route known to occur within area | Migration route known to occur within area |
| School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark | *Galeorhinus galeus* | Conservation Dependent | - | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Shortfin Mako, Mako Shark | *Isurus oxyrinchus* | - | Migratory | - | Species or species habitat likely to occur within area |
| Porbeagle, Mackerel Shark | *Lamna nasus* | - | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Blue Warehou | *Seriolella brama* | Conservation Dependent | - | Species or species habitat known to occur within area | Species or species habitat known to occur within area |
| Southern Bluefin Tuna | *Thunnus maccoyii* | Conservation Dependent | - | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| ***Marine Mammals*** | | | | | |
| Sei Whale | *Balaenoptera borealis* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Blue Whale | *Balaenoptera musculus* | Endangered | Migratory | Foraging, feeding or related behaviour known to occur within area | Foraging, feeding or related behaviour known to occur within area |
| Fin Whale | *Balaenoptera physalus* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Pygmy Right Whale | *Caperea marginata* | - | Migratory | Foraging, feeding or related behaviour may occur within area | Foraging, feeding or related behaviour may occur within area |
| Southern Right Whale | *Eubalaena australis* | Endangered | Migratory (as *Balaena glacialis australis*) | Species or species habitat known to occur within area | Breeding known to occur within area |
| Dusky Dolphin | *Lagenorhynchus obscurus* | - | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Humpback Whale | *Megaptera novaeangliae* | - | Migratory | Species or species habitat likely to occur within area | Species or species habitat known to occur within area |
| Australian Sea-lion, Australian Sea Lion | *Neophoca cinerea* | Endangered | - | - | Species or species habitat may occur within area |
| Killer Whale, Orca | *Orcinus orca* | - | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| ***Reptiles*** | | | | | |
| Loggerhead Turtle | *Caretta caretta* | Endangered | Migratory | Species or species habitat likely to occur within area | Breeding likely to occur within area |
| Green Turtle | *Chelonia mydas* | Vulnerable | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Leatherback Turtle, Leathery Turtle, Luth | *Dermochelys coriacea* | Endangered | Migratory | Species or species habitat likely to occur within area | Breeding likely to occur within area |
| ***Birds*** | | | | | |
| Common Sandpiper | *Actitis hypoleucos* | - | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |

## Description of Environment for the Minerva Field

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| Fork-tailed Swift | *Apus pacificus* | - | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Flesh-footed Shearwater, Fleshy-footed Shearwater | *Ardenna carneipes* | - | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Sooty Shearwater | *Ardenna grisea* | Vulnerable | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Short-tailed Shearwater | *Ardenna tenuirostris* | - | Migratory | - | Breeding known to occur within area |
| Australasian Bittern | *Botaurus poiciloptilus* | Endangered | - | - | Species or species habitat known to occur within area |
| Sharp-tailed Sandpiper | *Calidris acuminata* | Vulnerable | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Red Knot, Knot | *Calidris canutus* | Vulnerable | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Curlew Sandpiper | *Calidris ferruginea* | Critically Endangered | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Pectoral Sandpiper | *Calidris melanotos* | - | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Greater Sand Plover, Large Sand Plover | *Charadrius leschenaultii* | Vulnerable | Migratory | - | Species or species habitat likely to occur within area |
| Antipodean Albatross | *Diomedea antipodensis* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Southern Royal Albatross | *Diomedea epomophora* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Wandering Albatross | *Diomedea exulans* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Northern Royal Albatross | *Diomedea sanfordi* | Endangered | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Latham's Snipe, Japanese Snipe | *Gallinago hardwickii* | Vulnerable | Migratory | - | Species or species habitat known to occur within area |
| Blue Petrel | *Halobaena caerulea* | Vulnerable | - | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Bar-tailed Godwit | *Limosa lapponica* | - | Migratory | - | Species or species habitat known to occur within area |
| Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit | *Limosa lapponica baueri* | Endangered | - | - | Species or species habitat known to occur within area |
| Swinhoe's Snipe | *Gallinago megala* | - | Migratory | - | Roosting likely to occur within area |
| Pin-tailed Snipe | *Gallinago stenura* | - | Migratory | - | Roosting likely to occur within area |
| Swift Parrot | *Lathamus discolor* | Critically Endangered | - | - | Species or species habitat likely to occur within area |
| Southern Giant-Petrel, Southern Giant Petrel | *Macronectes giganteus* | Endangered | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |

## Description of Environment for the Minerva Field

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| Northern Giant Petrel | *Macronectes halli* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Orange-bellied Parrot | *Neophema chrysogaster* | Critically Endangered | - | Migration route likely to occur within area | Migration route likely to occur within area |
| Blue-winged Parrot | *Neophema chrysostoma* | Vulnerable | - | - | Species or species habitat known to occur within area |
| Eastern Curlew, Far Eastern Curlew | *Numenius madagascariensis* | Critically Endangered | Migratory | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Little Curlew, Little Whimbrel | *Numenius minutus* | - | Migratory | - | Roosting likely to occur within area |
| Fairy Prion (southern) | *Pachyptila turtur subantarctica* | Vulnerable | - | Species or species habitat may occur within area | Species or species habitat known to occur within area |
| Osprey | *Pandion haliaetus* | - | Migratory | - | Species or species habitat known to occur within area |
| Sooty Albatross | *Phoebetria fusca* | Vulnerable | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Gould's Petrel, Australian Gould's Petrel | *Pterodroma leucoptera leucoptera* | Endangered | - | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Soft-plumaged Petrel | *Pterodroma mollis* | Vulnerable | - | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Australian Painted Snipe | *Rostratula australis* | Endangered | - | - | Species or species habitat likely to occur within area |
| Little Tern | *Sternula albifrons* | - | Migratory | - | Species or species habitat may occur within area |
| Australian Fairy Tern | *Sternula nereis nereis* | Vulnerable | - | Foraging, feeding or related behaviour likely to occur within area | Species or species habitat known to occur within area |
| Buller's Albatross, Pacific Albatross | *Thalassarche bulleri* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Northern Buller's Albatross, Pacific Albatross | *Thalassarche bulleri platei* | Vulnerable | - | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Indian Yellow-nosed Albatross | *Thalassarche carteri* | Vulnerable | Migratory | Species or species habitat likely to occur within area | Species or species habitat likely to occur within area |
| Shy Albatross | *Thalassarche cauta* | Endangered | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Grey-headed Albatross | *Thalassarche chrysostoma* | Endangered | Migratory | Species or species habitat may occur within area | Species or species habitat may occur within area |
| Campbell Albatross, Campbell Black-browed Albatross | *Thalassarche impavida* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Black-browed Albatross | *Thalassarche melanophris* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |
| Salvin's Albatross | *Thalassarche salvini* | Vulnerable | Migratory | Foraging, feeding or related behaviour likely to occur within area | Foraging, feeding or related behaviour likely to occur within area |

### Description of Environment for the Minerva Field

| Value/Sensitivity Common Name | Scientific Name | Threatened Status | Migratory Status | Sensitivities within Operational Area | Sensitivities within EMBA |
|---|---|---|---|---|---|
| White-capped Albatross | *Thalassarche steadi* | Vulnerable | Migratory | Foraging, feeding or related behaviour known to occur within area | Foraging, feeding or related behaviour known to occur within area |
| Eastern Hooded Plover, Eastern Hooded Plover | *Thinornis cucullatus cucullatus* | Vulnerable | - | - | Species or species habitat known to occur within area |
| Common Greenshank, Greenshank | *Tringa nebularia* | Endangered | Migratory | - | Species or species habitat likely to occur within area |

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## Listed Species Recovery Plans, Conservation Advice and Threat Abatement Plans

A summary of relevant recovery plans, threat abatement plans and conservation advice is provided in the EP, along with a description of it's relevance to the petroleum activity.

## Biologically Important Areas and Habitat Critical to the Survival of a Species

The Protected Matters Search Tool (PMST) identifies biologically important areas (BIAs) for some of the region's protected species. These are areas that are considered to be particularly important for the conservation of protected species and where aggregations of individuals display biologically important behaviour such as breeding, foraging, resting or migration. BIAs are not protected matters and should not be confused with 'critical habitat' as defined in the EPBC Act.

A review of the PMSTs identified BIAs for 16 protected species that intersect with the operational area and EMBA. The identified protected species and the relevant BIAs are shown in Table 4-5.

**Table 4-5: BIAs within the Operational Area and EMBA**

| Species | BIA Type | Closest approx. distance to Operational Area (km) |
|---|---|---|
| ***Whales*** | | |
| Pygmy blue whale | Foraging (annual high use area) | Overlaps Operational Area |
| | Distribution | Overlaps Operational Area |
| | Foraging | 15 |
| | Known Foraging Area | 51 |
| Southern right whale | Migration | Overlaps Operational Area |
| | Reproduction | 4 |
| ***Sharks*** | | |
| White shark | Known distribution | Overlaps Operational Area |
| | Distribution | Overlaps Operational Area |
| | Distribution (low density) | Overlaps Operational Area |
| | Foraging | 57 |
| ***Seabirds*** | | |
| Antipodean albatross | Foraging | Overlaps Operational Area |
| Australasian gannet | Foraging | 83 |
| Black-browed albatross | Foraging | Overlaps Operational Area |
| Bullers albatross | Foraging | Overlaps Operational Area |
| Campbell albatross | Foraging | Overlaps Operational Area |
| Common Diving-petrel | Foraging | Overlaps Operational Area |
| | Breeding | 87 |
| Indian yellow-nosed albatross | Foraging | Overlaps Operational Area |
| Short-tailed shearwater | Foraging | 18 |
| | Breeding | 284 |
| Shy albatross | Foraging likely | Overlaps Operational Area |
| Wandering albatross | Foraging likely | Overlaps Operational Area |
| Wedge-tailed shearwater | Foraging likely | Overlaps Operational Area |
| White-faced storm-petrel | Foraging | 54 |

| Species | BIA Type | Closest approx. distance to Operational Area (km) |
|---|---|---|

[1] Where multiple BIAs overlap with the wider EMBA, the distance shown is the distance of the closest BIA to the Operational Area.

## Description of Environment for the Minerva Field

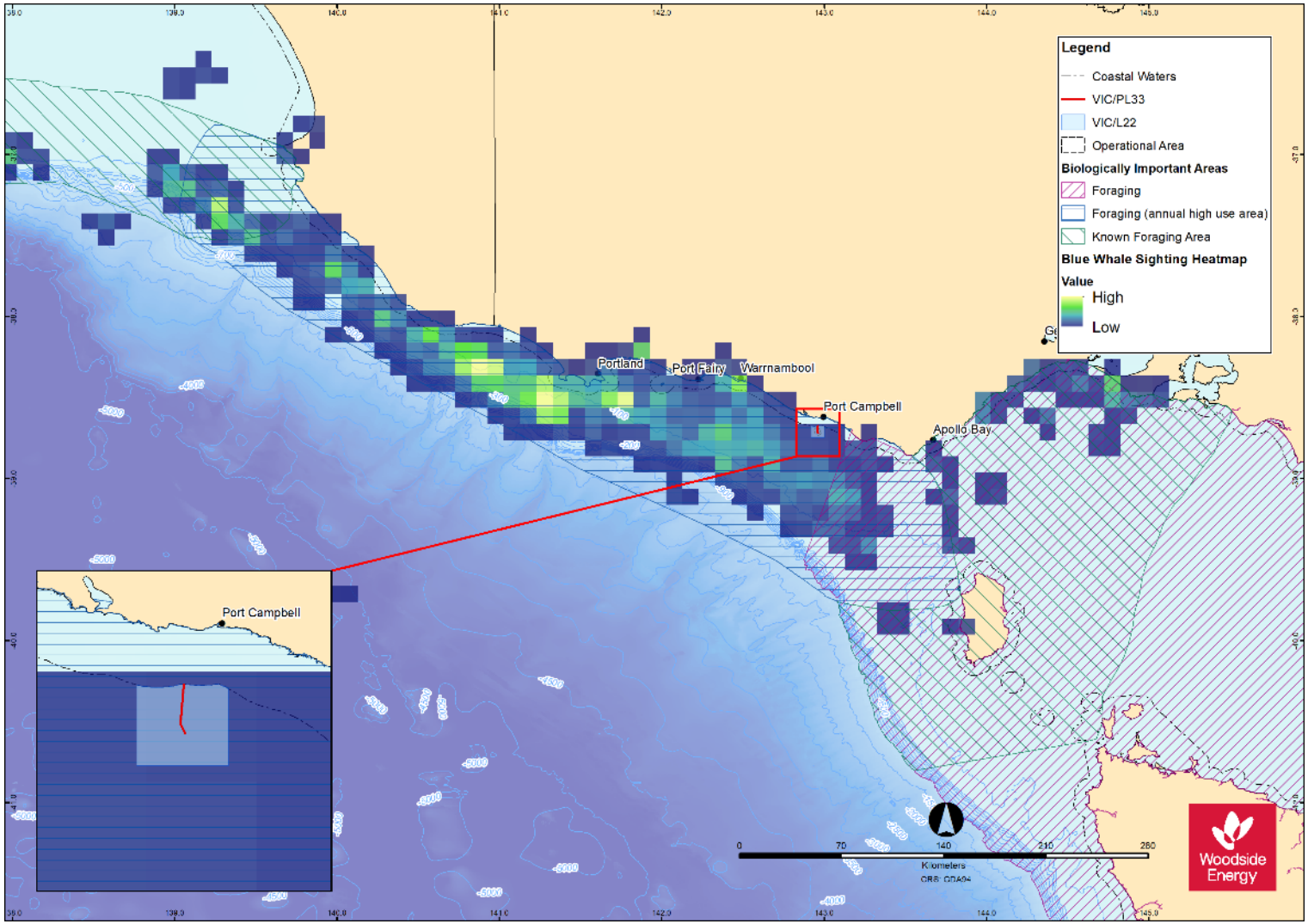


Figure 4-8: BIAs for Pygmy Blue Whales and heatmap of pygmy blue whale sighting data from the Atlas of Living Australia (n.d.)

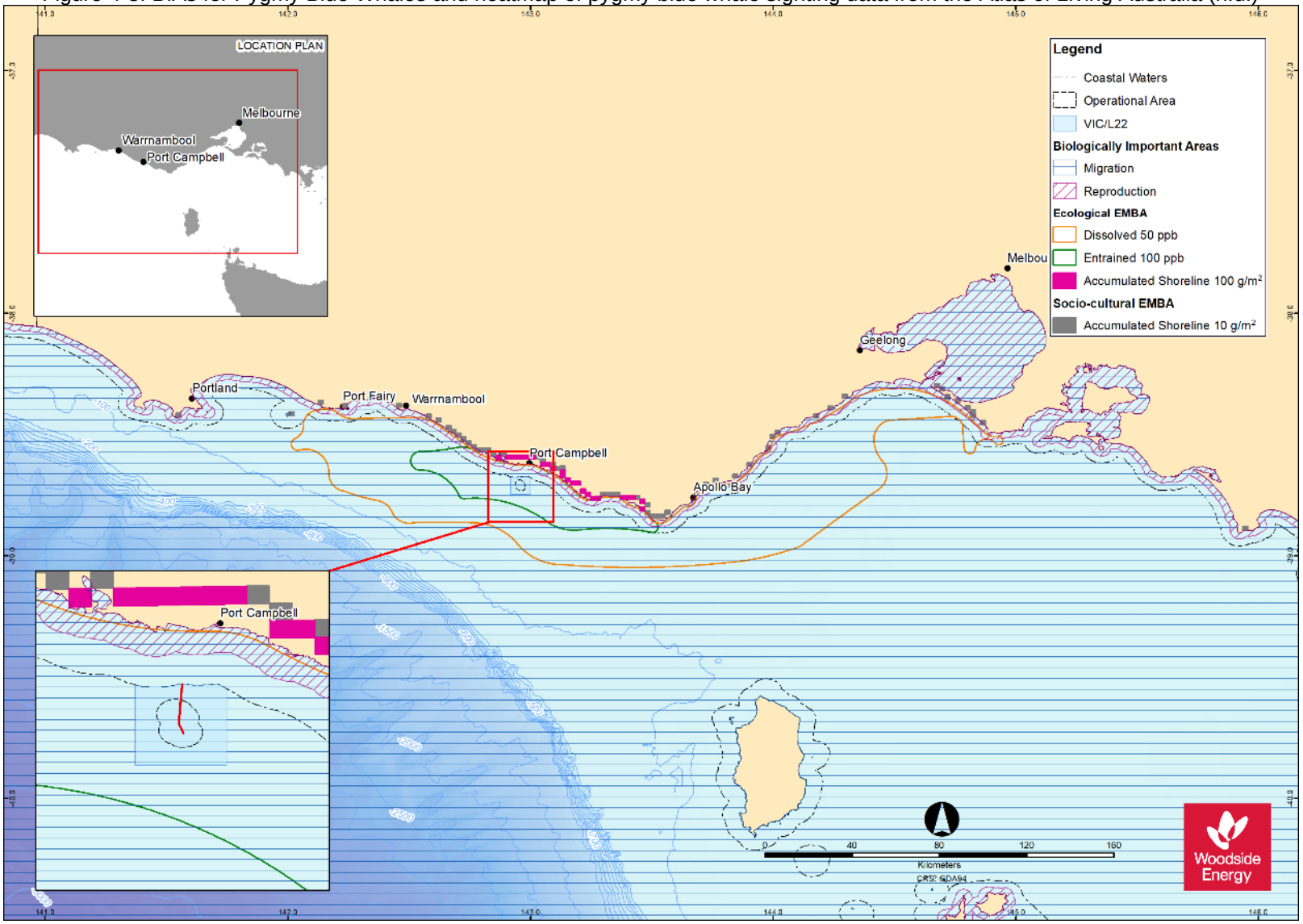



**Figure 4-9: BIAs for Southern Right Whales**

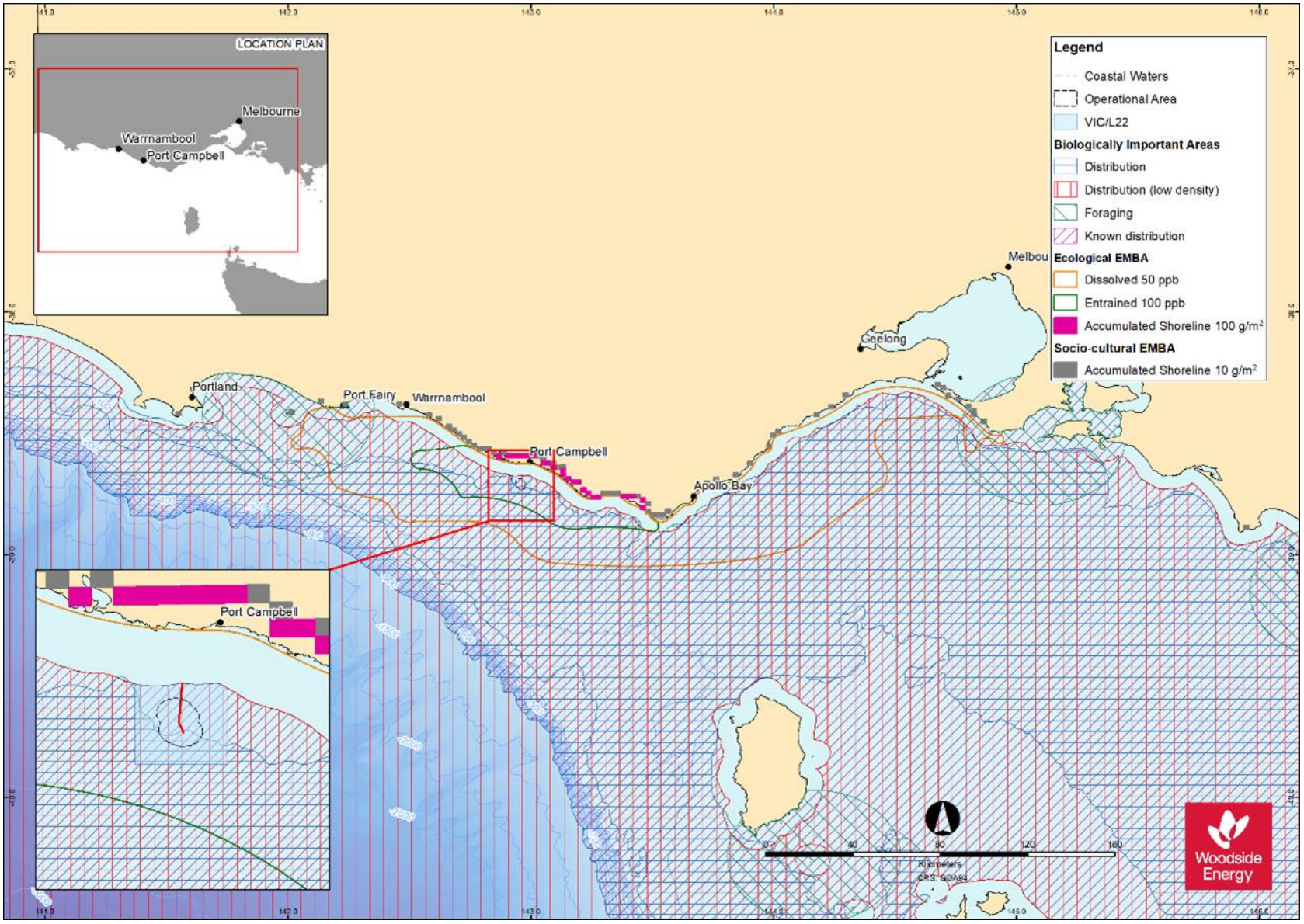



**Figure 4-10: BIAs for White Sharks**

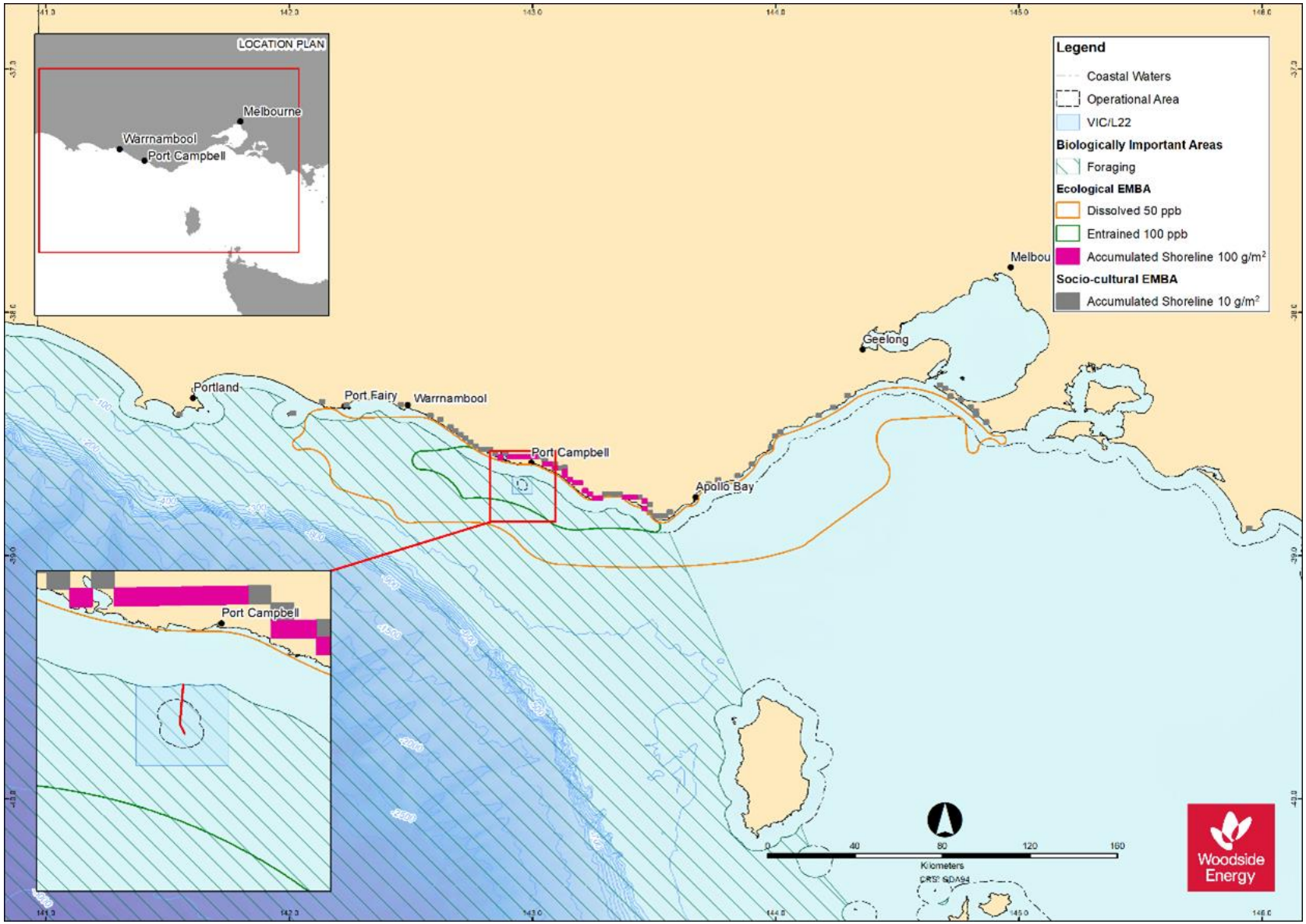



**Figure 4-11 : BIAs for Antipodean Albatross**

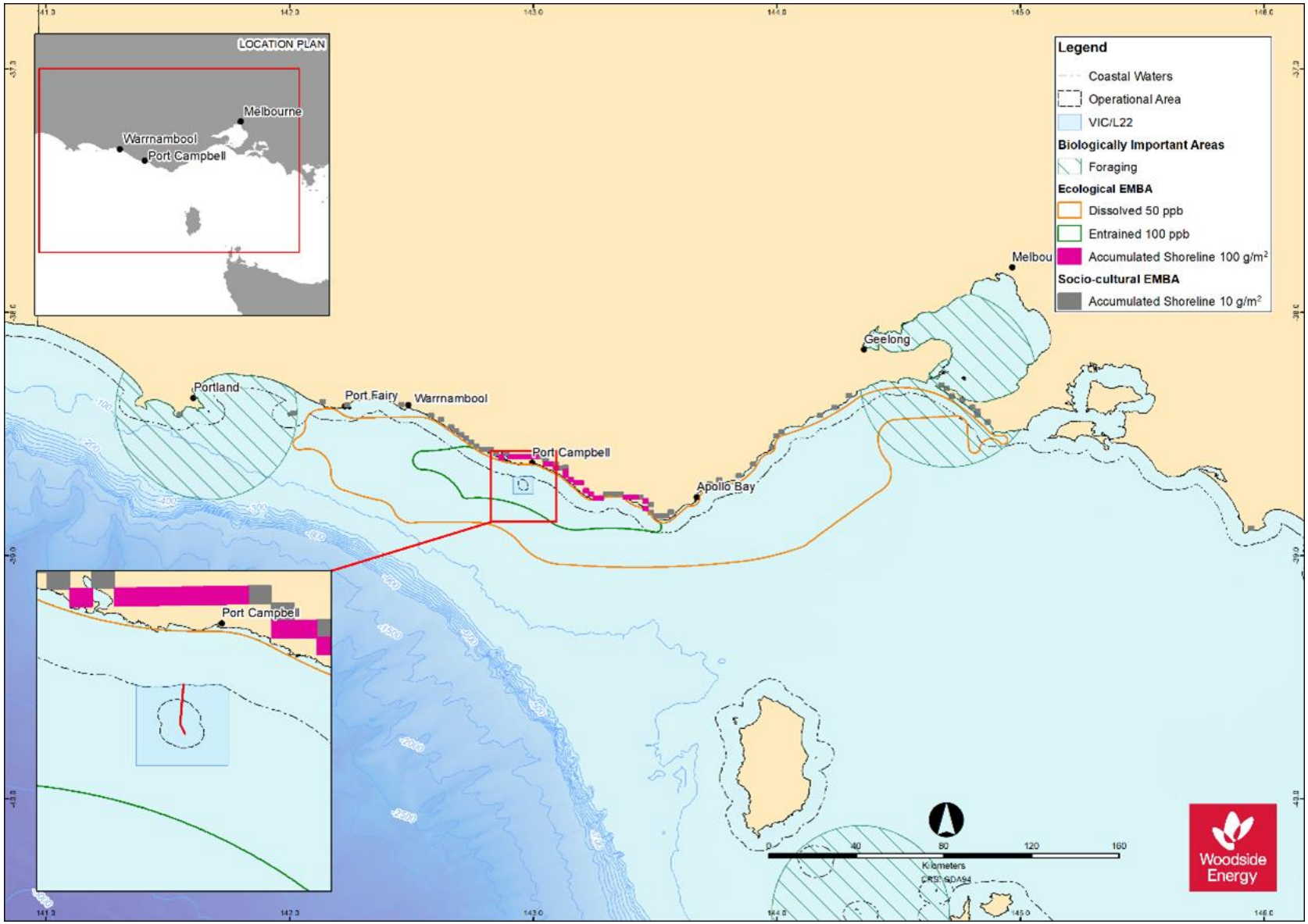



**Figure 4-12: BIAs for Australasian Gannet**

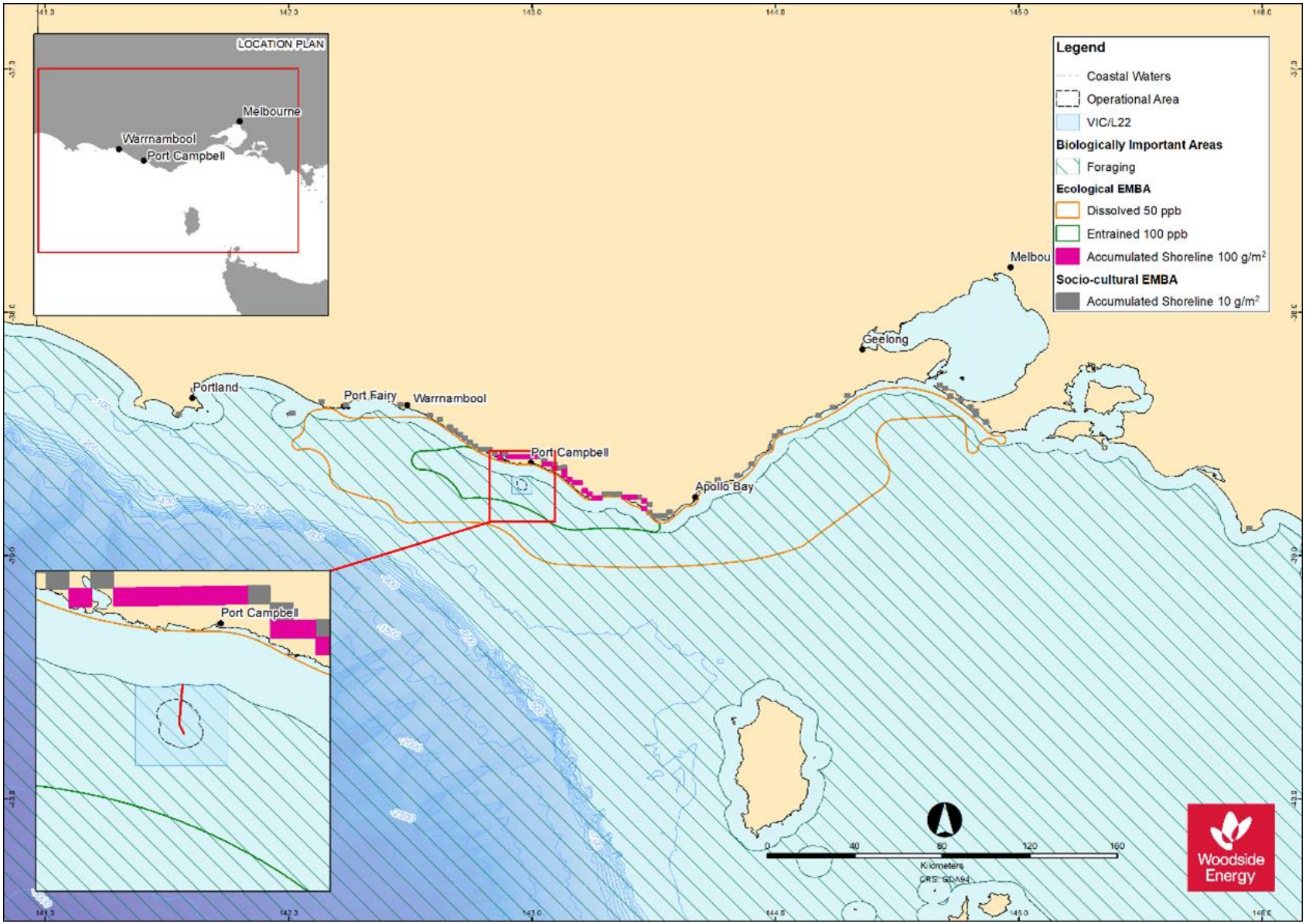



**Figure 4-13: BIAs for Black-browed Albatross**

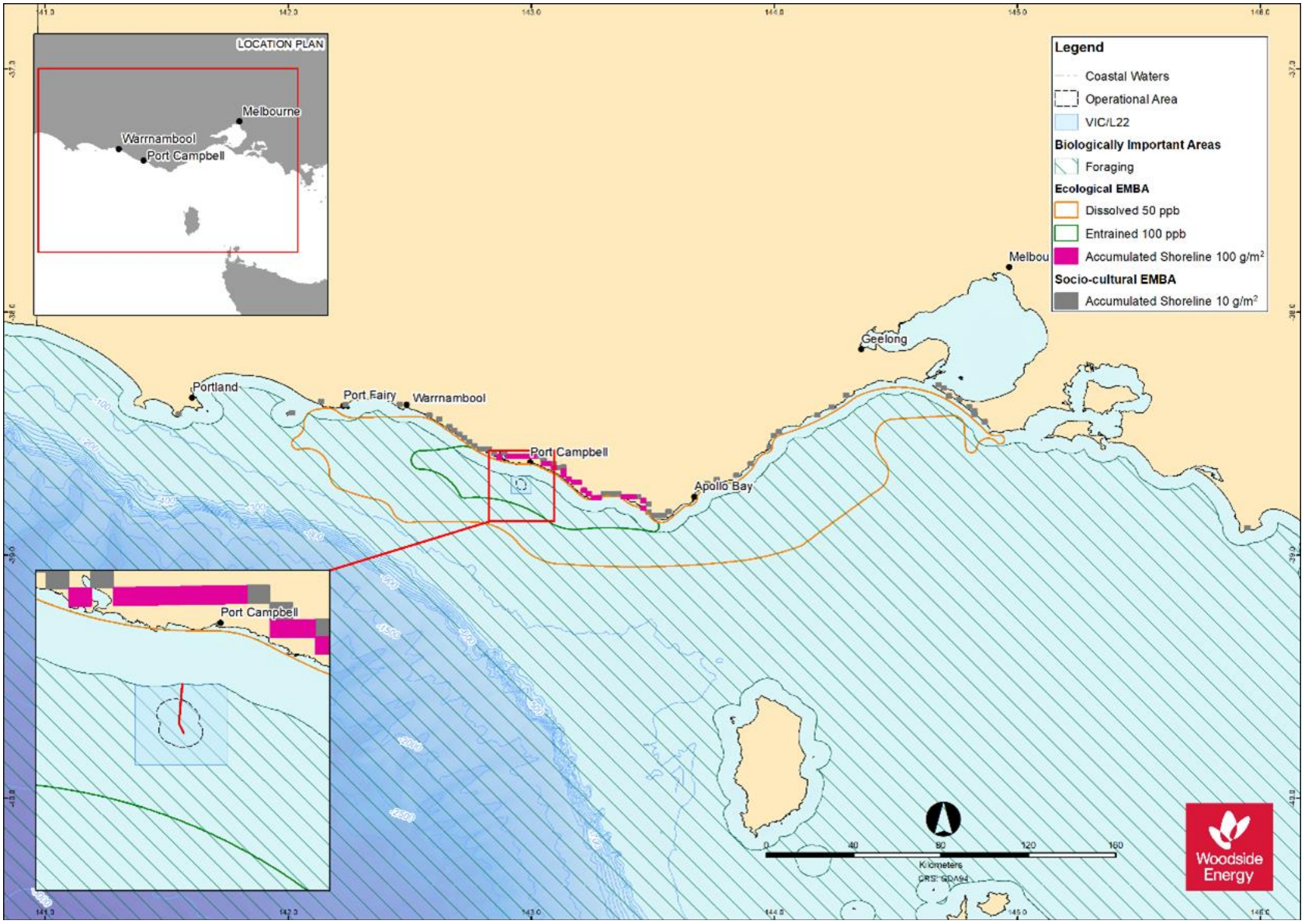



**Figure 4-14: BIAs for Buller's Albatross**

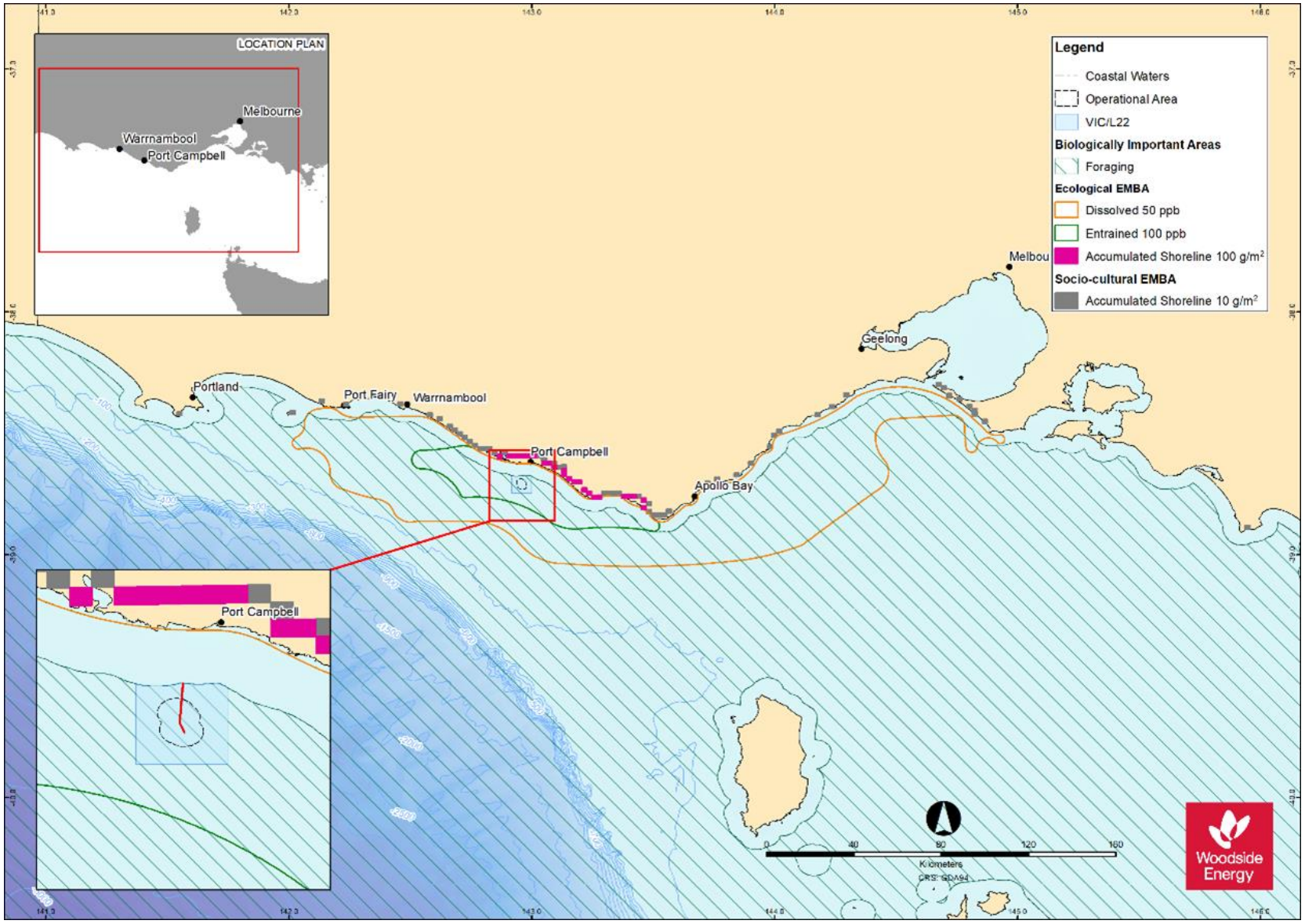



Figure 4-15: BIAs for Campbell Albatross

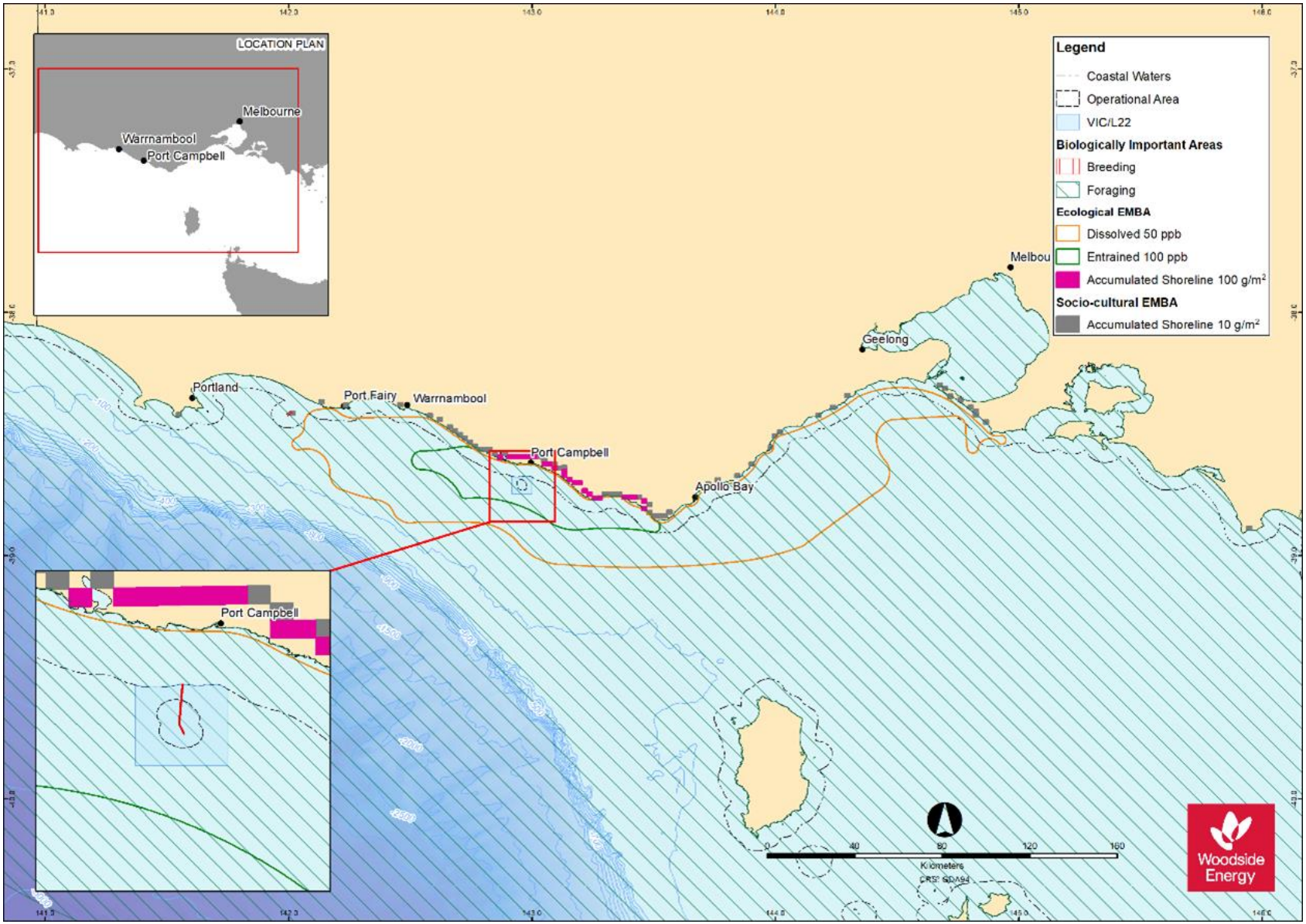



**Figure 4-16: BIAs for Common Diving Petrel**

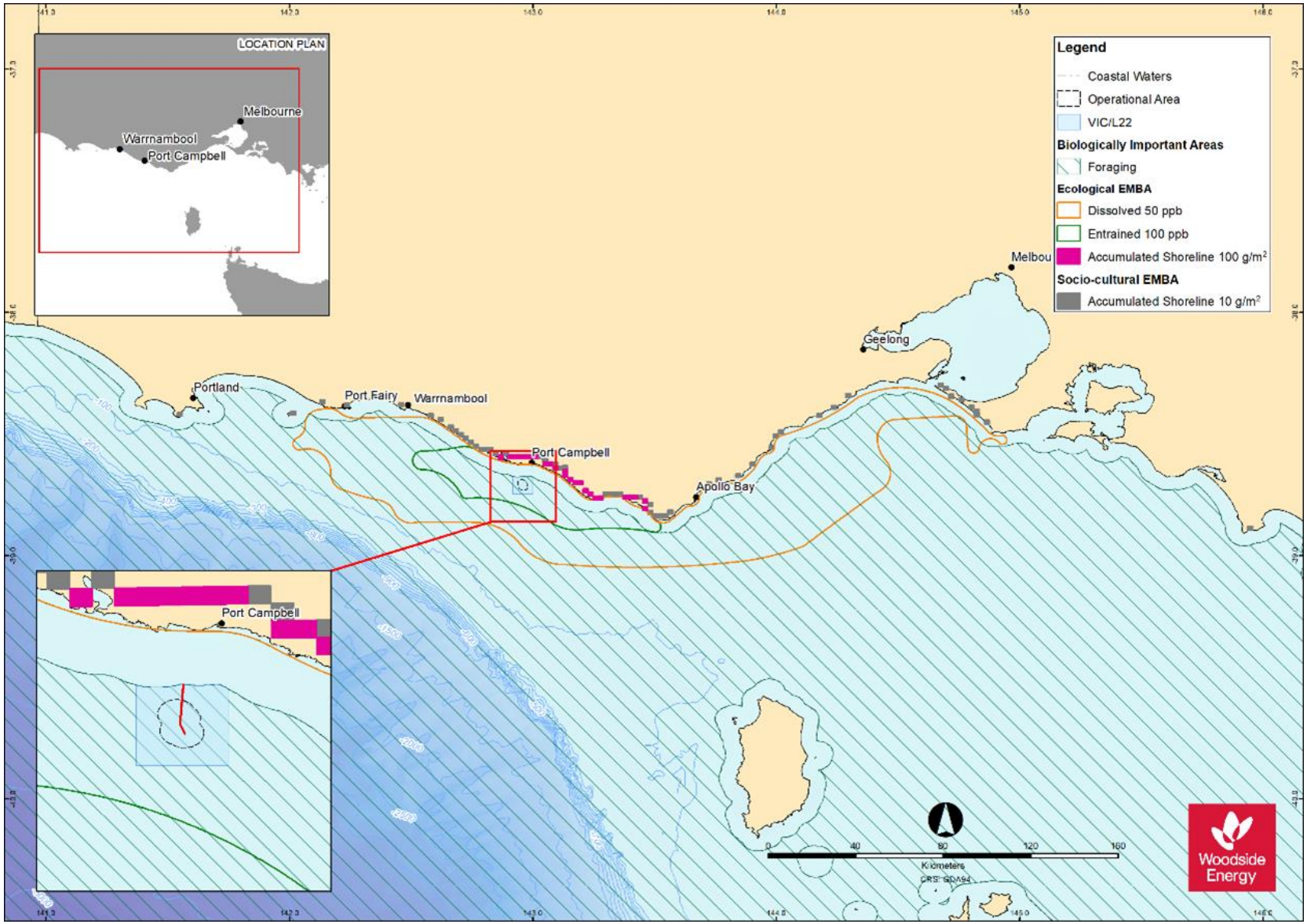



**Figure 4-17: BIAs for Indian Yellow-nosed Albatross**

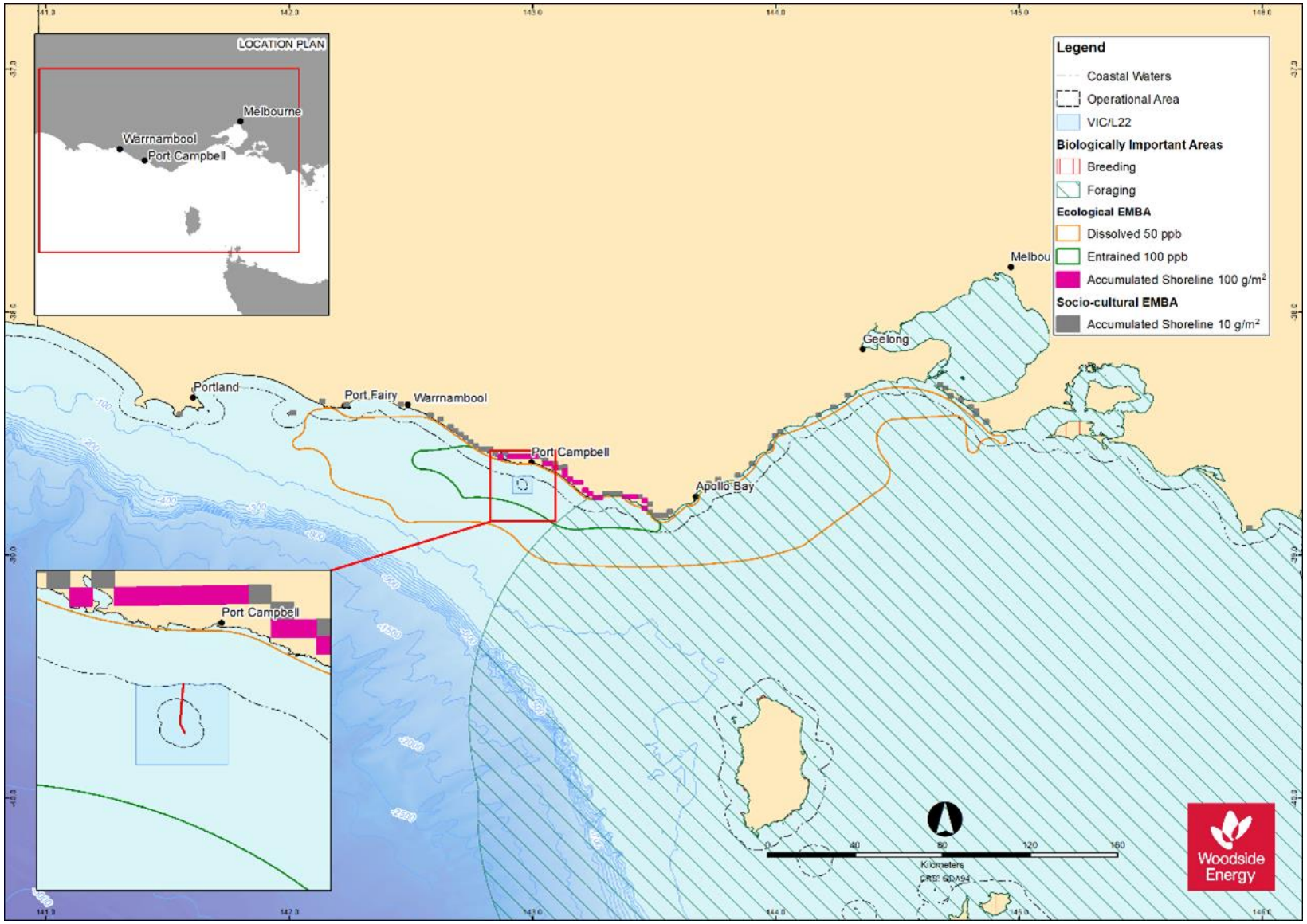



**Figure 4-18: BIAs for Short-tailed Shearwater**

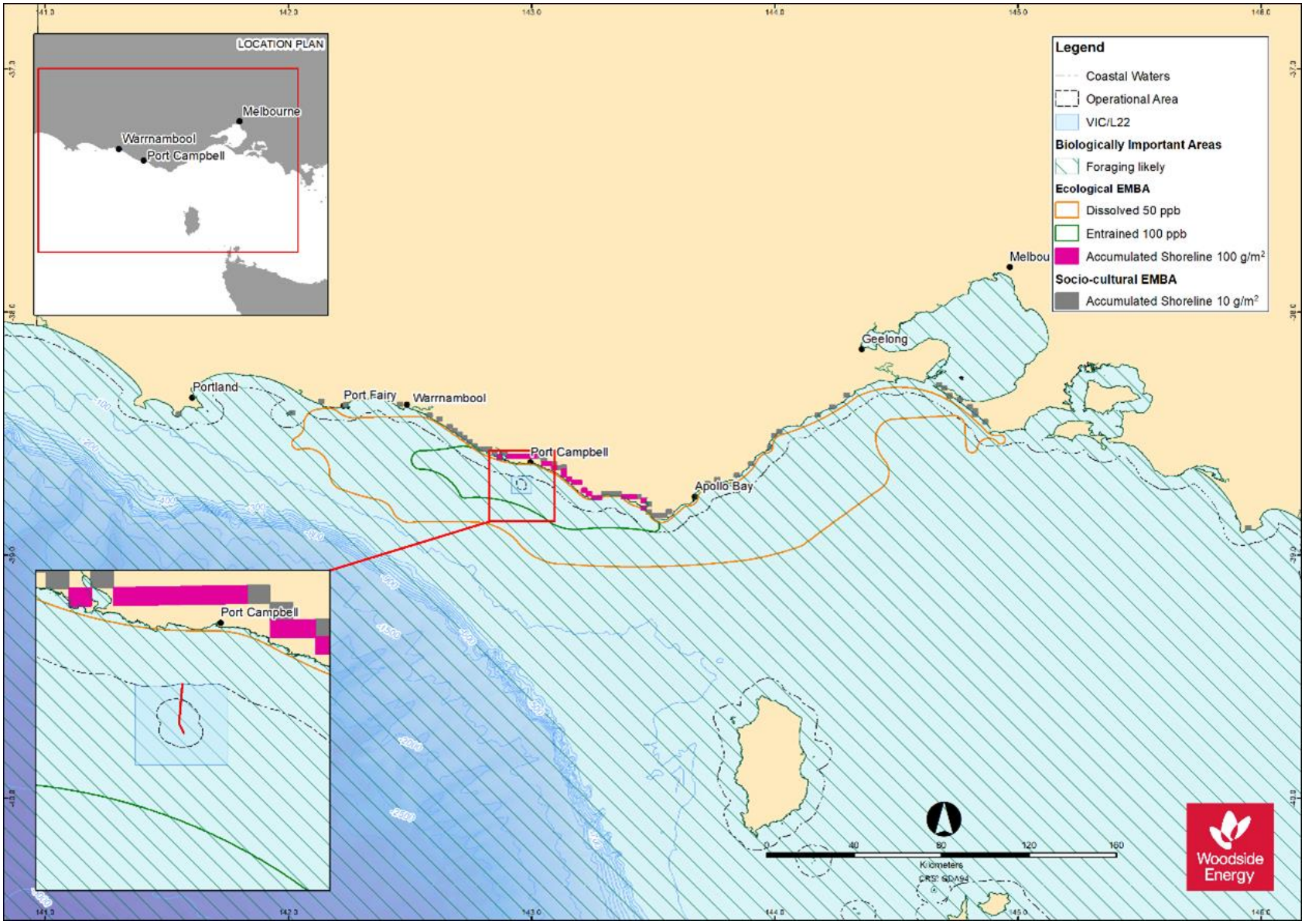



**Figure 4-19: BIAs for Shy Albatross**

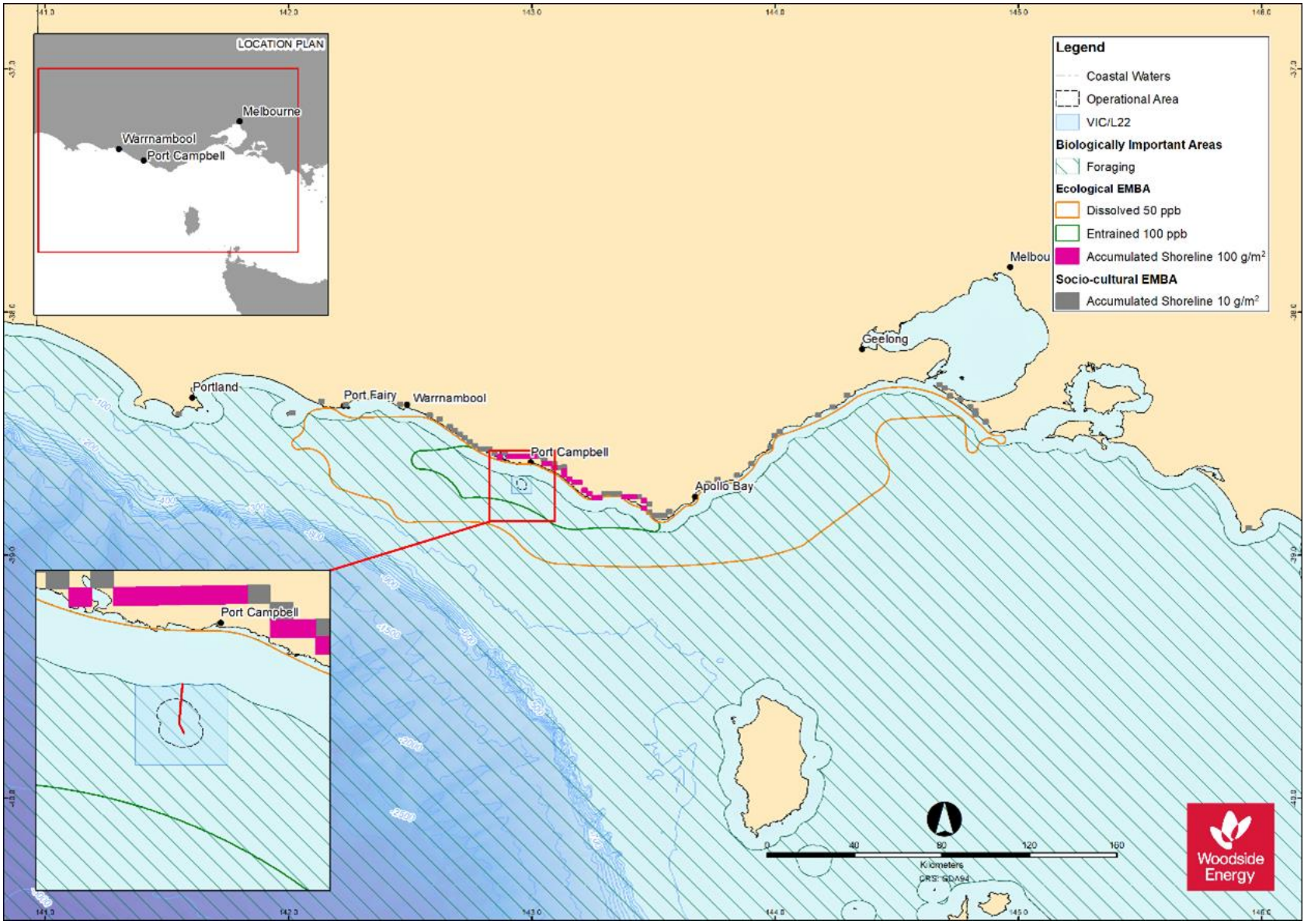



**Figure 4-20: BIAs for Wandering Albatross**

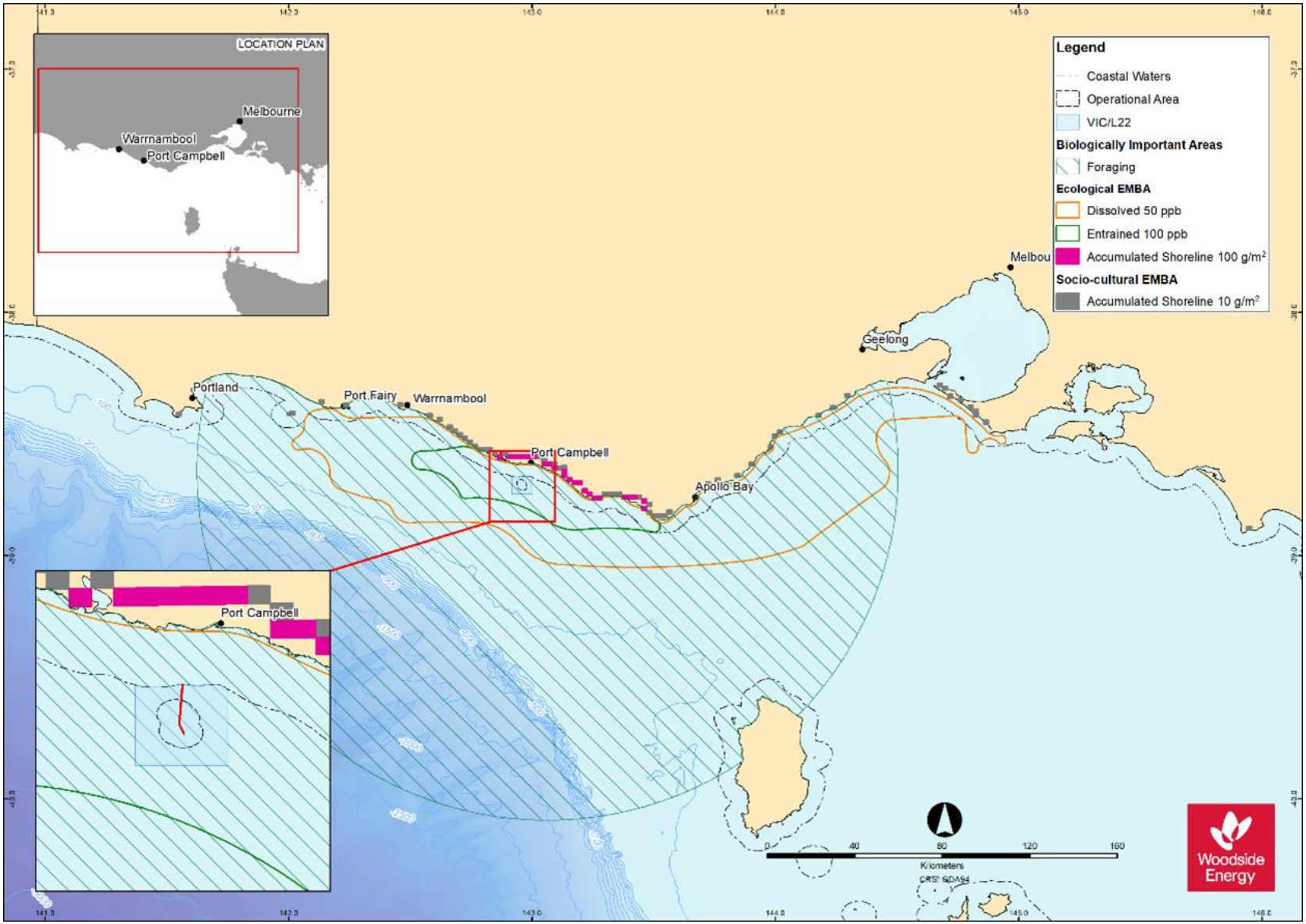



**Figure 4-21: BIAs for Wedge-tailed Shearwater**

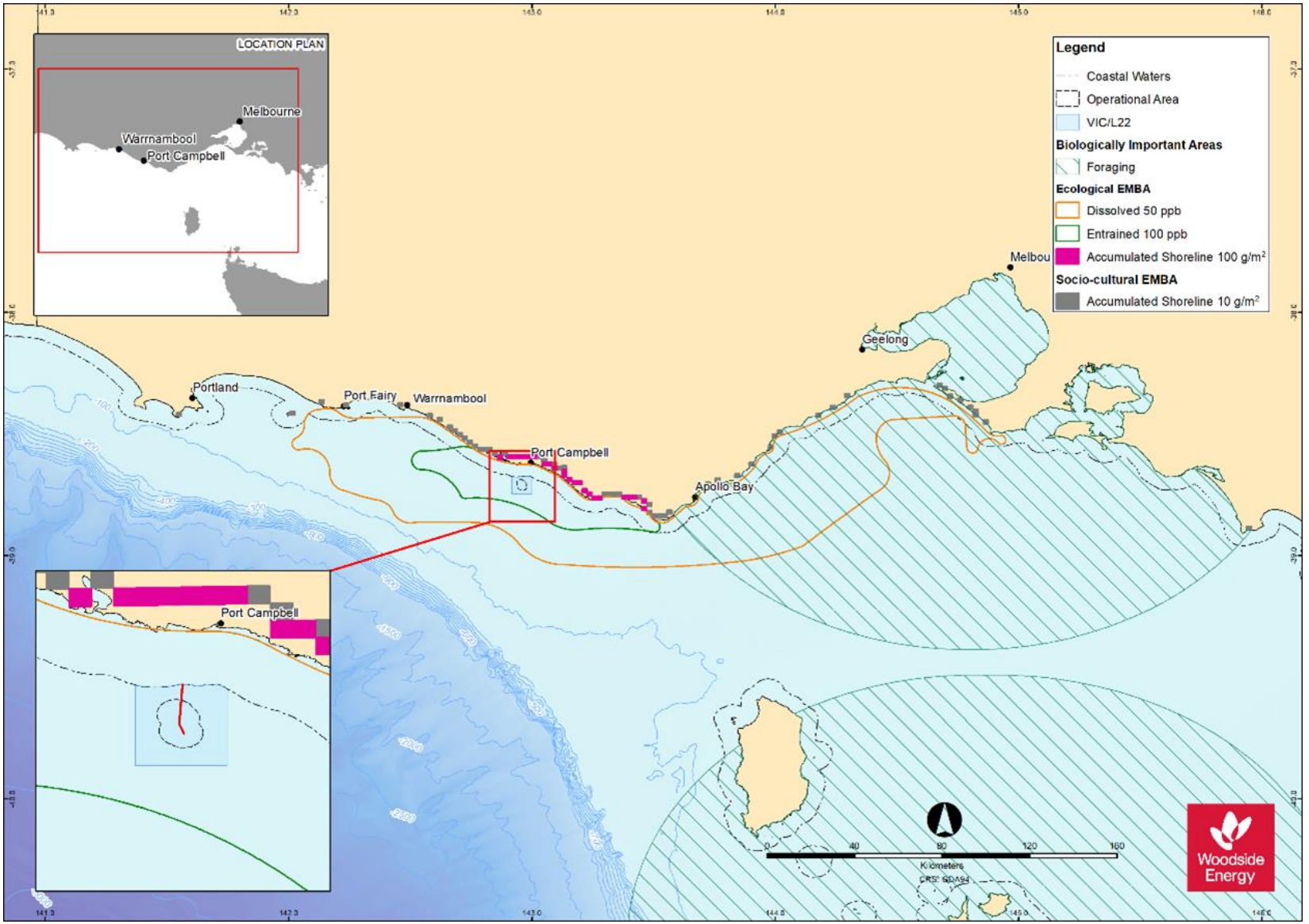



**Figure 4-22: BIAs for White-faced Storm Petrel**

## Habitat Critical to the Survival of a Species

Habitat critical to the survival of a species is defined within the EPBC Act Significant Impact Guidelines 1.1 – Matters of National Environmental Significance (DoE, 2013) as areas that are necessary:

- For activities such as foraging, breeding, roosting, or dispersal;
- For the long-term maintenance of the species (including the maintenance of species essential to the survival of the species);
- To maintain genetic diversity and long-term evolutionary development; or
- For the reintroduction of populations or recovery of the species.

However, there are no critical habitats identified within the operational area or EMBA.

## Summary of Windows of Ecological Sensitivity

Table 4-6 provides a summary of the windows of ecological sensitivity for values identified within and around the operational area and the wider EMBA. These receptors are considered throughout the EP in terms of the identified potential risk.

**Table 4-6: Key environmental sensitivities and timing of biologically important activity**

| Category | Environmental Sensitivity | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Habitats / Communities | Phytoplankton abundance | Assumed peak occurrence associated with Bonney Upwelling | | | | Present year-round | | | | | | | |
| | Zooplankton abundance | Assumed peak occurrence associated with Bonney Upwelling | | | | Present year-round | | | | | | | |
| | Seagrass | Present year-round in coastal areas | | | | | | | | | | | |
| | Macroalgae | Present year-round | | | | | | | | | | | |
| TEC | Bonney Coast Upwelling | Upwelling event | | | | | | | | | | | |
| Marine Fauna (threatened/ migratory species) | ***Marine Mammals*** | | | | | | | | | | | | |
| | Australian Sea Lion | Assumed present year-round – SEMR is a known range | | | | | | | | | | | |
| | Pygmy Blue Whale | Foraging occurs during Bonney Upwelling – BIA | | | | | | | | | | | |
| | Dusky Dolphin | Assumed present year-round – prefers inshore habitats but may also be pelagic at times | | | | | | | | | | | |
| | Fin Whale | Present during the Bonney Upwelling event | | | | | | | | | | | |
| | Humpback Whale | | | | Nth Migration through SEMR | | | | | | Sth Migration through SEMR | | |
| | Killer Whale | Assumed present year-round – frequent sightings off Vic along the continental slope and shelf | | | | | | | | | | | |
| | Pygmy Right Whale | Uncommon / few or no records available for Vic. | | | | | | | | | | | |
| | Sei Whale | Sighted during the Bonney Upwelling event | | | | | | | | | | | |
| | Southern Right Whale | | | | Migration BIA | | | | | | | | |
| | | | | | | Reproduction BIA | | | | | | | |
| | ***Marine Reptiles*** | | | | | | | | | | | | |
| | Green turtle | Occurs in limited numbers in Vic and SA | | | | | | | | | | | |
| | Leatherback Turtle | Foraging in the SEMR is known to occur | | | | | | | | | | | |
| | Loggerhead Turtle | Uncommon in southern Australia | | | | | | | | | | | |

## Description of Environment for the Minerva Field

| Category | Environmental Sensitivity | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | ***Fish, Sharks, and Rays*** | | | | | | | | | | | | |
| | Porbeagle | Assumed present year-round | | | | | | | | | | | |
| | Shortfin Mako Shark | Assumed present year-round | | | | | | | | | | | |
| | White Shark | Assumed present year-round with breeding, distribution and foraging BIAs identified throughout the region | | | | | | | | | | | |
| | Blue Warehou | Assumed present year-round | | | | | | | | | | | |
| | Eastern School Shark | Assumed present year-round | | | | | | | | | | | |
| | Southern Bluefin Tuna | Assumed present year-round | | | | | | | | | | | |
| | ***Birds*** | | | | | | | | | | | | |
| | Antipodean Albatross | Foraging known to occur all year | | | | | | | | | | | |
| | Black-browed Albatross | | | | Fledglings (Apr – May) | | Present – foraging BIA | | | Breeding within SEMR on Macquarie Is. | | | |
| | Buller's Albatross | Foraging BIA – however, records indicate the species is mainly present around Tas when in the SEMR (species endemic to NZ) | | | | | | | | | | | |
| | Campbell Albatross | | | | | Present in the non-breeding season – foraging BIA | | | Breeds on Campbell Island, south of NZ Aug – May | | | | |
| | Indian Yellow-nosed Albatross | | | Fledgling Mar-Apr | | | Non-breeding visitor – foraging BIA | | | Breeding occurs in South Africa – eggs laid in Sep-Oct | | | |
| | Short-tailed Shearwater | Present Sep-May – foraging and breeding BIAs | | | | | Migrates north for Winter | | | | Breeding Oct – May | | |
| | Shy Albatross | Assumed present year-round – foraging BIA. Breeding occurs in SEMR with eggs laid in Sept and fledglings in Apr | | | | | | | | | | | |
| | Wandering Albatross | Assumed present year-round – foraging BIA. Breeding occurs biennially on Macquarie Island with eggs laid in Dec and fledglings between mid-Nov and late-Feb | | | | | | | | | | | |
| | Birds – other seabirds (with no BIAs identified) | Various species – assumed present | | | | | | | | | | | |
| | Birds – shorebirds | Various species – assumed present | | | | | | | | | | | |
| Legend | | Peak occurrence / activity (reliable and predictable) | | | | | | | | | | | |

## Description of Environment for the Minerva Field

| Category | Environmental Sensitivity | Month | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| | | Activity can occur throughout the year | | | | | | | | | | | |
| | | Low level of occurrence/ activity (may vary from year to year) | | | | | | | | | | | |
| | | No occurrence | | | | | | | | | | | |

### 4.3.7 Marine Mammals

A search of the EPBC Act Protected Matters database identified 32 EPBC Act listed marine mammal species with potential to occur or have habitat within the EMBA. Of these, a total of five were listed as threatened and ten were listed as migratory marine mammal species. Within the operational area a total of 15 EPBC Act listed marine mammals (four threatened species and eight migratory listed) were identified.

## Threatened and Migratory Species

### *Australian Sea Lion*

The Australian Sea Lion (*Neophoca cinerea*) is listed as endangered under the EPBC Act. The Australian Sea Lion is the only pinniped endemic to Australia (Strahan, 1983). The breeding range extends from Houtman Abrolhos, Western Australia, to the Pages Island, east of Kangaroo Island, South Australia (DAWE, 2022). Breeding colonies occur on islands or remote sections of coastline. Over 66 breeding colonies have been recorded: 28 in WA and 38 in SA (DAWE, 2022). The Australian Sea Lion exhibits high site fidelity and little movement of females between colonies have been observed, even between those separated by short distances (Campbell *et al*., 2008).

Australian Sea Lions use a wide variety of habitats for breeding sites (called rookeries), and during the non-breeding season, for haul-out sites (DAWE, 2022). Onshore habitats used include exposed islands and reefs, rocky terrain, sandy beaches and vegetate for dunes and swales (DAWE, 2022). They feed on a wide variety of prey, including cephalopods, fish, sharks, rock lobsters and sea birds (Gales & Cheal, 1992; Ling, 1992).

The Australian Sea Lion was identified as known to occur within the EMBA.

### *Blue Whale*

Blue whales (*Balaenoptera musculus*) are listed as endangered and migratory under the EPBC Act. There four sub-species of Blue Whale, two of these occur within Australian waters, the southern (or ‘true’ blue whale (*Balaenoptera musculus intermedia*) and the 'pygmy' blue whale (*Balaenoptera musculus brevicauda*) (DoE, 2015a). As with other baleen whales, they generally migrate between breeding grounds at lower latitudes where both mating and calving takes place during the winter, and feeding grounds at higher latitudes during the summer and have overlapping but different spatial distributions (DoE, 2015a). Blue whale habitat is variable between the two sub-species found in Australian waters. The Antarctic blue whale tends to remain at higher latitudes and migrate to lower latitudes for feeding, breeding and calving during the Australian summer, whilst some remain within the Antarctic waters year-round (Branch, 2007; Širovic *et al*., 2009). In comparison, the pygmy blue whale habitat is more diverse, expanding throughout the Indian Ocean, with individuals moving between Australia and the warmer waters of Indonesia (Branch et al. 2007, Double et al. 2014).

The Bonney Upwelling is an important habitat and feeding ground for Pygmy Blue Whales and it is located within the EMBA. The Pygmy Blue Whale aggregates between Cape Otway, Victoria, and Robe, South Australia, in relatively shallow shelf waters enriched by seasonal cold water upwelling driven by south-east winds. Aggregation in the Bonney Upwelling between the Great Australian Bight and Bass Strait occurs November–May (Gill *et al*., 2011). This upwelling event allows whales to feed on abundant krill surface swarms (DAWE, 2022).

Long-term monitoring of pygmy blue whales associated with the Bonney Upwelling by the Blue Whale Study, available via the Atlas of Living Australaia (n.d.), indicates that pygmy blue whale sightings are concentrated between Warrnambool and the border between Victoria and South Australia. A kernel density estimation ‘heatmap’ based on these sightings using a 0.1 degree search radius is presented in Figure 4-8. These observations are concentrated to the west of VIC/L22 and VIC/PL33. The Atlas of Living Australia (n.d.) blue whale sighting dataset includes over 600 blue whale sightings, the closest of which was approximately 5 km fromVIC/L22.

The distribution of blue whales shown in Figure 4-8 aligns well with foraging habitat modelling published by Ferreira *et al.* (2024). This modelling used satelliate tagging data, bathymetry and environmental variables to predict occurrence of pygmy blue whales; these inputs are independent of the sighting data used to create the heatmap presented in Figure 4-8. Work by Branch *et al.* (2023) to model blue whale populations using historical whaling catch data and subsequent passive acoustic monitoring data also indicated blue whales are seasonally abundant in the Bonney Upwelling during summer months.

Blue whales were identified as likely to be foraging within the operational area and EMBA. Foraging and distribution BIAs for the Pygmy Blue Whale intercept the operational area and EMBA (Figure 4-8).

### *Dusky Dolphin*

The Dusky Dolphin (*Lagenorhynchus obscurus*) is listed as migratory under the EPBC Act and occurs mostly in temperate and sub-Antarctic zones (DAWE, 2022). In Australia, the Dusky Dolphin has been sighted in southern Australia from WA to Tasmania (Gill *et al*., 2000). The area of occupancy is unknown, but it is considered to primarily inhabit inshore waters, but may also move offshore to seek out colder waters in summer months (DAWE, 2022).

Dusky Dolphins may occur within the operational area and have been identified as likely to occur within EMBA.

### *Fin Whale*

The Fin Whale (*Balaenoptera physalus*) is listed as vulnerable and migratory under the EPBC Act. The Fin Whale is considered a cosmopolitan species and occur from polar to tropical waters, but rarely in inshore waters (DAWE, 2022). The species distribution in Australian waters is known primarily from aerial surveys, stranding events and whaling records (DAWE, 2022). Due to scarcity of sighting records, the distribution cannot be accurately determined although it is thought to be present along the western coast of Australia, southern Australia around to Tasmania. The Australian Antarctic waters are important feeding grounds but there are no known mating or calving areas in Australian waters (Morrice *et al*., 2004). Sightings of fin whales feeding in the Bonney Upwelling area in summer and autumn months indicate that this area is also a potentially important feeding ground (Morrice *et al*., 2004).

Fin Whales were identified as showing likely foraging behaviour within the operational area and known foraging within the EMBA.

### *Humpback Whale*

The Humpback Whale (*Megaptera novaengliae*) is listed as migratory under the EPBC Act. The species was listed in the vulnerable category prior to the commencement of the EPBC Act and was listed as vulnerable under Schedule 1 of the *Endangered Species Protection Act 1992*. However, the Humpback Whale is no longer eligible for inclusion in any category of the list and is eligible for deletion from the listing (DAWE, 2022b) after it was deemed that the species has made a major recovery.

Humpback Whales are found in all ocean basins worldwide. Across this range there are multiple sub-populations with two sub-populations occuring within Australian waters; the west coast population and the east coast population (Scmitt *et al*., 2014). The species migrates north from their Antarctic feeding grounds, reaching the waters of the South-east Marine Region in April and May (DoE, 2015). Immature individuals and lactating females arrive first, followed by non-pregnant females arriving last. Breeding and calving takes place between mid-August and early September when the southern migration starts. The southern migration occurs in the South-east Marine Region from October to December (DoE, 2015). In Australian waters, migration occurs in close proximity to the coast (DoE, 2015).

Although feeding is primarily undertaken in their Antarctic feeding grounds, there is growing evidence that humpback whales may feed on migration. This is thought to primarily be opportunistic and forms only a small portion of their nutritional requirements (Thiele *et al*., 2004). Some feeding has been observed in Australia's coastal waters on various occasions throughout the South-east Marine Region (DoE, 2015).

Humpback Whales were identified as likely to occur within the operational area and known to occur within the EMBA.

### *Killer Whale*

Killer Whale (*Orcinus orca*) is listed as migratory under the EPBC Act and is the largest member of the dolphin family. The Killer Whale is probably the most cosmopolitan of all cetaceans and may be seen in any marine region. Killer Whales occur throughout all oceans and contiguous seas, from equatorial regions to the polar pack ice zones, and may even ascend rivers. However, they are most numerous in coastal waters and cooler regions where productivity is high (Dahlheim and Heyning, 1999; Jefferson *et al*., 1993). In Australia, Killer Whales are recorded from all states, with concentrations reported around Tasmania. Sightings are also frequent in South Australia and Victoria, most often along the continental slope and on the shelf (Ling 1991; DAWE, 2022).

As apex predators, Killer Whales feed on a variety of prey, including fish, birds and mammals with reports of attacks on dolphins, whales, dugongs and sea lions (Saulitis *et al*., 2000; Bannister *et al*., 1996). They are known to make seasonal migrations, and may follow regular migratory pathways; however little information is available for Australian Killer Whales (DAWE, 2022).

The Orca has been identified as likely to occur within the operational area and EMBA.

### *Pygmy Right Whale*

The Pygmy Right Whale (*Caperea marginata*) is listed as migratory under the EPBC Act. There is little known about this species with few sightings recorded (Kemper, 2002). In Australia, they have been recorded between 32°S and 47°S, but are not uniformly spread around the coast, with the distribution on the considered to be limited by the Leeuwin and East Australian currents (Kemper, 2002).

The Pygmy Right Whale may forage in the operational area and was identified as likely to forage within EMBA.

### *Sei Whale*

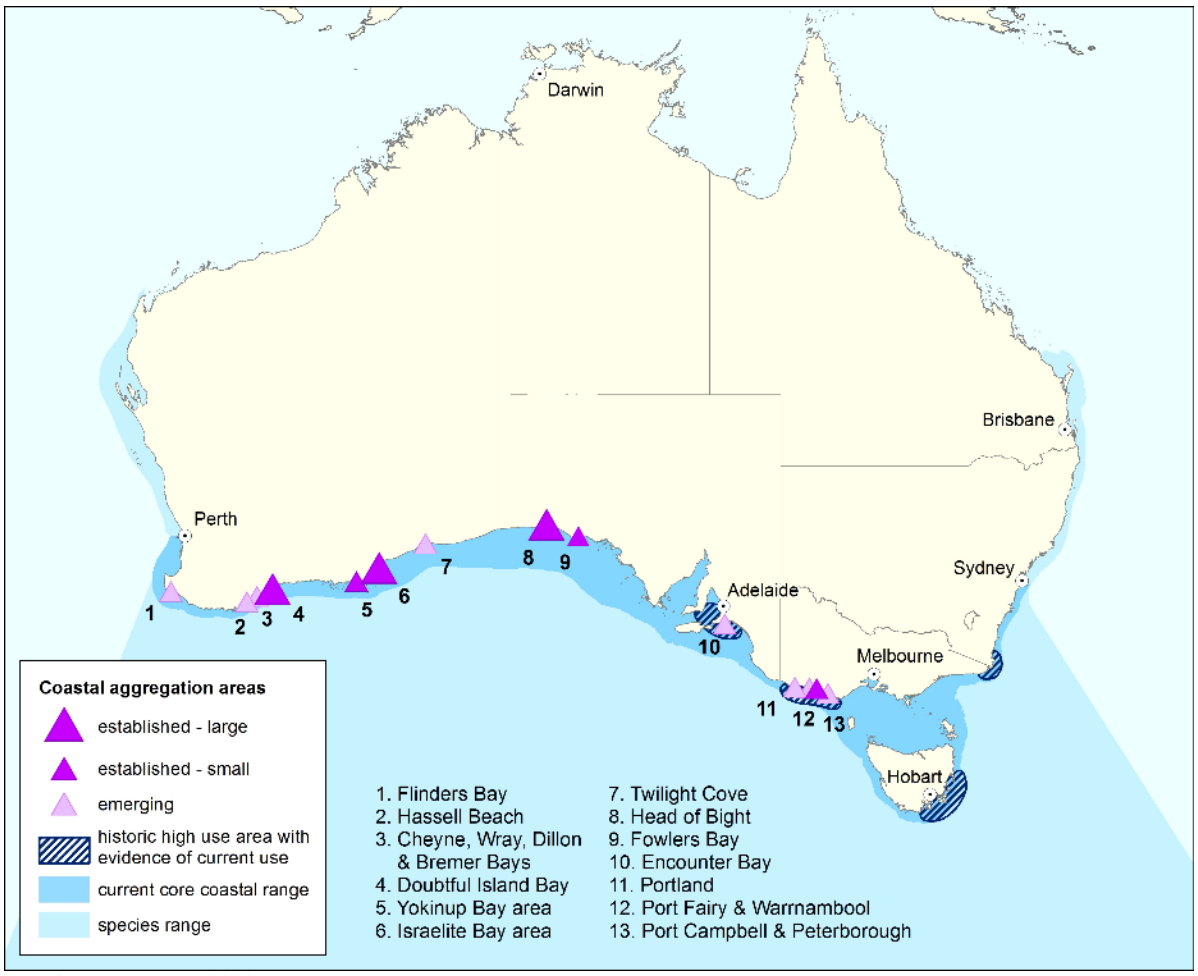
Sei whales (*Balaenoptera borealis*) are listed as vulnerable and migratory under the EPBC Act. They are considered a cosmopolitan species, ranging from polar to tropical waters, but tend to be found more offshore than other species of large whales (DAWE, 2022). Sei Whales have been infrequently recorded in Australian waters and the similarity in appearance between the Sei Whale and Bryde's Whale may have resulted on some confusion about occurrence (Bannister *et al*., 1996; DAWE, 2022). However, on a number of occasions the Sei Whale has been sighted in the Otway region with calves and for feeding, particularly on the continental shelf in the Bonney Upwelling (Miller *et al*., 2012) where opportunistic feeding has been observed between November and May (Gill *et al*., 2015). The species migrates between Australian waters and Antarctic feeding areas but there is insufficient data outside of observations in the proximity of the Bonney Upwelling during summer and autumn months (Gill, 2002).

Sei whales were identified to likely forage within the operational area and known to forage within the EMBA.

### *Southern Right Whale*

The Southern right whale (*Eubalaena australis*) is listed as endangered and migratory under the EPBC Act. The species is a seasonal visitor to the Australian coast, arriving between May and November (occasionally as early as April and as late as November) and recorded in the coastal waters of all Australian states (Bannister *et al*., 1996). More common between Sydney and Perth (Figure 4-23), the species generally occupy shallow sheltered bays that offer protection from south westerly weather, within 2 km of the shore and in water depth of less than 10 m (Charlton, 2017). Southern Right Whales migrate from their summer feeding grounds in the Southern Ocean to calve and breed in warmer coastal waters (DoE, 2015). The species are known to regularly aggregate for breeding and calving off of Warrnambool, Victoria, with calving areas tending to be very close to the shore. The known calving and aggregation areas in the south-east region are Warrnambool, Port Fairy, Port Campbell and Portland (Victoria), and Encounter Bay (South Australia) (Figure 4-23), with an aggregation BIA identified within the EMBA (Figure 4-9).

Southern Right Whales are known to occur within the operational area, with breeding known to occur in the EMBA. Several BIAs have been identified for this species with a known core range BIA and migration and resting on migration BIA within the operational area and an addition aggregation BIA identified for the EMBA (Figure 4-9).




Source: DAWE, 2022

**Figure 4-23: Range and Coastal Aggregation Areas for the Southern Right Whale**

### 4.3.8 Marine Reptiles

A search of the EPBC Act Protected Matters database identified three EPBC Act listed marine reptile species, with potential to occur or have habitat within the operational area and EMBA. Of these, two are listed as endangered; Loggerhead and Leatherback turtles, and one was listed as vulnerable; Green turtle.

#### *Threatened and Migratory Species*

#### *Green Turtle*

The Green Turtle (*Chelonia mydas*) is listed as vulnerable and migratory under the EPBC Act. Green turtles nest, forage and migrate across tropical northern Australia (DAWE, 2022). They usually occur between the 20°C isotherms, although individuals can stray into temperate waters as vagrant visitors (Cogger *et al*., 1993). Green turtles spend their first 5-10 years drifting on ocean currents and during this pelagic (ocean-going) phase, they are often found in association with drift lines and floating rafts of *Sargassum* (DAWE, 2022). There is no known nesting or foraging grounds for green turtles offshore Victoria; they occur only in limited numbers in Victoria and South Australia (DoEE, 2017).

This species is not expected to occur within the operational area or EMBA.

#### *Leatherback Turtle*

The Leatherback Turtle (*Dermochelys coriacea*) is listed as endangered and migratory under the EPBC Act. The leatherback turtle is a pelagic feeder found in tropical, sub-tropical and temperate waters throughout the world (Marquez, 1990). Unlike other marine turtles, the leatherback turtle utilises cold water foraging areas,

with the species recorded feeding in the coastal waters of all Australian States, including offshore Victoria and Tasmania (Hamann *et al*., 2006). The SEMR is an important feeding area for the Leatherback turtle with the species commonly found foraging in the Bass Strait (DAWE, 2022; DoEE, 2017).

The species is highly pelagic, venturing close to shore mainly during the nesting season (Sarti Martinez, 2000). However, no major nesting has been recorded in Australia, with isolated nesting recorded in Queensland and the Northern Territory (DAWE, 2022).

The waters of the EMBA do not represent critical habitat for the species, however, the foraging behaviour for the Leatherback Turtle was identified as known to occur within the EMBA.

#### *Loggerhead Turtle*

The Loggerhead Turtle (*Caretta caretta*) is listed as endangered and migratory under the EPBC Act. The species has a global distribution throughout tropical, sub-tropical and temperate waters and is rarely seen off the Victorian coast (Bolten and Witherington 2003; Marquez 1990). In Australia, the Loggerhead Turtle occurs in the waters of coral and rocky reefs, seagrass beds and muddy bays throughout eastern, northern and western Australia with research considering two distinct genetic stocks between the western and eastern populations (DAWE, 2022; Dutton *et al*., 2002).

The main Australian breeding areas for loggerhead turtles are generally confined to southern Queensland and Western Australia (Cogger *et al*., 1993). Loggerhead turtles will migrate over distances in excess of 1,000 km but show a strong fidelity to their feeding and breeding areas (Limpus, 2008). Loggerhead turtles forage in all coastal states and the Northern Territory, but are uncommon in South Australia, Victoria and Tasmania with no known loggerhead foraging areas identified in Victoria waters (DoEE, 2017).

This species is not expected to occur within the EMBA.

### 4.3.9 Fish, Sharks and Rays

A search of the EPBC Act Protected Matters database identified a total of three fish species that are listed as Threatened and migratory, with potential to occur or have habitat within the EMBA. An additional three were listed as Conservation Dependent species. Within the operational area a total of six EPBC Act listed fish were identified.

#### *Threatened and Migratory Species*

#### *Porbeagle*

The Porbeagle, also named Mackerel Shark (*Lamna nasus*) is listed as a migratory species under the EPBC Act. The Porbeagle is a wide-ranging, coastal and oceanic shark found in waters from southern Queensland to south-west Australia (DAWE, 2022). Primarily occupying oceanic waters and areas around the edge of the continental shelf, the species will occasionally move into coastal waters but these movements are temporary (DAWE, 2022). The species will dive to depths in excess of 1,300 m and is thought to be flexible in the type of habitat they use for foraging to prey upon bony fishes and cephalopods, catching prey in mid-water as well as at the seafloor (DAWE, 2022). It also conducts long-distance seasonal migrations, although the timing and details of these movements are not well understood (Saunders *et al*., 2011).

The Porbeagle was identified as likely to occur within the operational area and EMBA.

#### *Shortfin Mako Shark*

The Shortfin Mako Shark (*Isurus oxyrinchus*) is listed as a migratory species under the EPBC Act. The species has a circum-global distribution inhabiting tropical and temperate waters (TSSC, 2014). It is a coastal, oceanic species recorded in offshore waters all around Australia's coastline, except for the Arafura Sea, Gulf of Carpentaria and Torres Strait (TSSC, 2014). The shortfin mako is highly migratory and can travel large distances, migrating from Australian waters to areas well beyond the Australian Exclusive Economic Zone (Rogers *et al*., 2009). A recent study tagging sharks in southern Australian waters recorded a two metre juvenile female shortfin mako that travelled over 13,000 km in the Southern and Indian Oceans in approximately nine months (Rogers *et al*., 2009). However, studies suggest that dispersal may be male-biased, with females having displaying breeding-ground fidelity due to the occurrence of gene flow between basins

and hemispheres (Schrey and Heist, 2003). The diet of the Shortfin Mako consists mainly of fish and cephalopods (Last and Stevens, 2009).

The shortfin mako is taken as bycatch in a number of commercial fisheries operating in Australian waters (Stevens, 2008), and is also targeted by recreational fishers especially in game fishing activities (Rogers *et al*., 2009).This activity is placing pressure on the population (TSSC, 2014).

The species has been regularly recorded in the SEMR (DoE, 2015) and due to their widespread distribution in Australian waters, shortfin mako sharks are likely to be present in the EMBA.

### *White Shark*

The White Shark (*Carcharodon carcharias*) is listed as vulnerable and migratory under the EPBC Act. The species are widely distributed throughout temperate and subtropical regions (Bruce *et al*., 2006; Last and Stevens, 2009). They are typically found from close inshore habitats (e.g. rocky reefs and shallow coastal bays) to the outer continental shelf and slope areas (Bruce ,1992; Bruce *et al*., 2006; Bruce and Bradford, 2008). The SEMR supports a white shark population that is thought to move seasonally along the southern and eastern Australian coasts, moving north along the east coast during autumn and winter, and returning to southern Australian waters by early summer (Bruce *et al*., 2006).

White sharks eat a variety of prey, including fish, other sharks and rays, marine mammals, squid and crustaceans (DEWHA, 2009). Juvenile white sharks feed on finfish, rays and other sharks and shift to include marine mammals when they reach approximately 3.4 m (Estrada *et al*., 2006). A recent study has found that the energy requirements of adult white sharks may be several times higher than previously estimated, and that seasonal feeding on seal colonies is important in meeting these energy needs (Semmens *et al*., 2013).

Distribution, breeding (nursery area) and foraging BIAs for the White Shark intersect the EMBA (Figure 4-10). It is therefore likely that White Sharks will be present in the EMBA.

### *Conservation Dependent Species*

### *Blue Warehou*

The Blue Warehou (*Seriolella brama*) is listed as conservation dependent under the EPBC Act. Globally, the blue warehou is confined to Australian and New Zealand waters (TSSC, 2015). Within the Australian Exclusive Economic Zone, the species occurs predominantly in coastal shelf, upper continental slope and seamount waters offshore from New South Wales, Tasmania, Victoria and South Australia (Bruce *et al*., 1998; Gomon, 2008). The species occurs at depths between 3 and 550 m (Bray and Gomon, 2011), although it is more abundant in waters shallower than 200 m (Gavrilov and Markina, 1979).

Evidence suggests that there are perhaps two distinct stocks with samples to the east and west of the Bass Strait showing differences in spawning behaviour, laval distribution and size / age compositions (Talman *et al*., 2004; Bruce *et al*., 2002). However, results are inconclusive at this stage (Robinson *et al*., 2008).

The blue warehou is taken in commercial fisheries working in southern Australian waters (TSSC, 2015). Historically, the species was taken as a byproduct species principally by gillnet fishers in Commonwealth managed fishing operations in southern Australian waters (AFMA, 2014). Currently, the blue warehou is caught as incidental byproduct in the Southern and Eastern Scalefish and Shark Fishery, which is managed by the Commonwealth statutory authority – the Australian Fisheries Management Authority (AFMA).

The species is also commercially targeted as part of the Tasmanian Scalefish Fishery, which is a multi-species and multi-gear fishery with many types and sizes of fishing vessels (DPIPWE, 2013). However, in recent years the blue warehou has not been considered a key component of the commercial catch in the Tasmanian Scalefish Fishery as fishers have invested in specialising their fishing operations towards targeting other species (TSSC, 2015).

It is possible the Blue Warehou will be present within the EMBA.

### *Eastern School Shark*

The School Shark (*Galeorhinus galeus*) is listed as conservation dependent under the EPBC Act. It is a world-wide distribution within temperate waters. In Australia, the species occurs in temperate coastal waters of southern Australia. They are found from Moreton Bay, in southern Queensland, to Perth, Western Australia, including offshore waters of Lord Howe Island and Tasmania (Pogonoski *et al*., 2002). The School Shark moves extensively throughout the waters of southern Australia (TSSC, 2009). This species is mainly found in demersal waters, over the continental and insular shelves, but also over the upper slopes, in depths from near shore to 550 m (Last and Stevens, 1994). Inshore areas are particularly important as birthing and nursery sites (TSSC, 2009). The main threat operating against School Sharks has been identified as historic and ongoing fishing pressure with the species commercially fished and is primarily caught in the Gillnet, Hook and Trap (GHAT) sector of the Southern and Eastern Scalefish and Shark Fishery (SESSF) (DAWE, 2022).

The school shark is likely to be present within the EMBA.

### *Southern Bluefin Tuna*

The Southern Bluefin Tuna (*Thunnus maccoyii*) is classified as critically endangered on the IUCN Red List of Threatened Species and was listed as a conservation dependent species under the EPBC Act. Adult Southern Bluefin Tuna in Australian waters, ranges widely from northern Western Australia to the southern region of the continent, including Tasmania, and to northern New South Wales, appearing in eastern Australian waters mainly during winter (DAWE, 2022). The species is a highly migratory species that occurs globally in waters between 30$^{o}$S and 50$^{o}$S, though is mainly found in the eastern Indian Ocean and in the south Western Pacific Ocean (DAWE, 2022).

Southern Bluefin Tuna are commercially targeted with juvenile Southern Bluefin Tuna are fished in the Great Australian Bight by Australian purse seine fishing vessels and taken to Port Lincoln where they are transferred to ocean cages where they are fed intensively for 6-8 months before being exported to Japan (DAWE, 2022). More than 95% of Australia's total catch is taken by this method (TSSC, 2010). The main threat to Southern Bluefin Tuna is historic and on-going fishing pressure.

Southern Bluefin Tuna are likely to be present in the operational area and EMBA.

## 4.3.10 Seabirds and Migratory Shorebirds

A search of the EPBC Act Protected Matters database identified a total of 70 EPBC Act listed bird species, with potential to occur or have habitat within the EMBA. Of these, a total of 34 were listed as threatened and 52 were listed as migratory bird species. Within the operational area a total of 42 EPBC Act listed birds (29 threatened species and 28 migratory listed) were identified.

### *Threatened and Migratory Species*

### *Antipodean Albatross*

The Antipodean albatross (*Diomedea antipodensis*) is listed as vulnerable and migratory under the EPBC Act.

Antipodean Albatrosses are a subspecies of the Wandering Albatross (*Diomedea exulans*) and are often difficult to distinguish. Adult Wandering Albatrosses are significantly larger, however juvenile Antipodean Albatrosses are very similar to juvenile Wandering Albatrosses.

The Antipodean Albatross is endemic to New Zealand and breeds on islands in the New Zealand subantarctic with egg-laying during the austral summer and fledging from December to March (ACAP, 2011). The species forages widely in open water in the south-west Pacific Ocean, Southern Ocean and the Tasman Sea, notably off the coast of NSW (Elliott and Walker, 2005; Environment Australia, 2001f; Garnett and Crowley, 2000).

A foraging BIA has also been identified for the Antipodean Albatross with the species likely to occur in the EMBA (Figure 4-11).

### *Australasian Bittern*

The Australasian Bittern (*Botaurus poiciloptilus*) is listed as endangered under the EPBC Act. It is a large, stocky, thin-necked, heron-like bird (TSSC, 2019). In Australia, the population can be divided into two sub-populations, the south-eastern and south-western sub-populations. The south-eastern Australasian Bittern occurs from south-east Queensland to south-east South Australia as far as the Adelaide Region, southern Eyre Peninsula, Tasmania and in the southwest of Western Australia (Marchant and Higgins 1990; Garnett *et al*., 2011). The diet of the Australasian bittern includes aquatic animals such as small fish, frogs, freshwater crayfish, spiders, insects and small reptiles. Breeding occurs from October to February (TSSC, 2019).

The Australasian bittern was identified as likely to occur in the operational area and known to occur within the EMBA.

### *Australasian Gannet*

The Australasian Gannet (*Morus serrator*) is listed as marine under the EPBC Act with recognised foraging and aggregation BIAs within the EMBA (Figure 4-12).

The Australasian Gannet generally feeds over continental shelves or inshore waters on pelagic fish, especially pilchard, anchovies and jack mackerel, but also squid and garfish (DoE, 2015). Prey is caught mainly by plunge-diving, but it is also seen regularly attending trawlers.

Breeding is highly seasonal (October–May), nesting on the ground in small but dense colonies (DoE, 2015).

The Australasian Gannet was identified as known to breed within the EMBA and has recognised foraging and aggregation BIAs within the EMBA (Figure 4-12).

### *Australian Fairy Tern*

The Australian fairy tern (*Sternula nereis nereis*) is listed as vulnerable under the EPBC Act. Within Australia, the Fairy Tern occurs along the coasts of Victoria, Tasmania, South Australia and Western Australia; occurring as far north as the Dampier Archipelago near Karratha. The sub-species has been known from New South Wales (NSW) in the past, but it is unknown if it persists there (Birdlife International 2010; Garnett and Crowley 2000). Breeding occurs between October to February on continental islands, coral cays, on sandy islands and beaches inside estuaries, and on open sandy beaches (DAWE, 2020).

The Australian fairy tern was identified as likely to breed within the operational area and known to occur within the EMBA.

### *Australian Painted Snipe*

The Australian painted snipe (*Rostratula australis*) is listed as endangered under the EPBC Act. The painted snipe is a wading shorebird that has been recorded at wetlands in all states of Australia. It is most common in eastern Australia, where it has been recorded at scattered locations throughout much of Queensland, NSW, Victoria and south-eastern South Australia. It is generally seen singly or in pairs, or less often in small flocks (Marchant and Higgins, 1993).

The Australian painted snipe was identified as likely to occur within the operational area and known to occur within the EMBA.

### *Bar-tailed Godwit*

The bar-tailed godwit (*Limosa laponica*) is a listed migratory species under the EPBC Act. It is a large wader slightly bigger and stockier than the black-tailed godwit (*Limosa limosa*). They have been recorded in coastal areas of all Australian states. It is widespread in the Torres Strait and along the east and south-east coasts of Queensland, NSW and Victoria, including the offshore islands.The Bar-tailed Godwit is found mainly in coastal habitats such as large intertidal sandflats, banks, mudflats, estuaries, inlets, harbours, coastal lagoons and bays. It is found often around beds of seagrass and, sometimes, in nearby saltmarsh (Marchant and Higgins 1993).This godwit species breeds in the Northern Hemisphere and moves south for the Northern Hemisphere winter. They usually forage near the edge of water or in shallow water, preferring soft mud, mainly in estuaries and harbours. They have been known to forage among mangroves, coral reefs and rock platforms.

The bar-tailed godwit is likely to occur in the operational area and known to occur within the EMBA.

### *Black-browed Albatross*

The black-browed albatross (*Thalassarche melanophris*) is listed as vulnerable and migratory under the EPBC Act. It has a circumpolar distribution and is found over Antarctic, subantarctic and sub-tropical waters (DoE, 2015). Breeding occurs within Australian waters on Heard Island, McDonald Islands, Macquarie Island and Bishop and Clerk Islets. Individuals are mostly confined to sub-Antarctic and Antarctic waters surrounding these islands in the breeding season. The population migrates northward towards the end of the breeding season and the species is common in the non-breeding period at the continental shelf and shelf-break of South Australia, Victoria, Tasmania, western and eastern Bass Strait and NSW. Individuals are also observed at these times in lesser numbers at the continental shelf break of southern and south-western WA (DAWE, 2020).

A foraging BIA has been identified for the Black-browed Albatross within the operational area and EMBA (Figure 4-13) with the species likely to occur.

### *Black-tailed Godwit*

The black-tailed godwit (*Limosa limosa*) is a listed migratory species under the EPBC Act. This large wader occurs singularly or in groups and associates with other waders throughout the coastal regions of Australia. The largest populations are found between Darwin and Weipa in the NT,with small numbers found elsewhere (Watkins, 1993). The species is commonly found in sheltered bays, estuaries and lagoons with large intertidal mud and sandflats, and occasionally on rocky coasts. Their diet consists of worms, crustaceans, bivalves and fish eggs. The black-tailed godwit does not breed in Australia. They arrive in north-west Australia from late August and depart during March and April to breed in the northern hemisphere.

The black-tailed godwit was identified as known to roost within the EMBA.

### *Blue Petrel*

The blue petrel (*Halobaena caerulea*) is listed as vulnerable under the EPBC Act. The blue petrel has a circumpolar distribution ranging from the pack ice to 30$^{o}$ S (DAWE, 2020). It breeds on offshore stacks near Macquarie island (500-600 breeding pairs).

The blue petrel may occur within the operational area and EMBA.

### *Broad-billed Sandpiper*

The broad-billed sandpiper (*Limicola falcinellus*) is a listed migratory seabird under the EPBC Act and breeds in the northern hemisphere, moving south for the non-breeding season. In Australia, the Broad-billed Sandpiper is most common on the north and north-west coasts and occur regularly at scattered localities in southern Australia, where they are usually seen singly (DAWE, 2022). In Victoria, they are an annual visitor in small numbers in coastal regions, with rare inland records (DAWE, 2022).

The broad-billed sandpiper was identified as known to breed within the EMBA.

### *Buller's Albatross*

The Buller's Albatross (*Thalassarche bulleri*) is listed as vulnerable and migratory under the EPBC Act. The species breed in New Zealand but are regular visitors to Australian waters (DAWE, 2022). This species is marine and pelagic, inhabiting subtropical and subantarctic waters of the southern Pacific Ocean (Marchant and Higgins, 1990) and mainly present around Tasmania from January to April (Environment Australia, 2001). Buller's Albatross feeds mostly on squid, supplemented by fish, krill and tunicates (Marchant and Higgins 1990).

The operational area and EMBA are recognised as overlapping a foraging BIA for the species (Figure 4-14).

### *Campbell Albatross*

The Campbell albatross (*Thalassarche melanophris impavida*) is listed as vulnerable and migratory under the EPBC Act. The Campbell albatross is a sub-species of the Black-browed Albatross and is a non-breeding visitor to Australian waters. The Campbell albatross only breeds on Campbell Island, south of New Zealand with breeding occuring annually from early August to May (ACAP, 2011). The population migrates northward towards the end of the breeding season and the species is common during the non-breeding period in continental shelf waters around Australia, New Zealand and the Pacific Islands (DAWE, 2020).

The Campbell Albatross has a foraging BIA that overlaps the operational area and EMBA (Figure 4-15).

### Common Greenshank

The common greenshank (*Tringa negularia*) is a listed migratory species under the EPBC Act. It is a heavily built, elegant wader, seen singly or in small to large flocks (sometimes with hundreds) in a variety of coastal and inland wetlands (Higgins and Davies, 1996). It does not breed in Australia; however, the species occurs in all types of wetlands and has the widest distribution of any shorebird in Australia (Higgins & Davies, 1996).

The common greenshank is likely to occur in the operational area and is known to occur in the coastal sections of the EMBA.

### *Common Sandpiper*

The common sandpiper (*Actitis hypoleucos*) is listed as a migratory species under the EPBC Act. Found along all coastlines of Australia and in many areas inland, the Common Sandpiper is widespread in small numbers, although most concentrated in northern and western Australia (DAWE, 2022). The species inhabits a wide range of coastal wetlands, and is most often found around the muddy margins, mangroves and rocky shores (DAWE, 2022). Their diet consists of bivalves, crustaceans, and a variety of insects and are mostly found in coastal and inland locations.

The common sandpiper is known to occur within the operational area and EMBA.

### *Common Noddy*

The common noddy (*Anous stolidus*) is listed as migratory under the EPBC Act. There are four sub-species of the common noddy recognised, but only the sub-species *Anous stolidus pileatus* occurs in the Australian region. It occurs mainly off the Queensland coast, but also off the northwest and central WA coast.

The migratory movements of the species are poorly known. The common noddy is a gregarious bird, normally occurring in flocks, sometimes of hundreds of individuals, when feeding or roosting. They feed mainly on fish, but are also known to take squid, pelagic molluscs and aquatic insects by dipping or skimming the sea surface. The species usually feeds during the day, but will also feed at night when there is a full moon. Timing of breeding varies between sites and may be annual, or twice a year. On some islands, the species is known to breed throughout the year.

The common noddy is likely to occur within the EMBA.

### *Curlew Sandpiper*

The curlew sandpiper (*Calidris ferruginea*) is a listed as critically endangered and migratory shorebird under the EPBC Act. Curlew sandpiper breeding grounds occur in Siberia and they reach the northern shores of Australia in late August and early September (Higgins and Davies, 1996). Curlew sandpipers mainly occur on intertidal mudflats in sheltered coastal areas, such as estuaries, bays, inlets and lagoons, and also around non-tidal swamps, lakes and lagoons near the coast. This species forages mainly on invertebrates, including worms, molluscs, crustaceans, and insects, as well as seeds.

The curlew sandpiper was identified as may occur within the operational area and known to occur in the EMBA.

### *Double-banded Plover*

The double-banded plover (*Charadrius bicinctus*) is a listed migratory species under the EPBC Act. The double-banded plover can be found in both coastal and inland areas. During the non-breeding season, it is common in eastern and southern Australia, mainly between the Tropic of Capricorn and western Eyre Peninsula, with occasional records in northern Queensland and Western Australia (Marchant and Higgins, 1993). The Double-banded Plover is found on littoral, estuarine and fresh or saline terrestrial wetlands and also saltmarsh, grasslands and pasture. It occurs on muddy, sandy, shingled or sometimes rocky beaches, bays and inlets, harbours and margins of fresh or saline terrestrial wetlands such as lakes, lagoons and swamps, shallow estuaries and rivers. The species is sometimes associated with coastal lagoons, inland saltlakes and saltworks. It is also found on seagrass beds, especially *Zostera*, which, when exposed at low tide, remain heavily saturated or have numerous water-filled depressions. This species sometimes utilises kelp beds (R.J. Pierce in Marchant and Higgins 1993; DAWE, 2021).

The double-banded plover was identified as having roosting habitat that is known occur within the EMBA.

### *Eastern Curlew*

The eastern curlew (*Numenius madagascariensis*) is listed as a critically endangered and migratory under the EPBC Act. Within Australia, this shorebird has a primarily coastal distribution and is found in all states, particularly the north, east, and southeast regions including Tasmania. They have a continuous distribution from Barrow Island and Dampier Archipelago, through the Kimberley and along the Northern Territory, Queensland, and NSW coasts and the islands of Torres Strait. They are patchily distributed elsewhere. The eastern curlew is most commonly associated with sheltered coasts, especially estuaries, bays, harbours, inlets and coastal lagoons, with large intertidal mudflats or sandflats, often with beds of seagrass. Occasionally, the species occurs on ocean beaches (often near estuaries), and coral reefs, rock platforms, or rocky islets. They are often recorded among saltmarsh and on mudflats fringed by mangroves, and sometimes use the mangroves. This shorebird is carnivorous, mainly eating crustaceans (including crabs, shrimps and prawns), small molluscs, as well as some insects.

The eastern curlew may occur within the operational area and is known to occur within the EMBA.

### *Eastern Hooded Plover*

The Eastern Hooded Plover (*Thinornis cucullatus cucullatus*) is listed as vulnerable under the EPBC Act. The species is widely dispersed on or near sandy beaches in south-eastern Australia with a range that extends from Jervis Bay in New South Wales to Fowlers Bay in South Australia and includes Tasmania and various offshore islands such as Kangaroo Island, King Island and Flinders Island (Marchant and Higgins, 1993; Garnett *et al*., 2011). It occurs in low densities in Victoria, which has about 570 individuals. Hooded plovers may be observed singly, in pairs, family groups or flocks on ocean beaches, creek mouths and inlet entrances. It may also occur on near-coastal saline and freshwater lakes and lagoons, tidal bays and estuaries, on rock platforms, or on rocky or sandy reefs close to shore (Marchant and Higgins, 1993; Garnett *et al*., 2011).

The hooded plover (eastern) is a largely sedentary species and maintains relatively constant territories from year to year, with 95% moving over distances of less than 20 km (Weston *et al*., 2009). The diet of hooded plovers consists of polychaetes, molluscs, crustaceans, insects, turions and seeds. Foraging occurs during day and night at all levels of the beach, from the water's edge to the base of the fore-dune, and on lagoons and saltpans (Marchant and Higgins, 1993; Weston, 2003).

The species may occur within the operational area and is known to occur within the EMBA.

### *Fairy Prion (Southern)*

The fairy prion (southern) (*Pachyptila turtur subantarctica*) is listed as vulnerable under the EPBC Act. It breeds on Macquarie Island, Langdon Point, Davis Point and Bishop and Clerk islands (Garnett and Crowley, 2000). There are 80 to 250 breeding pairs in Australia and a global population of ~80,000 (DAWE, 2020). Some individuals migrate towards New Zealand and southern Australia in winter.

The fairy prion (southern) was identified as known to occur within the operational area and EMBA.

### *Flesh-Footed Shearwater*

The flesh-footed shearwater (*Ardenna carneipes*) is a listed migratory species under the EPBC Act. It is a large broad-winged shearwater that typically forages over continental shelves / slopes and occasionally inshore waters. It is a trans-equatorial migrant widely distributed across the south-western Pacific during breeding season (early September to early May) with the distribution of the shearwater is mainly off southern Australia migrating between breeding colonies in the southern Indian and south-western to north-western Pacific Ocean (Marchant and Higgins, 1993). The species breeds in burrows on sloping ground in coastal forest, scrubland, shrubland or grassland, the majority of which lie off the coast of southern Western Australia, with the remaining being Smith Island (SA) and Lord Howe Island. The flesh-footed Shearwater feeds on small fish, cephalopod molluscs (squid, cuttlefish, nautilus and argonauts), crustaceans (barnacles and shrimp), other soft-bodied invertebrates (such as *Velella*) and offal. The species forages almost entirely at sea and very rarely on land.

The flesh-footed shearwater is likely to occur occur within the operational area and is known to occur within the wider EMBA.

### *Fork-Tailed Swift*

The fork-tailed swift (*Apus pacificus*) is a listed migratory species under the EPBC Act. It is a medium to large swift that migrates between Australia and its breeding grounds in Siberia. The swift usually arrives in Australia around October and departs in April, passing via Indonesia (Higgins, 1999). Whilst in Australia the swift is highly mobile occurring mostly over inland plains but also coastal areas, over cliffs and on beaches.

The fork-tailed swift was identified as likely to occur within the operational area and EMBA, most likely between October and April.

### *Great Knot*

The great knot (*Calidris tenuirostris*) is listed as critically endangered and a migratory shorebird under the EPBC Act. The great knot has a global distribution, breeding in northeast Siberia and spending the non-breeding season along coasts from Arabia to Australia. Non-breeding birds migrate to inlets, bays, harbours, estuaries and lagoons with large intertidal mud and sand flats where they feed on bivalves, gastropods, crustaceans and other invertebrates (Higgins and Davies 1996 in Garnet *et al.*, 2011). The greatest numbers of the species are found in northern Australia, between the Pilbara and the Kimberley. The species typically roosts in the fringing vegetation surrounding coastal inlets where damp sediments lower temperatures.

The great knot was identified as known to roost within the EMBA.

### *Greater Crested Tern*

The crested tern (*Thalassarche bergii*) is listed as a migratory species under the EPBC Act. The crested tern inhabits tropical and subtropical coastlines and forages in the shallow waters of lagoons, coral reefs, bay, harbours, inlets and estuaries; along sandy, rocky, coral or muddy shores; on rocky outcrops in open sea; in mangrove swamps; and in offshore and pelagic waters (Higgins and Davies, 1996). The crested tern usually feeds from the surface of the sea to less than 1 m water depth but can also forage well out to sea. Its diet consists predominantly of pelagic fish, although it will also feed on crustaceans, insects and hatchling turtles opportunistically. The crested tern shows a preference for nesting on offshore islands, low-lying coral reefs, low-lying coral reefs, sandy or rocky coastal islets, coastal spits and lagoon mudflats.

The Greater crested tern was identified as known to breed within the EMBA.

### *Greater Sand Plover*

The greater sand plover (*Charadrius leschenaultia*) is listed as vulnerable and migratory under the EPBC Act. This plover breeds in China, Mongolia and Russia, and spends the non-breeding season along coasts from Japan through Southeast Asia to Australasia, (Bamford *et al*., 2008). Non-breeding birds occur along all Australian coasts, especially in the north for the greater sand plover. Non-breeding birds forage on beaches, saltmarshes, coastal bays and estuaries, and feed on marine invertebrates including molluscs, worms, crustaceans and insects (Marchant and Higgins 1993 in Garnet *et al*., 2011). The species typically roosts higher up the beach well above the high water mark of sand spits, rocky lagoons or salt marsh.

The greater sand plover was identified as likely to occur within the MDO EMBA and known to occur within the wider EMBA.

### *Grey-headed Albatross*

The grey-headed albatross (*Thalassarche chrysostoma*) is listed as endangered and migratory under the EPBC Act. In Australian territory, Grey-headed Albatross breed on the southern and western flanks of Petrel Peak, Macquarie Island (Copson, 1988). The Grey-headed Albatross has bred in this same restricted area on Macquarie Island for at least the past 30 years (Terauds *et al*., 2005). This nesting area has been included on the EPBC Act register of Critical Habitat. Macquarie Island is classified as a World Heritage Area, a Biosphere reserve and a National Estate property. The entire island is also classified as a Tasmanian Nature Reserve and is managed by the Tasmanian Parks and Wildlife Service. Breeding and non-breeding birds disperse widely across the Southern Ocean, at more southerly latitudes in summer than in winter, when they frequent the waters off southern Australia and New Zealand (Marchant & Higgins, 1990; Waugh et al., 1999a). Most Australian records come from south and west of Tasmania, occasionally in Victorian waters, rarely in South Australia and Western Australia, and only as a vagrant in NSW. It has only been recorded once in southern Queensland (DEWHA, 2009s; Marchant and Higgins, 1990). The Grey-headed Albatross is marine, pelagic

and migratory. Its habitat includes subantarctic, subtropical, and occasionally Antarctic waters in the Pacific, Indian, Atlantic and Southern Oceans (DAWE, 2021).

The grey-headed albatross was identified as having habitat that may occur within the operational area and EMBA.

### *Grey Plover*

The grey plover (*Pluvialis squatarola*) is a listed migratory species under the EPBC Act. It is a medium-sized plover that is found solitary, in small flocks, and larger flocks at communal roosts often with other waders. Widespread in coastal regions of Australia, it inhabits sheltered embayments, estuaries and lagoons with mud and sand flats, occasionally on rocky coasts with wave cut platforms. Their diet consists of mostly molluscs, insects, crustaceans and polychaete worms. The grey plover arrive in northern Australia from August to September where they remain until April when they return to their breeding grounds in northern Siberia.

The grey plover was identified as known to roost within the EMBA.

### *Grey-tailed Tattler*

The grey-tailed tattler (*Tringa brevipes*) is listed as a migratory species under the EPBC Act. This medium-sized wader is found in most coastal regions in Australia, but primarily in the north. The species is rarely recorded in Victoria, however sightings have been reported in Gippsland, and east of McLaughlans Beach. The largest populations in Victoria are located at Corner Inlet, west to Western Port and Port Phillip Bays. It has occasionally been sighted on the west coast near Killarney, Port Fairy and Discovery Bay. Sightings have also been reported at Sperm Whale Head (Higgins and Davies 1996). The bird is often found on sheltered coasts with reefs and rock platforms or intertidal mudflats. Their diet consists primarily of worms, molluscs, crustaceans, insects and occasionally fish. The grey-tailed tattler breeds in Siberia and moves south for the boreal winter, arriving in Australia around August and departing for its breeding grounds by early or mid-April.

The grey-tailed tattler was identified as known to roost within the EMBA.

### *Indian Yellow-nosed Albatross*

The Indian yellow-nosed albatross (*Thalassarche carteri*) is listed as vulnerable and migratory under the EPBC Act. This species forages mostly in the southern Indian Ocean where it is particularly abundant off WA. It also breeds on islands of the southern Indian Ocean. In breeding and non-breeding seasons, the species concentrates over the productive waters of continental shelves, often at coastal upwellings and the boundaries of currents (DAWE, 2020).

A foraging BIA was identified for the Indian yellow-nosed albatross within the operational area and EMBA.. (Figure 4-17).

### *Latham's Snipe*

Latham's Snipe (*Gallinago hardwickii*) is listed as migratory under the EPBC Act. It is a non-breeding visitor to south-eastern Australia, preferring to breed in Japan and far eastern Russia during the northern summer and then migrating to Australia, where it remains for the duration of the northern winter (DAWE, 2022). The species has been recorded along the east coast of Australia from Cape York Peninsula through to south-eastern South Australia and is widespread in Tasmania and found in all regions of Victoria except for the north-west (DAWE, 2022). Often the distribution of Latham's Snipe is fragmented due to the fragmentation of preferred habitat, that being freshwater wetlands (DAWE, 2022). The species is an omnivore, feeding on seeds and other plant material as well as insects, worms and occasionally molluscs, isopods and centipedes (Frith *et al*., 1977; Todd, 2000).

Latham's Snipe was identified as likely to occur in the operational area and is known to occur in the EMBA.

### *Lesser Sand Plover*

The lesser sand plover (*Charadrius mongolus*) is listed as endangered and migratory under the EPBC Act. Within Australia, the Lesser Sand-Plover is widespread in coastal regions, and has been recorded in all states. The species does not breed in Australia. They roost near foraging areas, on beaches, banks, spits and banks of sand or shells, and occasionally on rocky spits, islets or reefs (DAWE, 2021).

The lesser sand plover was identified as known to roost within the EMBA.

### *Little Curlew*

The little curlew (*Numenius minutus*) is listed as a migratory species under the EPBC Act. The Little Curlew is most often found feeding in coastal swamps, mudflats or sandflats of estuaries or beaches on sheltered coasts, mown lawns, gardens, recreational areas, ovals, racecourses and verges of roads and airstrips are also used (Higgins & Davies 1996). rarely occurs in Victoria, but has been recorded east of Wilson's Promontory and at Lake Tyers, Lake Wellington and Shallow Inlet, around Port Phillip Bay, and also from lakes in the western Victoria and in the region of Mystic Park (Higgins and Davies 1996).

The little curlew was identified as likely to roost within the EMBA.

### *Little Tern*

The Little Tern (*Sternula albifrons*) is listed as a migratory species under the EPBC Act. The Australian breeding population can be divided into two major subpopulations: a northern subpopulation that breeds across northern Australia, and an eastern subpopulation that breeds on the eastern and south-eastern coast of the mainland and northern and eastern Tasmania, occasionally extending as far west as western Victoria and south-eastern South Australia (DAWE, 2022). Breeding for the eastern subpopulation occurs during in the austral spring-summer with nesting taking place in their preferred habitat of sand-splits, banks, ridges or islets in sheltered coastal environments (DAWE, 2022). Little Terns forage in shallow waters of estuaries, coastal lagoons and lakes, frequently over channels next to spits and banks or entrances, and often close to breeding colonies. They also forage along open coasts, especially around bars off the entrances to rivers and lagoons, less often at sea, and usually within 50 m of shore (DAWE, 2022). They feed mainly on small fish, crustaceans, insects, annelids and molluscs.

The Little Tern was identified as having habitat that may occur in the operational area and EMBA.

### *Marsh Sandpiper*

The marsh sandpiper (*Tringa stagnatilis*) is listed as a migratory species under the EPBC Act. The Marsh Sandpiper breeds from eastern Europe to eastern Siberia. The Marsh Sandpiper is found on coastal and inland wetlands throughout Australia. In Victoria, most are found in Port Phillip Bay, but also Gippsland, Westernport Bay and the Western Districts (DAWE, 2022). The Marsh Sandpiper lives in permanent or ephemeral wetlands where they also forage for insects, molluscs and crustaceans in shallow water (DAWE, 2022).

The marsh sandpiper has been identified as known to roost within the EMBA.

### *Northern Giant Petrel*

The northern giant petrel (*Macronectes halli*) occupies the Antarctic Polar Front (DAWE, 2021b). In summer, it occurs predominantly in sub-Antarctic to Antarctic waters, usually between 40°S and 64°S. The northern giant-petrel breeds on sub-Antarctic islands and visits areas off the Australian mainland mainly during winter months (May – October) (DAWE, 2021). Its breeding range extends into the Antarctic zone at South Georgia. It nests in coastal areas where vegetation or broken terrain offers shelter, on sea-facing slopes, headlands, in the lee of banks, under or against vegetation clumps, below cliffs or overhanging rocks, or in hollows. The northern giant petrel eats seal, whale, and penguin carrion, and seal placentae. It often attends and follows ships to obtain offal. It also eats substantial quantities of euphausiids (krill) and other crustaceans, cephalopods (octopus and squid), fish and a wide variety of seabirds (DAWE, 2021b).

The northern giant petrel may occur within the operational area and are likely to forage within the EMBA.

### *Northern Royal Albatross*

The northern royal albatross (*Diomedea sanfordi*) is listed as endangered and migratory under the EPBC Act. The northern royal albatross has a circumpolar distribution being most common between 36° S to at least 52° S with most sightings confined to the shelf edge and slope. Within Australia, they are regularly recorded throughout the year around Tasmania and SA at the edge of the continental shelf, and infrequently in waters off NSW (DSEWPaC, 2011b).

The northern royal albatross was identified as likely to have foraging behaviours within the operational area and EMBA.

### *Orange-bellied Parrot*

The Orange-bellied Parrot (*Neophema chrysogaster*) is a listed as critically endangered under the EPBC Act. The species is endemic to south-eastern Australia with non-breeding birds usually found along the coast of South Australia and Victoria (DELWP, 2016). Orange-bellied Parrots migrate to breed in Melaleuca in south-west Tasmania in summer with birds arriving in early October and departing after the breeding season usually in March and April (TSS,2021). After breeding, migrating birds move northwards up the west coast of Tasmania via King Island to the mainland during autumn (Holdsworth, 2006). The southward migration tends to be rapid (Stephenson, 1991), while northward migration in autumn across western Bass Strait is more prolonged (Higgins, 1999).

On the mainland, birds are usually found in locations associated with coastal saltmarshes and adjacent pastures, close to free-standing water bodies (DELWP, 2016). The parrot's breeding habitat is restricted to southwest Tasmania, where breeding occurs from November to mid-January mainly within 30 km of the coast (Brown and Wilson, 1980). During winter, on mainland Australia, Orange-bellied Parrots are found mostly within 3 km of the coast (DELWP, 2016).

Given its habitat preferences, this species is expected to occur within the EMBA and is likely to occur in the operational area.

### *Osprey*

The osprey (*Pandion haliaetus*) is a listed migratory species under the EPBC Act. It is a medium-sized raptor that primarily inhabits coastal and estuarine habitats (Marchant and Higgins, 1993). The species prefers littoral and coastal habitats and terrestrial wetlands of tropical and temperate Australia and offshore islands (DAWE, 2020). Breeding range extends around the northern coast of Australia from Albany in WA to Lake Macquarie in NSW, with a second breeding population on the coast of SA. The total range of the species is much more widespread (DAWE, 2020).

The osprey was identified as known to occur within the EMBA.

### *Pacific Golden Plover*

The Pacific golden plover (*Pluvialis fulva*) is listed as migratory under the EPBC Act. Within Australia, the Pacific Golden Plover is widespread in coastal regions with most Pacific Golden Plovers occurring along the east coast and are especially widespread along Queensland and New South Wales coastlines (DAWE, 2022). Scattered records for the species exist in the south-east. The species is often also recorded on Australia's outlying islands, including Lord Howe and Norfolk Islands, as well as on Christmas and Cocos-Keeling Islands in the Indian Ocean (DAWE, 2021).

As the Pacific Golden Plover is a migratory species, it will breed in the Northern Hemisphere and fly south for the boreal winter (DAWE, 2022). The species is present in Australia mostly between September and May inhabiting coastal habitats, though occasionally occuring around inland wetlands. Pacific Golden Plovers usually occur on beaches, mudflats and sandflats (sometimes in vegetation such as mangroves, low saltmarsh such as Sarcocornia, or beds of seagrass) in sheltered areas including harbours, estuaries, and lagoons, and also in evaporation ponds in saltworks. The species is also sometimes recorded on islands, sand and coral cays and exposed reefs and rocks (DAWE, 2021).

The Pacific golden plover was identified as known to roost within the EMBA.

### *Pectoral Sandpiper*

The pectoral sandpiper (*Calidris melanotos*) is a listed migratory species under the EPBC Act. This small-medium wader spends non-breeding seasons across Australia, with Victorian records of the Pectoral Sandpiper mainly occuring from Port Phillip Bay and the valley of the Murray River between Kerang and Piangil. It has also been recorded at Coronet Bay (in Westernport Bay), Wimmera and Mallee (Higgins and Davies, 1996). The species feeds on algae, seeds, crustacean and insects. This species is most commonly found around coastal areas.

The pectoral sandpiper may occur within the operational area and is known to occur in the EMBA.

### *Pin-tailed Snipe*

The pin-tailed snipe (*Gallinago stenura*) is listed as a migratory species under the EPBC Act. The species distribution within Australia is not well understood. There are confirmed records from NSW, south-west Western Australia, Pilbara and the Top End. In NSW a single banded bird was reported near West Wyalong. In Western Australia the species was reported at Pilbara, Port Headland, Myaree Pool, Maitland River and near Karratha. In Pilbarra the distribution is believed to be bound by Pardoo (Banningarra Spring) and the lower Maitland River and Shay Gap. The Pin-tailed Snipe has also been reported on the Cocos-Keeling Islands as well as Christmas Island (Higgins and Davies 1996) (DAWE, 2021). During non-breeding period the Pin-tailed Snipe occurs most often in or at the edges of shallow freshwater swamps, ponds and lakes with emergent, sparse to dense cover of grass/sedge or other vegetation (DAWE, 2022).

The pin-tailed snipe has been identified as likely to roost within the EMBA.

### *Red-necked Phalarope*

The red-necked phalarope (*Phalaropus lobatus*) is listed as a migratory species under the EPBC Act. The Red-necked Phalarope breeds in the Arctic and sub-Arctic North America, Europe and Russia. In Victoria, the species has been sighted at the Werribee Sewage Farm, Altona, Seaholme, Lake Connewarre, Lake Tutchewop, Lake Victoria, Point Lonsdale, Lake Murdeduke and Lake Buloke. There have also been unconfirmed reports at the Laverton Saltworks (Higgins and Davies 1996). During non-breeding periods, the Red-necked Phalarope occurs mainly at sea and in Australia is recorded at both inland and coastal lakes and swamps (Higgins and Davies, 1996).

The red-necked phalarope has been identified as known to roost within the spill EMBA.

### *Red-necked Stint*

One of the smallest shorebirds in Australia, the red-necked stint (*Calidris ruficollis*) is a listed migratory species under the EPBC Act. It is found in all states and territories with large densities on the Victorian and Tasmanian coasts inhabiting coastal areas such as bays, sheltered inlets, lagoons and estuaries. The species is present in Australia during the non-breeding season from August through to late September.

The red-necked stint was identified as known to roost within the EMBA.

### *Red Knot*

The red knot (*Calidris canutus*) is listed as endangered and migratory under the EPBC Act. The red knot breeds in Siberia and spends the non-breeding season in Australia and New Zealand. The non-breeding season is spent on tidal mudflats or sandflats where the omnivorous species feeds on intertidal invertebrates, especially shellfish (Garnet *et al*., 2011). Although the species is found throughout main suitable habitats in Australia, it is considered widespread along the coast south of Townsville, Queensalnd, and along the coasts of NSW and Victoria but not further west than Warranbool (DAWE, 2022).

The red knot was identified as may occur within the operational area and known to occur within the EMBA.

### *Ruddy Turnstone*

The ruddy turnstone (*Arenaria interpres*) is a listed migratory species under the EPBC Act. This medium-size bird is widespread within Australia during its non-breeding period of the year, when it is found in most coastal regions. It prefers rocky shores or beaches where there is plenty of stranded seaweed.

The ruddy turnstone was identified as known to roost within the EMBA.

### *Salvin's Albatross*

Salvin's Albatross (*Thalassarche salvini*) is listed as vulnerable and migratory under the EPBC Act. It is a non-breeding visitor to Australian waters that occurs in subantactic and subtropical waters (DAWE, 2022). The species feeds primarily in shelf waters, takes food from the surface or just below and has been observed diving to depths of two metres or more for offal (Nicholls 1979). The birds have been known to scavenge at commercial feeding grounds (Marchant and Higgins 1990) and also commonly follow fishing boats.

Salvin's Albatross was identified as likely to forage in the operational area and EMBA.

### *Sanderling*

Sanderling (*Calidris alba*) is a listed migratory species under the EPBC Act and occurs in most coastal areas. In Victoria, they are regular around Corner Inlet, Shallow Inlet and Wilson's Promontory, and on the southwest coast between Killarney and Nelson. In eastern Victoria they have been recorded at Mallacoota, Lakes Entrance and Kalimna. Widespread records occur between Venus Bay and the southern Bellarine Peninsula, west to Breamlea, with a few isolated records from further west at Anglesea and Apollo Bay (DAWE, 2022). The species has a circumpolar breeding distribution, migrating south to spend the non-breeding season predominantly on sandy coastal shores of all continents except Antarctica. Sanderling are omnivorous, foraging on beaches, mudflats and on the edges of shallow pools feeding on plants, seeds, worms, crustaceans, insects, and occasionally on fish, larger molluscs, and crustaceans taken as carrion.

Sanderling was identified as known to roost within the EMBA.

### *Sharp-Tailed Sandpiper*

The sharp-tailed sandpiper (*Calidris acuminata*) is listed as a migratory species under the EPBC Act and spends the non-breeding season in Australia. The species is known to be widespread in coastal areas of Victoria (DAWE, 2022). They also occasionally occur on islands in the Bass Strait. The species inhabits intertidal mudflats, sheltered bays, inlets, estuaries and seashores. Foraging habitat includes the edge of the water of wetlands or intertidal mudflats, either on bare wet mud or sand, or in shallow water. They also forage among inundated vegetation of saltmarsh, grass or sedges for seeds, worms, mulluscs, crustaceans and insects (Higgins and Davies, 1996). The species are common throughout Australia between August and March.

The sharp-tailed sandpiper may occur within the operational area and is known to roost in the EMBA.

### *Short-tailed Shearwater*

The Short-tailed Shearwater (*Ardenna tenuirostris*) is listed as migratory under the EPBC Act. The Short-tailed Shearwater migrates to the Northern hemisphere for the austral winter and generally only present in Australian waters from September to May. They are common in the South-east Marine Region and largely found on numerous islands off Victoria and Tasmania during breeding (Baker and Hamilton 2013; (Skira *et al*., 1996). During breeding they conducts a bimodal feeding strategy, alternating short foraging trips to local waters with long foraging trips (up to 17 days) to the Polar Frontal Zone. Diet includes fish (particularly mycotphids), crustaceans and squid (Weimerskirch and Cherel, 1998). Feeding occurs in flocks of up to 20,000 birds, and it has been seen associated with cetaceans.

A breeding and foraging BIA has been identified within the EMBA (Figure 4-18).

### *Shy Albatross*

The shy albatross (*Thalassarche cauta cauta*) is listed as vulnerable and migratory under the EPBC Act. The shy albatross appears to occur in all Australian coastal waters below 25°S. It is most commonly observed over the shelf waters around Tasmania and south-eastern Australia (DAWE, 2020). Breeding occurs on Albatross Island, Bass Strait, and Mewstone and Pedra Branca, off southern Tasmania. The shy albatross feeds in waters over the continental shelf as well as within harbours and bays (DAWE, 2020). This species may occur within the EMBA; although it is not an area this species uses for breeding or resting, however, it may be used as foraging ground with a foraging BIA recognised for the operational area and EMBA (Figure 4-19).

### *Soft-plumaged Petrel*

The soft-plumaged petrel (*Pterodroma mollis*) is listed as vulnerable under the EPBC Act. This marine bird is found in temperate and sub-Antarctic regions. The petrel is a regular and quite common visitor to southern Australian seas, but is more common on the west than in the south and southeast (Marchant & Higgins, 1990). The population in Australia is currently unknown. Breeding is believed to take place on south Australian islands with fledglings dispersing mainly northwards during May and June.

The soft-plumaged petrel may occur within the operational area and the EMBA.

### *Sooty Albatross*

The sooty albatross (*Phoebetria fusca)* is listed as vulnerable and migratory under the EPBC Act. The sooty albatross breeds on islands in the southern Indian and Atlantic Oceans, and forages south of 30°S, between southern NSW and Argentina (DAWE, 2020). In Australia, it has sometimes been observed foraging in inshore waters in southern Australia. The sooty albatross is a rare, but probably regular migrant to Australia, mostly in autumn and winter. The sooty albatross flies within 10 to 15 m of the sea surface, using updrafts from wave fronts for lift. It forages at the sea surface feeding on fish, cephalopods, crustaceans and penguin carrion (DAWE, 2020).

The sooty albatross is likely to occur within the operational area and EMBA.

### *Sooty Shearwater*

The sooty shearwater (*Ardenna grisea*) is a listed migratory species under the EPBC Act. It is found in the southern hemisphere during summer. This species breeds around New Zealand, southern Australia and southern South America (DAWE, 2021). In winter, these birds move to the North Pacific Ocean, but some move into the North Atlantic Ocean, or remain in the southern hemisphere (DAWE, 2021). It feeds on a wide variety of pelagic prey, including cephalopods, fish and crustaceans.

The sooty shearwater may occur within the operational area and EMBA.

### *Southern Giant Petrel*

The southern giant petrel (*Macronectes giganteus*) is listed as endangered and migratory under the EPBC Act. The southern giant petrel is considered to be a sibling species to the northern giant petrel. It is a large seabird with a widespread distribution range through the Southern Ocean from the Antarctic to subtropical waters. The southern giant-petrel breeds once a year between August and September, returning from foraging locations to breeding grounds in Antarctic waters.

The southern giant petrel may occur within the operational area and EMBA. There are no breeding, roosting grounds or critical feeding areas within the operational area, although this species may transit the EMBA from time-to-time, foraging for food.

### *Southern Royal Albatross*

The southern royal albatross (*Diomedea epomophora*) is listed as vulnerable and migratory under the EPBC Act. The southern royal albatross has a circumpolar distribution within the Southern Oceans. Within Australia, they range over waters of SA at all time of year, especially between July and October and have been recorded from Byron Bay in the east to southwestern WA. Most records are from the shelf-break areas, particularly of western and southern Tasmanian and around Victoria (DSEWPaC, 2011b).

The southern royal albatross was identified to have likely foraging behaviours within the operational area and EMBA.

### *Swinhoe's Snipe*

The Swinhoe's snipe (*Gallinago megala*) is listed as a migratory species under the EPBC Act. Few definite records exist for Swinhoe's Snipe in Australia with these records being in northern Australia from October October to April in the Kimberley region and October – March in the Pibara (DAWE, 2022). During the non-breeding season, Swinhoe's Snipe occurs at the edges of wetlands, such as wet paddy fields, swamps and freshwater streams (DAWE, 2022).

The Swinhoe's snipe has been identified as having roosting behaviours likely to occur within the EMBA.

### *Terek Sandpiper*

The Terek sandpiper (*Xenus cinereus*) is a listed migratory species under the EPBC Act. This sandpiper primarily has a coastal distribution in Australia, being more widespread and common in the north and east than in the south of Australia (DAWE, 2022). In Victoria, the species has been recorded from Corner Inlet, Anderson Inlet, Westernport Bay and west Port Phillip Bay. The species is regularly seen in Tasmania and the South Australian coastline (DAWE, 2022). The species prefers intertidal mudflats and has also been recorded on sand spits, near mangroves and also rocky areas. The Terek sandpiper feeds on a variety of invertebrates

including crustaceans, insects and molluscs. The species breeds in Eurasia before moving south for the boreal winter.

The Terek sandpiper was identified as known to roost within the EMBA.

### *Wandering Albatross*

The wandering albatross (*Diomedea exulans*) is listed as vulnerable and migratory under the EPBC Act. The species has a circumpolar distribution and breeds on six sub-Antarctic island groups including Macquarie Island in Australia (DELWP, 2011; Marchant and Higgins, 1990; ACAP, 2011). The Wandering Albatross breeds biennially, laying eggs in December and fledging chicks between mid-November and late February. Limited satellite tracking of Wandering Albatross from Macquarie Island shows that breeding females forage north of the Island in waters off southern Tasmania, while males forage in open waters of the Southern Ocean, south of 50°S, reflecting a spatial segregation seen in other populations of this species. Juveniles are concentrated in lower latitudes north and east of Macquarie Island in Pacific waters, off the south east coast of Australia and in New Zealand waters.The species feeds mainly on squid and fish but also crustaceans and carrion (Marchant and Higgins, 1990).

Foraging trips by breeding Wandering Albatross have exceeded 15,200 km between incubation bouts (Jouventin and Weimerskirch, 1990). Southern Australia is an important wintering ground for non-breeding and juvenile birds from the Atlantic and Indian Ocean breeding colonies. Non-breeding and juvenile birds remain north of 50° S. During the non-breeding season, birds disperse more widely with females generally foraging in more northerly latitudes of the southern hemisphere and males generally foraging further south (Baker and Hamilton, 2013).

This species is wide-ranging and may potentially over-fly the worst-case hydrocarbon EMBA from time-to-time in transit or for foraging.

The entire South-east Marine Region north of 50°S is recognised as a BIA for foraging for the species. Therefore, the operational area and EMBA overlap this foraging BIA (DoE, 2015).

### *Wandering Tattler*

The Wandering Tattler (*Tringa incana*) is listed as migratory under the EPBC Act. This species is considered uncommon in Australia, although this could be partly due to confusion with the Grey-tailed Tattler (Bamford et al. 2008; Higgins & Davies, 1996). Wandering Tattlers breed outside of Australia from late May to August with eggs laid in June (DAWE, 2022). Following the breeding season, the birds migrate southwards for the boreal winter, residing in Pacific Islands, north-east Australia and New Zealand. Records indicate the species arrives in Australia from September and begins leaving in April-May (DAWE, 2022).

The Wandering Tattler generally inhabits rocky coasts with reefs and platforms, points, spits, piers, offshore islands and shingle beaches or beds (DAWE, 2022). The species feeds on worms, molluscs and crustaceans and forages among rocks or shingle, or in shallow pools at the edges of reefs or beaches, mainly along the tideline (DAWE, 2022).

### *Wedge-Tailed Shearwater*

The wedge-tailed shearwater (*Ardenna pacifica*) is a listed migratory species under the EPBC Act. This medium-sized seabird is common in the Indian Ocean, the Coral Sea and the Tasman Sea (Lindsey, 1986), preferring tropical and sub-tropical waters where temperatures are greater than 21ºC. The species has been recorded in offshore waters of eastern Victoria and southern NSW, mostly over continental slope with sea-surface temperatures of 13.9–24.4°C (Drummond, 1985; Reid *et al*., 2002).. It forages at sea, feeding mostly on fish, cephalopods, insects, jellyfish and prawns. The Wedge-tailed Shearwater breeds on the east and west coasts of Australia and on offshore islands.

The wedge-tailed shearwater has an identified foraging BIA within the operational area and EMBA and a breeding BIA in the EMBA (Figure 4-21).

### *Whimbrel*

The whimbrel (*Numenius phaeopus*) is a medium-sized curlew and a listed migratory species under the EPBC Act. It is a regular non-breeding migrant to Australia and New Zealand. Although scattered inland records of the species is found in all regions, its distribution is primarily coastal, and more common in the north of Australia. However, it is regularly found in some places in Victoria, Tasmania and South Australia (DAWE,

2022). The whimbrel forages on intertidal mudflats, along muddy banks of estuaries and in coastal lagoons and mangroves. The whimbrel begin their migration from breeding grounds in the northern hemisphere in July, arriving on the north coasts from August. They start their northern migration back to breeding grounds by late April.

The whimbrel was identified as known to roost within the EMBA.

#### *White-capped Albatross*

The white-capped albatross (*Thalassarche cauta steadi*) is listed as vulnerable and migratory under the EPBC Act. This is a marine species that occurs in sub-Antarctic and subtropical waters. The white-capped albatross breeds on the subantarctic islands of New Zealand. Eggs are usually laid in mid-November and hatch in February (ACAP, 2011). Tracking data reveal that white-capped albatross forage extensively across the Tasman Sea, around southeastern Australia, during incubation and chick-rearing, with birds moving as far west as Tasmania and south-eastern Australia, and further westwards to southern and south-western Australia during nonbreeding (Thompson et al. 2011). The white-capped albatross is thought to have a diet of inshore cephalopods (squid) and fish (Gales, 1993; Marchant and Higgins 1990). It occurs in both inshore and offshore waters (DAWE, 2022). The entire South-east Marine Region as far south as latitude 50°, S is recognised as a biologically important area for foraging for the species (DoE, 2015).The white-capped albatross was identified as likely to forage within the operational area and EMBA.

#### *White-faced Storm Petrel*

The White-faced Storm Petrel (*Pelagodroma marina*) is listed as marine under the EPBC Act and although it was not recognised as occurring in the PMST reports, the species has a recognised foraging BIA within the EMBA (Figure 4-22).

The Australian population of White-faced Storm Petrels are estimated to account for 25 per cent of the global population (DoE, 2015). The species is migratory, moving from temperate breeding sites to tropical and subtropical waters in the non-breeding season. There are 15 breeding colonies identified in Tasmania and a further three sites in Port Phillip Bay, Victoria and include Tullaberga Island, Mud Island and South Channel Island (DoE, 2015). The species returns to colonies in late September to early October, with egg laying beginning in early summer and fledging occurring mid-February to mid-March (DoE, 2015).

White-faced Storm Petrels feed on pelagic crustaceans, small fish and other surface plankton (Marchant & Higgins 1990). There is a recognised foraging BIA within the EMBA (Figure 4-22).

## 4.4 Socio-Economic Values and Sensitivities

### 4.4.1 Cultural Heritage

#### Indigenous Heritage

Aboriginal groups inhabited the southwest Victorian coast as is evident from the terrestrial sites of Aboriginal archaeological significance throughout the area. During recent ice age periods (the last ending approximately 14,000 years ago), sea levels were significantly lower, and the coastline was a significant distance seaward of its present location, enabling occupation and travel across land that is now submerged.

Coastal Aboriginal heritage sites include mostly shell middens, some stone artefacts, a few staircases cut into the coastal cliffs, and at least one burial site. The various shell middens within the Port Campbell National Park and Bay of Islands Costal Park are close to coastal access points that are, in some cases, now visitor access points (Parks Victoria, 1998).

#### Underwater Cultural Heritage

The *Underwater Cultural Heritage Act 2018* protects Australia's underwater cultural heritage including shipwrecks, sunken aircraft and other types of underwater heritage. Under this Act, shipwrecks, sunken aircraft and their associated artefacts older than 75 years are protected.

Within the spill EMBA is a 130 km stretch of coastline known as the 'Shipwreck Coast' because of the large number of shipwrecks present, with most wrecked during the late nineteenth century. The strong waves, rocky

reefs and cliffs of the region contributed to the loss of these ships. The wrecks represent significant archaeological, educational and recreational (i.e., diving) opportunities for locals, students, and tourists (Flagstaff Hill, 2015). Wrecks closest to the CHN assets are listed below (Victorian Heritage Database, 2016; Australasian Underwater Cultural Heritage Database, 2018):

- *Napier* – wrecked in 1878, the vessel was contracted to undertake salvage on the Loch Ard wreck. While returning to Port Campbell it lost sternway while rounding the eastern reef and bluff, and swell forced it onto rocks on the western side of the cove.
- *Nowra* – wrecked in 1891 after experiencing very bad weather after leaving Penguin (Tasmania). It was unable to reach Port Phillip Heads and was driven onto the 'London Bridge' rocks.
- *Newfield* – wrecked in 1892, the vessel struck rocks approximately 100m from shore one mile east of Curdies Inlet due to navigational error when Cape Otway light was mistaken for King Island lighthouse.
- *Young Australian* – wrecked in 1877 at Curdies Inlet while on a voyage from Maryborough (Qld) to Adelaide (SA) it struck heavy weather off Cape Nelson.
- *Schomberg* – wrecked in 1855 at Curdies Inlet as a result of a navigational error.
- *Falls of Halladale* – wrecked in 1908 at Massacre bay Peterborough as a result of a navigational error.
- Unnamed – located west of Peterborough in waters less than 10 m deep.
- *Loch Ard* – wrecked in 1878 as a result of bad weather prevented navigational fixes from being made.
- Frankston – Fairey Firefly – wrecked in 1947 as a result of a collision with another Fairy Firefly at 1500 ft.
- RAAF – B25 – Wrecked in 1945 due to catching fire during weapons test resulting in ditching of the aircraft.
- USAF – B57 – wrecked due to loss of control resulting in plunging into the water.
- Twin Engine – Lady Julia Percy Is. – Unknown.

None of the wrecks on the Victorian west coast are covered by underwater heritage protected zones declared under Section 103 of the Victorian *Heritage Act 1995* (DELWP, 2016b) (Figure 4-24), with the nine protected zones that do exist occurring within Port Phillip Bay and adjacent to the west Gippsland coast (DELWP, 2016b).

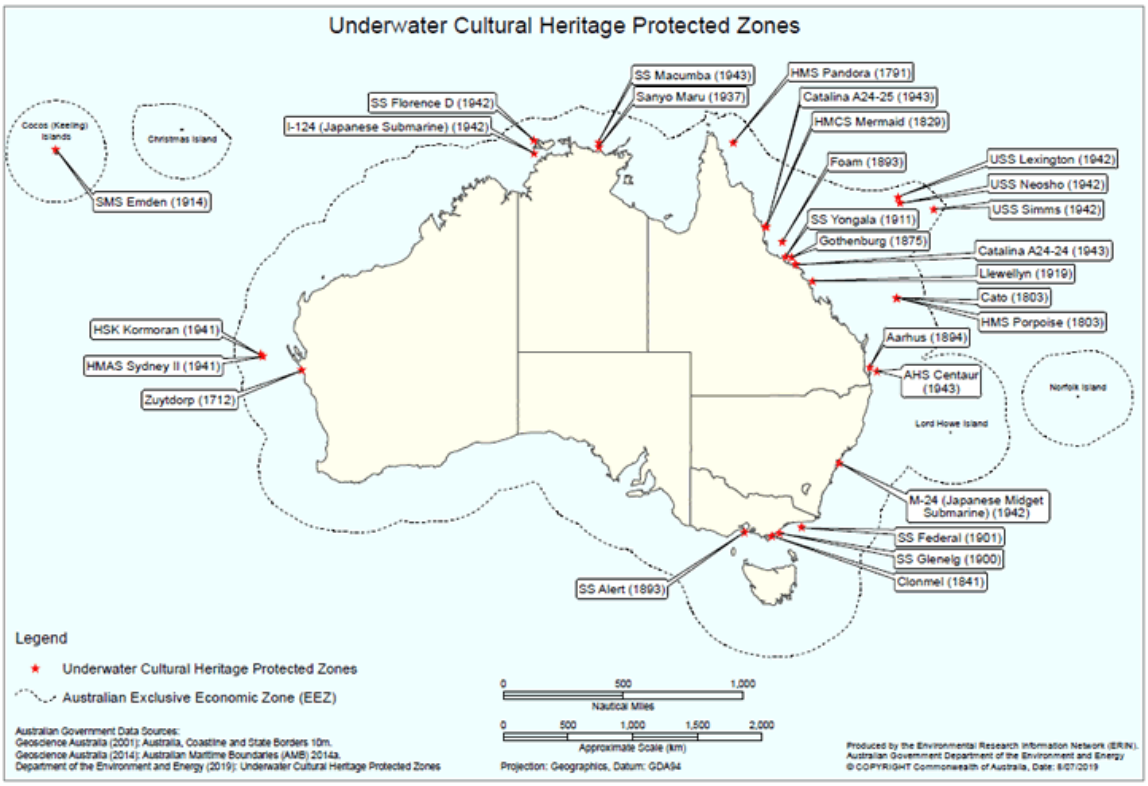



**Figure 4-24: Underwater cultural heritage shipwreck protected zones**

### 4.4.2 Australian Commercial Fisheries

A number of Commonwealth and State managed fisheries have boundaries that overlap with the operational area and EMBA. Table 4-7 provides a summary description of the commercial fisheries with management areas overlapping the operational area and / or EMBA and therefore have the potential for their operations to be affected by the petroleum activity.

Table 4-7: Commonwealth and State managed fisheries within the EMBA

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| ***Commonwealth-managed Fisheries*** | | | | |
| Bass Strait Central Zone Scallop | Scallops (*Pecten fumatus*) | Towed dredge fishing method.<br>Fishery managed via seasonal/area closures and total allowable catch (TAC) controls together with quota statutory fishing rights (35 permits in the 2022 fishing season) and individual transferrable quotas.<br>10 vessels were active in the fishery in the 2022 season.<br>Fishing season: typically July to 31 December | No<br>Fishing intensity data shows activity north and east of King Island, with most effort north of Flinders Island. | Yes |
| Eastern Tuna and Billfish | Albacore tuna (*Thunnus alulunga*)<br>Bigeye tuna (*Thunnus obesus*)<br>Yellowfin tuna (*Thunnus albacares*)<br>Broadbill swordfish (*Xiphias gladius*)<br>Striped marlin (*Kaijikia audux*) | Pelagic longline, minor line (such as handline, troll, rod and reel).<br>36 vessels were active in the fishery in the 2022 season.<br>Fishing season: 12-months beginning on 1 January | No<br>Fishery effort is concentrated along the NSW coast and southern Queensland coast.<br>No Victorian ports are used to land catches. | No |
| Skipjack (eastern) | Skipjack tuna (*Katsuwonus pelamis*). | Historically, over 98% of the catch was taken using purse seine catch method. Pole and line method was used for the remaining 2% of the catch.<br>Fishing season: not currently active. | No<br>No fishing effort in the fishery since 2008-09 fishing season (stock highly variable and Australia is at the edge of the species range). | No |
| Small Pelagic (western sub-area) | Jack mackerel (*Trachurus declivis, T. symmetricus, T. murphyi*)<br>Blue mackerel (*Scomber australasicus*), | Purse seine and mid-water trawl are the main fishing methods.<br>There were 33 Statutory Fishing Rights in the 2022-23 fishing season, with 4 purse seine and 2 mid-water trawl vessels active.<br>Fishing season: 12-months beginning 1 May | No<br>Fishery effort concentrated in NSW, South Australia, and eastern Tasmania. | No |

## Description of Environment for the Minerva Field

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| | Redbait (*Emmelichthys nitidus*) and<br>Australian sardine (*Sardinops sagax*). | | | |
| Southern and Eastern Scalefish and Shark Fishery (SESSF) – Commonwealth Trawl Sector (CTS) | Blue grenadier (*Macruronus novaezelandiae*),<br>Tiger flathead (*Platycephalus richardsoni*),<br>Pink ling (*Genypterus blacodes*)<br>Silver warehou (*Seriolella punctata*) | Fishing methods include otter trawl and Danish seine.<br>There were 31 trawl, 18 Danish-seine, and 12 scalefish hook fishing vessels active in 2022-2023.<br>Fishing season: 12-months beginning 1 May | No (CTS)<br>No (Danish Seine)<br>Trawl sector is concentrated around shelf-break areas. Danish seine activity is located on the continental shelf and operate in sandy bottom environments. | Yes (CTS)<br>No (Danish Seine) |
| SESSF – Shark Gillnet and Shark Hook Sectors | Gummy shark (*Mustelus antarcticus*) | Fishing methods are gillnets and baited hooks.<br>Vessels actively fishing during the 2022-23 season included 30 gillnet vessels and 57 hook vessels.<br>Fishing season: 12-months beginning 1 May | Yes (Gillnet)<br>No (Hook)<br>Gillnet sector heavily utilises the continental shelf. Hook sector does not fish in the Gippsland Basin. | Yes (Gillnet)<br>No (Hook) |
| Southern Bluefin Tuna | Southern bluefin tuna (*Thunnus maccoyii*) | The primary fishing method is purse seine in waters off South Australia with a number of fishes captured by longline vessels off the East Coast.<br>Tuna caught off South Australia are then transferred to aquaculture farming pens off Port Lincoln in South Australia.<br>Vessels actively fishing in the 2022-23 season included 8 purse seine and 22 longline vessels.<br>Fishing season: 12-months beginning 1 December | No<br>Fishery effort concentrated in the Great Australian Bight (GAB) off Kangaroo Island and in southern NSW coast off the continental shelf. | No |
| Southern Squid Jig | Gould's squid (*Nototodarus gouldi*) | Squid jigging is the fishing method used, mainly in water depths of 60 to 120 m, at night.<br>In 2022, there were 6 active jig vessels in the Commonwealth fishery.<br>Portland is a primary landing port. | No<br>Catches are concentrated in Commonwealth waters between Portland and Robe (SA). Low fishing intensity | Yes |

## Description of Environment for the Minerva Field

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| | | Fishing season: 12-month season beginning 1 January | occurs in eastern Victoria and southern NSW. | |
| ***State-managed Fisheries*** | | | | |
| Victorian Rock Lobster Fishery | Predominantly southern rock lobster (*Jasus edwardsii*), along with small quantities of eastern rock lobster (*Jasus verreauxi*). | 71 licences in the Western zone, permitted to use baited rock lobster pots. In 2019/20, there were 43 vessels working in the western zone (VFA, 2021).<br>In 2019/20, 225.6 tonnes were harvested in the western zone.<br>Fished from rocky reefs in waters up to 150 m depth, with most of the catch coming from inshore waters less than 100 m deep. Pots are generally set and retrieved each day, marked with a surface buoy.<br>Closed seasons: females 1 June to 15 November and males 15 September to 15 November. | Yes<br>Fishing occurs throughout the area on rocky reefs. | Yes |
| Victorian Giant Crab Fishery | Giant crab (*Pseudocarcinus gigas*). | Giant crabs can only be taken using commercial rock lobster pots by Western Zone lobster fishers.<br>Since the introduction of quota management in the Giant Crab Fishery in 2001, there have been < 5 dedicated fishers active in the fishery and up to 20 fishers annually reporting Giant Crab catch as by-product from Rock Lobster fishing (VFA, 2021).<br>In 2019/20 season 9.5 t was landed (VFA, 2021).<br>Fished mostly on the shelf break (150-350 m water depth). | No<br>Although concentrated on the continental shelf, given that licence holdings are linked to southern rock lobster licences, there may be some fishing. | Yes |
| Abalone Fishery | Blacklip abalone (*Haliotis rubra*) and greenlip abalone (*Haliotis laevigata*). | The fishery consists of 71 fishery access licences of which 14 operate in the Western Zone, 34 in the Victorian Central Zone, and 23 in the Eastern Zone.<br>Commercial fishing methods use diving equipment such as a surface air supply to the diver (hookah system) from small high speed fishing boats. Diving is normally to depths less than 20 m.<br>Fishing season: 12-months beginning 1 April | No<br>Abalone diving activity occurs close to shoreline (generally to depths of 30 m on rocky reefs). | Yes<br>EMBA intersects the Victorian coastline where diving could occur, however, activity data is unavailable |

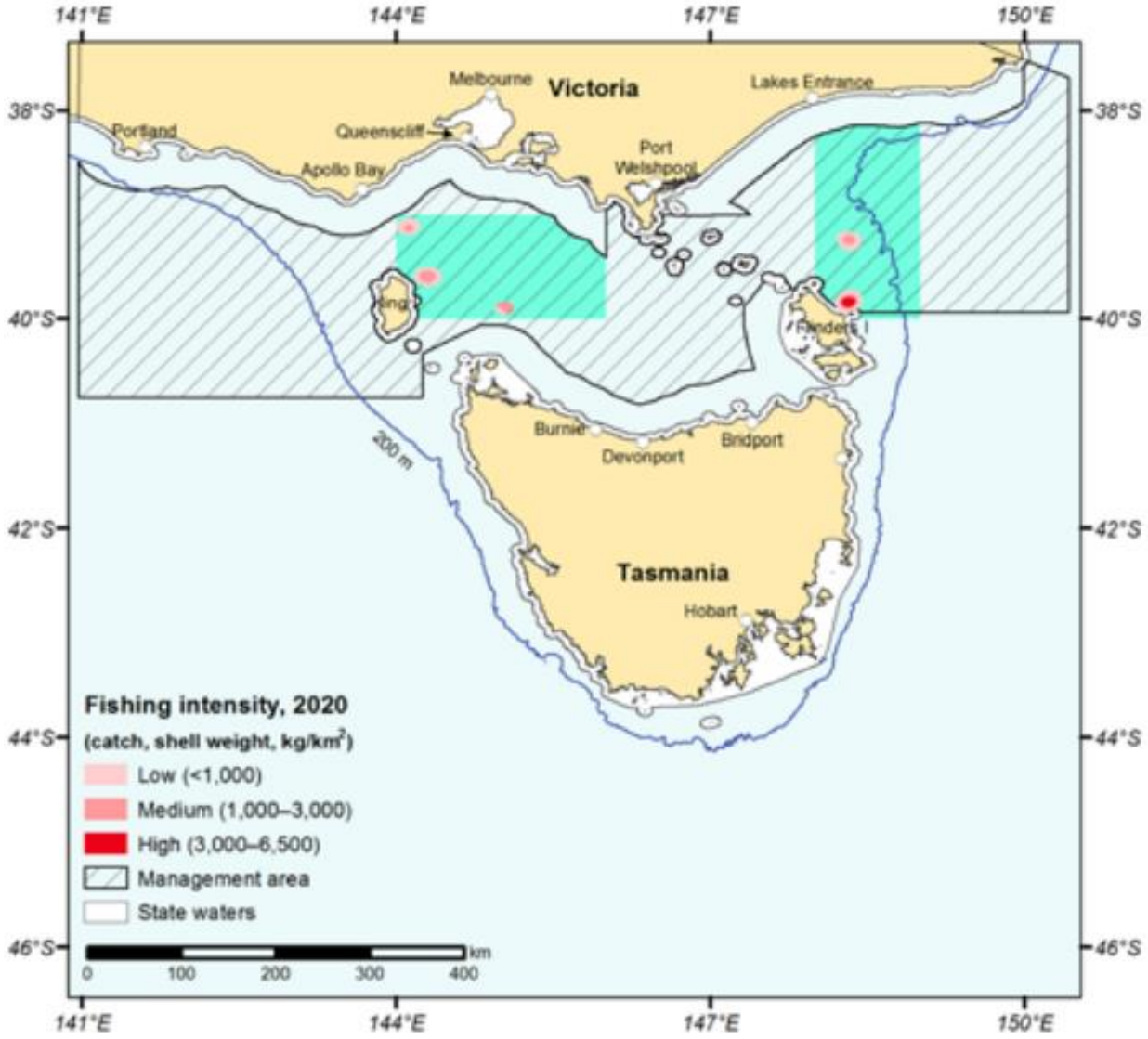
## Description of Environment for the Minerva Field

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| | | | | due to confidentiality. |
| Wrasse Fishery | Blue-throat wrasse (*Notolabrus tetricus*)<br>Saddled (or purple) wrasse (*Notolabrus fucicola*)<br>Rosy Wrasse (*Pseudolabrus psittaculus*)<br>Senator Wrasse (*Pictilabrus laticlavius*)<br>Southern Maori Wrasse (*Ophthalmolepis lineolatus*) | The fishery is divided into three commercial management zones; west, central, and east, with licence holders able to fish in any of these zones.<br>There are 22 licences (2021) issued for this fishery. Licences are transferrable.<br>Fishing method is via hand line fishing (other than longline which are not permitted) and rock lobster pots if also in possession of a Rock Lobster Access Fishing Licence. | Yes<br>Wrasses are fished along the entire Victorian coast but in recent years, catches have been the highest off the central coast (Port Phillip Heads, Western Port, and Wilsons's Promontory) and west coast of Victoria (Portland). Catches of saddled wrasse are highest in the Western part of Victoria, which is thought to be related to a greater proportion of suitable reef habitat in this area.<br>Wrasse can inhabit depths up to 160 m, but their preferred depths are approximately 30 m. | Yes |
| Scallop Fishery | Scallop (*Pecten fumatus*). | A total of 91 commercial licenses are issued each year and approximately 10-15 vessels operate within the fishery.<br>Commercial vessels tow a single dredge that is dragged along the seabed. Dredges are deployed from the rear of the vessel and are up to 4.5 m wide.<br>Fishing season: 12-months beginning 1 April | No<br>Fishery boundary extends the entire length of the Victorian coastline and out to the 20 nm point from the shoreline although mostly fished from Lakes Entrance and Welshpool. | No |
| Octopus Fishery | Pale Octopus (*Octopus pallidus*) | The fishery has established three zones; western, central and eastern octopus zones to manage commercial octopus fishing in Victoria. The western and central zones are less established and | No<br>The eastern octopus zone, from Seaspray to the Victorian | Yes |

## Description of Environment for the Minerva Field

| Fishery | Target Species | Description | Expected Presence | |
|---|---|---|---|---|
| | | | Operational Area | EMBA |
| | Maori octopus (*Macroctopus maorum*)<br>Gloomy Octopus (*Octopus tetricus*) | are being managed through exploratory, temporary permits. While the Eastern Zone (East Gippsland) is operational and extends from Seaspray to the Victorian / NSW border and out to 20 nm offshore, except for marine reserves.<br>There are 11 transferable licences issued for the eastern octopus zone.<br>The fishery uses purpose-built unbaited traps which aim to minimise bycatch. | / NSW border, is authorised for commercial take of octopus.<br>Western and central octopus zones are less established. | |
| Multi-species Ocean Fishery | Pale Octopus (*Octopus pallidus*)<br>Maori octopus (*Macroctopus maorum*)<br>Gloomy Octopus (*Octopus tetricus*)<br>A variety of other species may also be taken. | The multi-species ocean fishery is comprised of three relevant sub-sectors: ocean fishery, commercial permit fishery and the octopus fishery (central and western zones). Fishery allows for a variety of fishing methods.<br>Fishing season: 12-months | Possible<br>However, activity data is unavailable this fishery. | Possible<br>However, activity data is unavailable this fishery. |

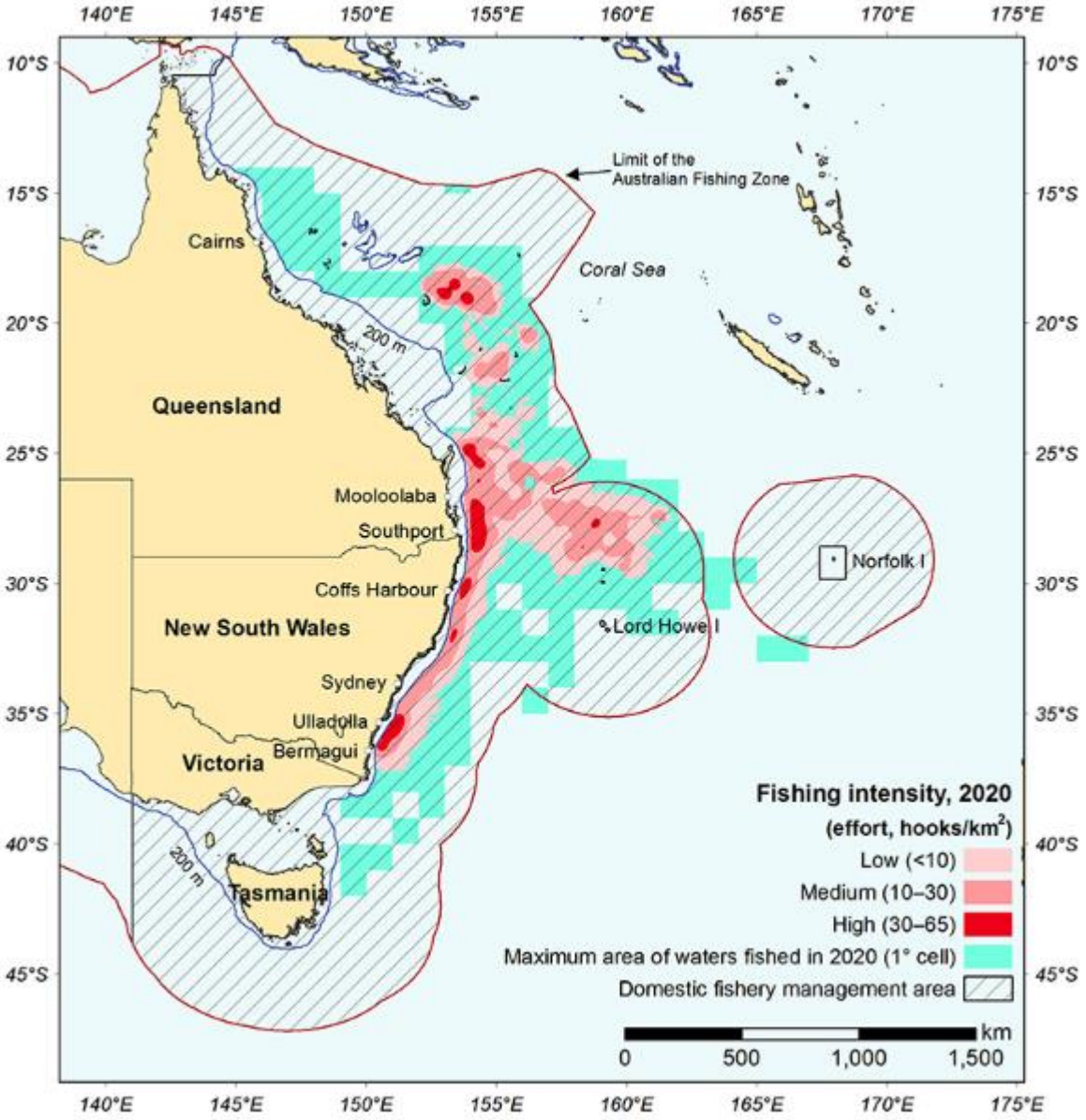
[1] Commonwealth fisheries information sourced from Butler et al., 2023 and AFMA, ND.
[2] State-managed fisheries information sourced from VFA, 2021a




Source: DAWE, 2021

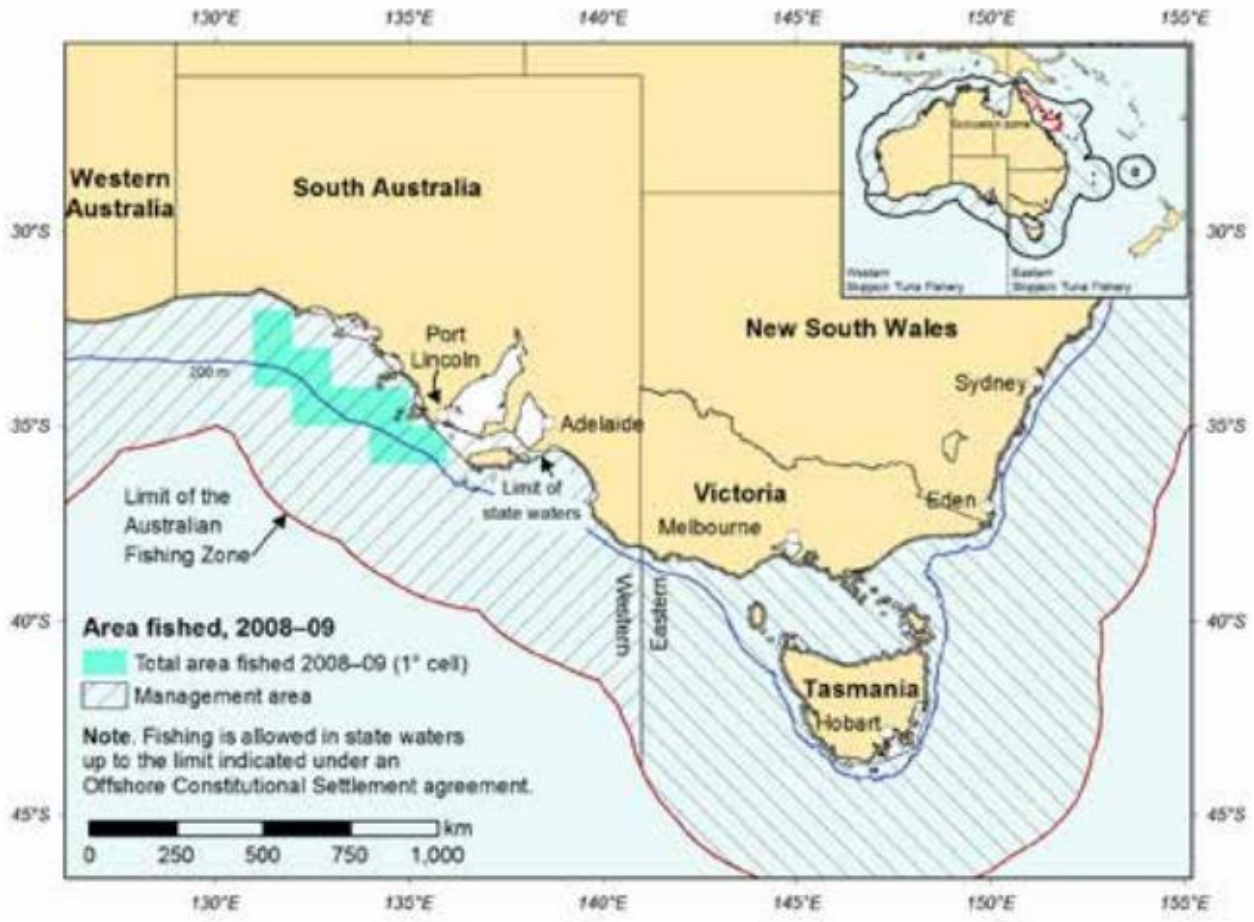
**Figure 4-25: Area and Relative Fishing Intensity in the Bass Strait Central Zone Scallop Fishery, 2020**

## Description of Environment for the Minerva Field




Source: DAWE, 2021

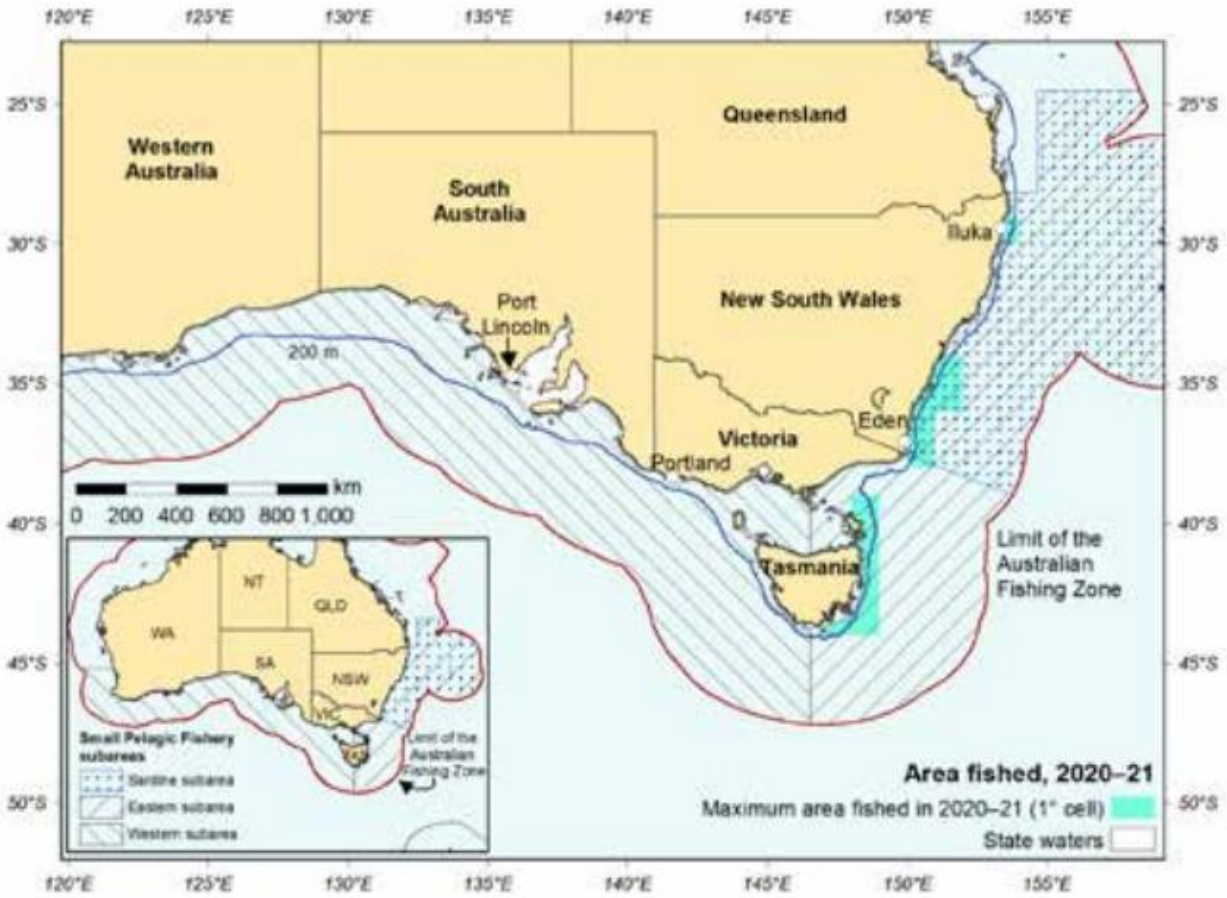
**Figure 4-26: Fishing Intensity in the Eastern Tuna and Billfish Fishery, 2020**




Note: The last effort in the fishery occurred in 2008–09.

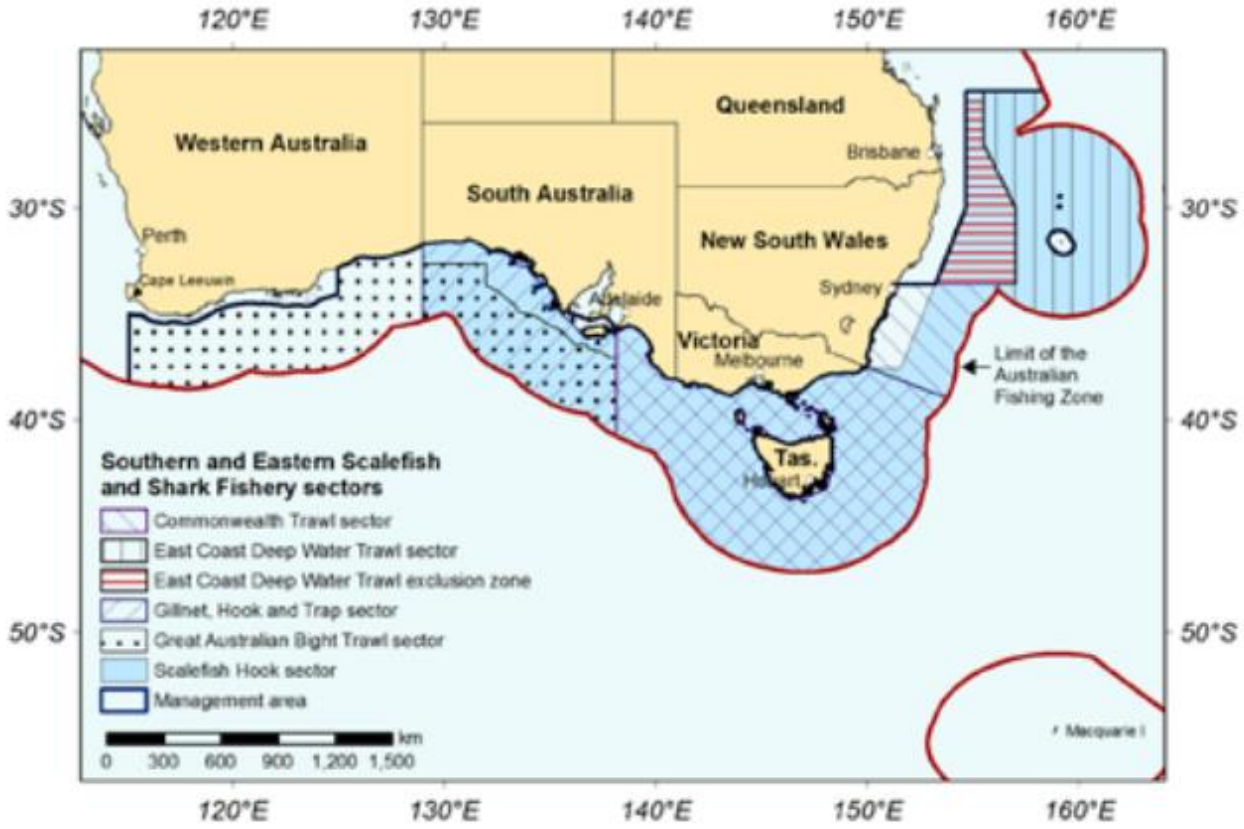
Source: DAWE, 2021

**Figure 4-27: Area fished in the Skipjack Tuna Fishery, 2008-09 to 2019-20**



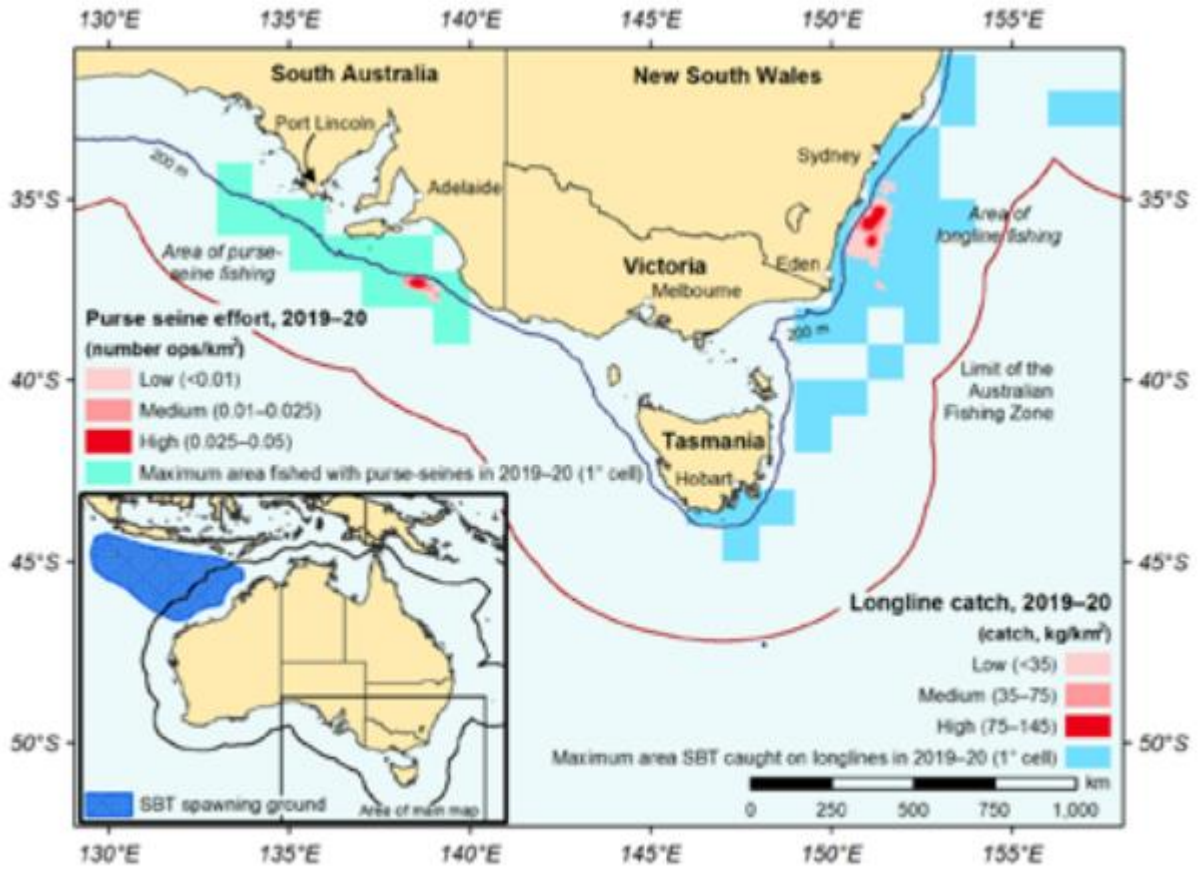

Source: DAWE, 2021

**Figure 4-28: Area fished in the Small Pelagic Fishery, 2020-2021 fishing season**




Source: DAWE, 2021

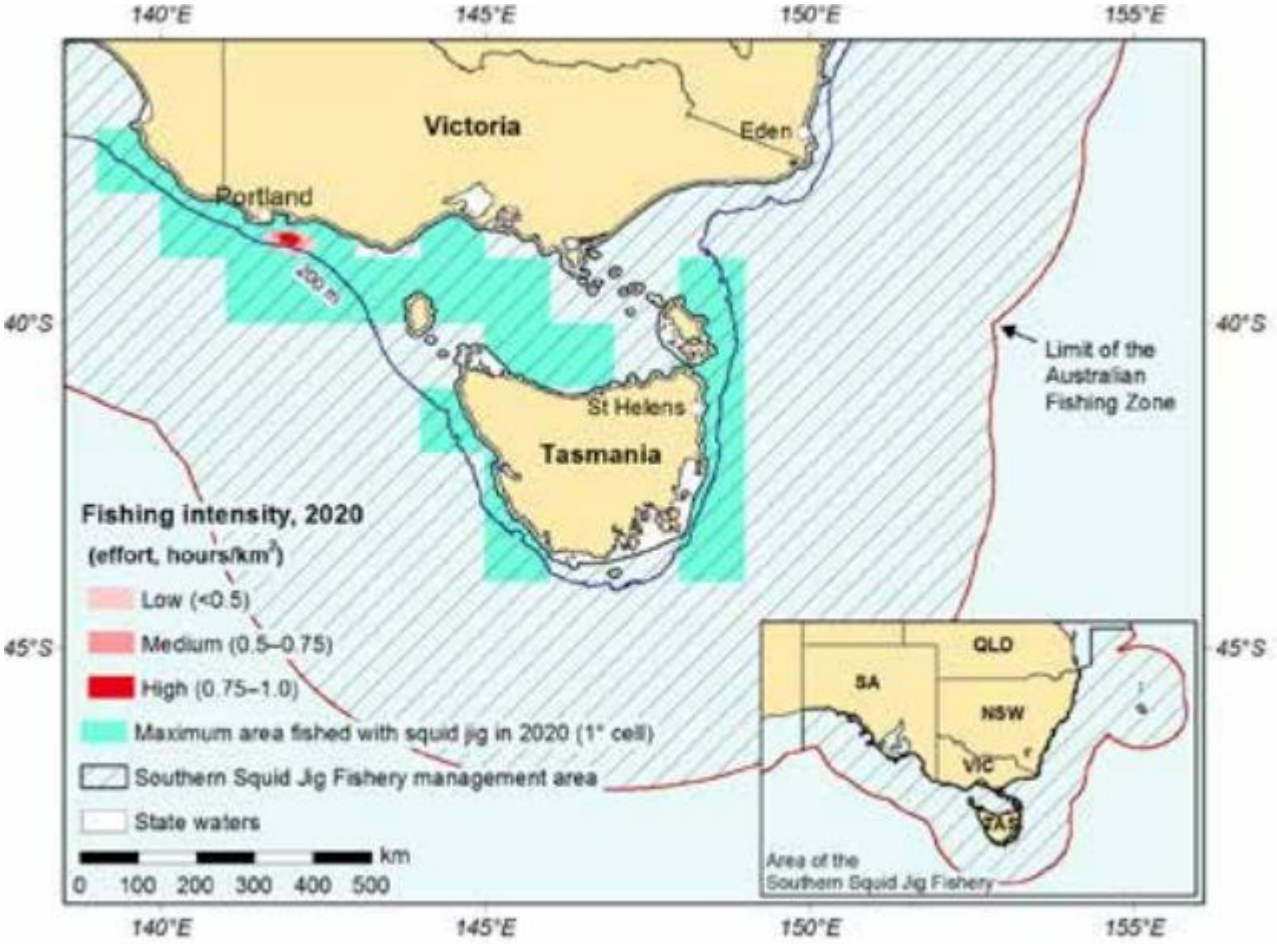
**Figure 4-29: Area and sectors of the Southern and Eastern Scalefish and Shark Fishery**




Note: **SBT** Southern bluefin tuna.

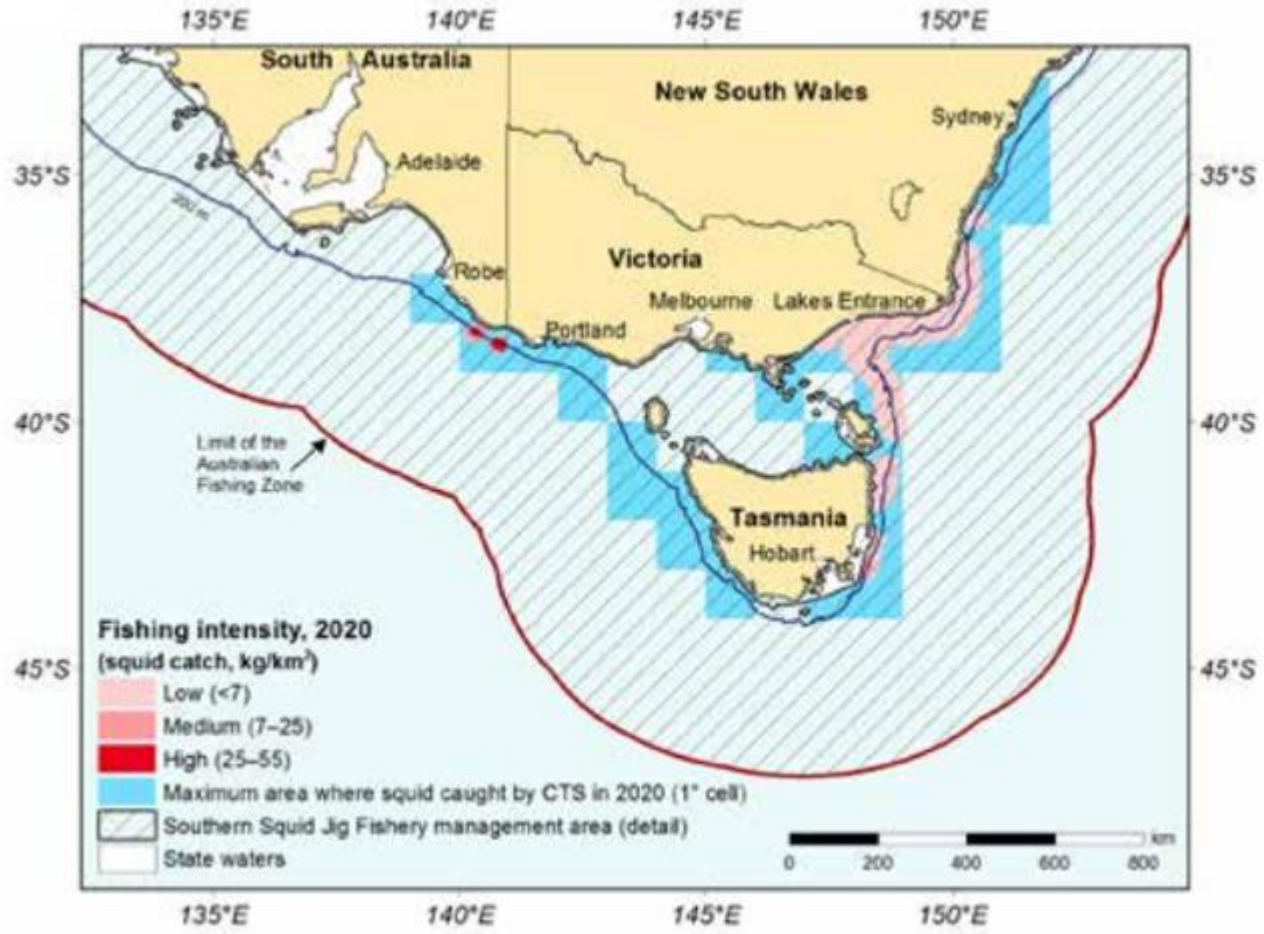
Source: DAWE, 2021

**Figure 4-30: Purse-seine effort and longline catch in the Southern Bluefin Tuna Fishery, 2019-20 fishing season**




Source: DAWE, 2021

**Figure 4-31: Relative fishing intensity in the Southern Squid Jig Fishery**




Note: **CTS** Commonwealth Trawl Sector.

Source: DAWE, 2021

**Figure 4-32: Commonwealth Trawl Sector Squid Catch, 2020**

### 4.4.3 Tourism and Recreation

Recreational and tourism activities are extremely valuable foundations for the local and regional economy. Key activities include sight-seeing, surfing and fishing however, these are generally land-based or near-shore activities and are not impacted by the Minerva field activities.

## Tourism

The Minerva field is located in an area of the Otway coastline where the Great Ocean Road is positioned. This landmark is considered one of the most famous drives in the world with Tourism Victoria (2017) reporting a total of approximately 8 million visitors to the Great Ocean Road region.

Tourist numbers peak in the area between mid-December and mid-February for the Chinese New Year, with tourist numbers still high in the shoulder periods between mid-February and end April; and November to mid-December.

## Recreational Fishing

Recreational fishing is popular in Victoria and is largely centred within Port Phillip Bay and Western Port, although beach- and boat-based fishing occurs along much of the Victorian coastline.

The recreational fisheries that occur within the EMBA are:

- Rock lobster
- Finfish (multiple species are targeted, including sharks)

- Abalone
- Scallops
- Squid
- Pipi.

Of these, active recreational fishing for rock lobster, abalone, finfish and sharks is likely to occur within the EMBA. Recreational scallop and squid fishing primarily occurs within Port Phillip Bay and Western Port and as such fishing for these species is unlikely within the EMBA. Pipi harvesting occurs in Venus Bay, just outside the eastern portion of the EMBA.

### Surfing

The high energy of the ocean in western Victoria and high waves (associated with the rocky reefs) make this section of coastline ideal for surfing. Surfing is concentrated at Shelly Beach, Crumpets, Murrell's, Yellow Rock, Blacknose Point, White's Beach, Bridgewater, Water Tower, Rifle Range and Narrawong. Surfing, by its very nature, takes place close to the shoreline.

### Diving and Snorkelling

Scuba diving and snorkelling usually take place around the offshore reefs and historic wrecks along the coast east of Port Campbell (e.g., Twelve Apostles Marine National Park and The Arches Marine Sanctuary), north east of the Minera field.

### Sight-seeing

The visual beauty of the rugged coastal cliffs and the surf beaches make up the primary attractions to the area. This part of the Victorian coastline is promoted nationally as the ‘Shipwreck Coast.’ The sheer vertical coastal cliffs attract tourism, as does the promise of seeing migrating whales, such as the southern right whale, from vantage points around Warrnambool.

The Great Ocean Road tourist drive facilitates most tourist visits to the region. Numerous self-guided tours (e.g., Great South West Walk), picnic facilities and coastal lookouts are provided along the coast, with camping sites, caravan parks, guesthouses, motels and hotels encouraging tourism stays in the area. The Port Campbell visitor information centre provides visitors to the area with information on all these local attractions. A number of operators provide scenic helicopter flights around the Twelve Apostles coastal area.

## 4.4.4 Commercial Shipping

The South East Marine Region is one of the busiest shipping regions in Australia and Bass Strait is one of Australia’s busiest shipping routes. Commercial vessels use the route when transiting between ports on the east, south and west coasts of Australia, and there are regular passenger and cargo services between mainland Australia and Tasmania (NOO, 2004). Agricultural products and woodchips are transported from the Port of Portland to receiving ports in the Gulf of St Vincent, South Australia, and through Bass Strait to Melbourne and Sydney (NOO, 2004). Bass Strait is also transited by commercial vessels that may not call into ports on the south coast. There are also numerous minor shipping routes in the area, such as those that service King Island.

The Australian Maritime Safety Authority (AMSA) indicates that there are no designated shipping lanes in the vicinity of the Minerva field, however local commercial fishing vessels utilise the area frequently.

The main shipping channel for vessels (e.g., cargo tankers) travelling between major Australian and foreign ports is located south of the Minerva field, about 75 km (40 nmi) south of Warrnambool. This shipping channel is used by over 1,000 vessels per year, or about 3-4 vessels per day.

## 4.4.5 Oil and Gas Activities

Petroleum exploration has been undertaken within the Otway Basin since the early 1960s. Gas reserves of approximately 2 trillion cubic feet have been discovered in the offshore Otway Basin since 1995, with production

from five gas fields using 700 km of offshore and onshore pipeline. Numerous exploration wells have been drilled and seismic surveys have been undertaken in the permits of the Otway Basin.

Nearby production fields include the Otway Gas Field Development, operated by Beach Energy and the Casino, Henry, Netherby (CHN) gas field operated by Cooper Energy are within the EMBA.

### 4.4.6 Defence Activities

The Defence Force uses offshore areas for training operations including live firing, bombing practice from aircraft, air-to-air and air-to-sea or ground firing, anti-aircraft firing, firing from shore batteries or ships, remote controlled craft firing, and rocket and guided weapons firing.

Five training and practice areas are located in and around Port Phillip Bay and Western Port Bay. This is to the east of the Minerva field and within the EMBA.

Mine fields were laid in Australian waters during World War II. Post-war minefields were swept to remove mines and to make marine waters safe for maritime activities. There are three areas identified as dangerous due to unexploded ordnance (UXO), though these are located south and east of Wilson's Promontory (approximately 300 km east of the Minerva field).

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Australian Government

Department of Climate Change, Energy, the Environment and Water

# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 26-Jun-2024

# Summary

## Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

| | |
|---|---|
| World Heritage Properties: | None |
| National Heritage Places: | None |
| Wetlands of International Importance (Ramsar | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | 1 |
| Listed Threatened Ecological Communities: | None |
| Listed Threatened Species: | 39 |
| Listed Migratory Species: | 37 |

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

| | |
|---|---|
| Commonwealth Lands: | None |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 62 |
| Whales and Other Cetaceans: | 13 |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | None |
| Australian Marine Parks: | None |
| Habitat Critical to the Survival of Marine Turtles: | None |

## Extra Information

This part of the report provides information that may also be relevant to the area you have

| | |
|---|---|
| State and Territory Reserves: | None |
| Regional Forest Agreements: | None |
| Nationally Important Wetlands: | None |
| EPBC Act Referrals: | 10 |
| Key Ecological Features (Marine): | None |
| Biologically Important Areas: | 10 |
| Bioregional Assessments: | None |
| Geological and Bioregional Assessments: | None |

# Details

## Matters of National Environmental Significance

### Commonwealth Marine Area [ Resource Information ]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

| Feature Name |
|---|
| Commonwealth Marine Areas (EPBC Act) |

### Listed Threatened Species [ Resource Information ]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| BIRD | | |
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Halobaena caerulea<br>Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Neophema chrysogaster<br>Orange-bellied Parrot [747] | Critically Endangered | Migration route likely to occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |
| Pachyptila turtur subantarctica<br>Fairy Prion (southern) [64445] | Vulnerable | Species or species habitat may occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |
| Pterodroma leucoptera leucoptera<br>Gould's Petrel, Australian Gould's Petrel [26033] | Endangered | Species or species habitat may occur within area |
| Pterodroma mollis<br>Soft-plumaged Petrel [1036] | Vulnerable | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Sternula nereis nereis<br>Australian Fairy Tern [82950] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche bulleri platei<br>Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| FISH | | |
| [Prototroctes maraena](#)<br>Australian Grayling [26179] | Vulnerable | Species or species habitat may occur within area |
| [Seriolella brama](#)<br>Blue Warehou [69374] | Conservation Dependent | Species or species habitat known to occur within area |
| [Thunnus maccoyii](#)<br>Southern Bluefin Tuna [69402] | Conservation Dependent | Species or species habitat likely to occur within area |
| MAMMAL | | |
| [Balaenoptera borealis](#)<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Balaenoptera musculus](#)<br>Blue Whale [36] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| [Balaenoptera physalus](#)<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Eubalaena australis](#)<br>Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area |
| REPTILE | | |
| [Caretta caretta](#)<br>Loggerhead Turtle [1763] | Endangered | Species or species habitat likely to occur within area |
| [Chelonia mydas](#)<br>Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| [Dermochelys coriacea](#)<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Species or species habitat likely to occur within area |
| SHARK | | |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Carcharodon carcharias<br>White Shark, Great White Shark [64470] | Vulnerable | Migration route known to occur within area |
| Galeorhinus galeus<br>School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453] | Conservation Dependent | Species or species habitat may occur within area |

| Listed Migratory Species | | [ Resource Information ] |
|---|---|---|
| Scientific Name | Threatened Category | Presence Text |
| Migratory Marine Birds | | |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |
| Ardenna carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Foraging, feeding or related behaviour likely to occur within area |
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| [Thalassarche steadi](#)<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| **Migratory Marine Species** | | |
| [Balaenoptera borealis](#)<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Balaenoptera musculus](#)<br>Blue Whale [36] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| [Balaenoptera physalus](#)<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Caperea marginata](#)<br>Pygmy Right Whale [39] | | Foraging, feeding or related behaviour may occur within area |
| [Carcharodon carcharias](#)<br>White Shark, Great White Shark [64470] | Vulnerable | Migration route known to occur within area |
| [Caretta caretta](#)<br>Loggerhead Turtle [1763] | Endangered | Species or species habitat likely to occur within area |
| [Chelonia mydas](#)<br>Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| [Dermochelys coriacea](#)<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Species or species habitat likely to occur within area |
| [Eubalaena australis as Balaena glacialis australis](#)<br>Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| [Lagenorhynchus obscurus](#)<br>Dusky Dolphin [43] | | Species or species habitat may occur within area |
| [Lamna nasus](#)<br>Porbeagle, Mackerel Shark [83288] | | Species or species habitat likely to occur within area |
| [Megaptera novaeangliae](#)<br>Humpback Whale [38] | | Species or species habitat likely to occur within area |
| [Orcinus orca](#)<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area |
| **Migratory Wetlands Species** | | |
| [Actitis hypoleucos](#)<br>Common Sandpiper [59309] | | Species or species habitat may occur within area |
| [Calidris acuminata](#)<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area |
| [Calidris canutus](#)<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area |
| [Calidris ferruginea](#)<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| [Calidris melanotos](#)<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area |
| [Numenius madagascariensis](#)<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |

## Other Matters Protected by the EPBC Act

| Listed Marine Species | | [ Resource Information ] |
|---|---|---|
| Scientific Name | Threatened Category | Presence Text |
| Bird | | |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat may occur within area |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area overfly marine area |
| Ardenna carneipes as Puffinus carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Foraging, feeding or related behaviour likely to occur within area |
| Ardenna grisea as Puffinus griseus<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat may occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area overfly marine area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area overfly marine area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat may occur within area overfly marine area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Halobaena caerulea<br>Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Neophema chrysogaster<br>Orange-bellied Parrot [747] | Critically Endangered | Migration route likely to occur within area overfly marine area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |
| Pachyptila turtur<br>Fairy Prion [1066] | | Species or species habitat may occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Pterodroma mollis<br>Soft-plumaged Petrel [1036] | Vulnerable | Species or species habitat may occur within area |
| Stercorarius antarcticus as Catharacta skua<br>Brown Skua [85039] | | Species or species habitat may occur within area |
| Sterna striata<br>White-fronted Tern [799] | | Migration route may occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche bulleri platei as Thalassarche sp. nov.<br>Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| [Thalassarche salvini](#)<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Thalassarche steadi](#)<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| **Fish** | | |
| [Heraldia nocturna](#)<br>Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227] | | Species or species habitat may occur within area |
| [Hippocampus abdominalis](#)<br>Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233] | | Species or species habitat may occur within area |
| [Hippocampus breviceps](#)<br>Short-head Seahorse, Short-snouted Seahorse [66235] | | Species or species habitat may occur within area |
| [Histiogamphelus briggsii](#)<br>Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242] | | Species or species habitat may occur within area |
| [Histiogamphelus cristatus](#)<br>Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243] | | Species or species habitat may occur within area |
| [Hypselognathus rostratus](#)<br>Knifesnout Pipefish, Knife-snouted Pipefish [66245] | | Species or species habitat may occur within area |
| [Kaupus costatus](#)<br>Deepbody Pipefish, Deep-bodied Pipefish [66246] | | Species or species habitat may occur within area |
| [Leptoichthys fistularius](#)<br>Brushtail Pipefish [66248] | | Species or species habitat may occur within area |
| [Lissocampus caudalis](#)<br>Australian Smooth Pipefish, Smooth Pipefish [66249] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Lissocampus runa<br>Javelin Pipefish [66251] | | Species or species habitat may occur within area |
| Maroubra perserrata<br>Sawtooth Pipefish [66252] | | Species or species habitat may occur within area |
| Mitotichthys semistriatus<br>Halfbanded Pipefish [66261] | | Species or species habitat may occur within area |
| Mitotichthys tuckeri<br>Tucker's Pipefish [66262] | | Species or species habitat may occur within area |
| Notiocampus ruber<br>Red Pipefish [66265] | | Species or species habitat may occur within area |
| Phycodurus eques<br>Leafy Seadragon [66267] | | Species or species habitat may occur within area |
| Phyllopteryx taeniolatus<br>Common Seadragon, Weedy Seadragon [66268] | | Species or species habitat may occur within area |
| Pugnaso curtirostris<br>Pugnose Pipefish, Pug-nosed Pipefish [66269] | | Species or species habitat may occur within area |
| Solegnathus robustus<br>Robust Pipehorse, Robust Spiny Pipehorse [66274] | | Species or species habitat may occur within area |
| Solegnathus spinosissimus<br>Spiny Pipehorse, Australian Spiny Pipehorse [66275] | | Species or species habitat may occur within area |
| Stigmatopora argus<br>Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Stigmatopora nigra<br>Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277] | | Species or species habitat may occur within area |
| Stipecampus cristatus<br>Ringback Pipefish, Ring-backed Pipefish [66278] | | Species or species habitat may occur within area |
| Urocampus carinirostris<br>Hairy Pipefish [66282] | | Species or species habitat may occur within area |
| Vanacampus margaritifer<br>Mother-of-pearl Pipefish [66283] | | Species or species habitat may occur within area |
| Vanacampus phillipi<br>Port Phillip Pipefish [66284] | | Species or species habitat may occur within area |
| Vanacampus poecilolaemus<br>Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285] | | Species or species habitat may occur within area |
| **Mammal** | | |
| Arctocephalus forsteri<br>Long-nosed Fur-seal, New Zealand Fur-seal [20] | | Species or species habitat may occur within area |
| Arctocephalus pusillus<br>Australian Fur-seal, Australo-African Fur-seal [21] | | Species or species habitat may occur within area |
| **Reptile** | | |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Species or species habitat likely to occur within area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Species or species habitat likely to occur within area |

| Whales and Other Cetaceans | | [ Resource Information ] |
|---|---|---|
| Current Scientific Name | Status | Type of Presence |
| Mammal | | |
| [Balaenoptera acutorostrata](#)<br>Minke Whale [33] | | Species or species habitat may occur within area |
| [Balaenoptera borealis](#)<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Balaenoptera musculus](#)<br>Blue Whale [36] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| [Balaenoptera physalus](#)<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Caperea marginata](#)<br>Pygmy Right Whale [39] | | Foraging, feeding or related behaviour may occur within area |
| [Delphinus delphis](#)<br>Common Dolphin, Short-beaked Common Dolphin [60] | | Species or species habitat may occur within area |
| [Eubalaena australis](#)<br>Southern Right Whale [40] | Endangered | Species or species habitat known to occur within area |
| [Grampus griseus](#)<br>Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area |
| [Lagenorhynchus obscurus](#)<br>Dusky Dolphin [43] | | Species or species habitat may occur within area |
| [Megaptera novaeangliae](#)<br>Humpback Whale [38] | | Species or species habitat likely to occur within area |

| Current Scientific Name | Status | Type of Presence |
|---|---|---|
| Orcinus orca<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area |
| Tursiops aduncus<br>Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] | | Species or species habitat likely to occur within area |
| Tursiops truncatus s. str.<br>Bottlenose Dolphin [68417] | | Species or species habitat may occur within area |

## Extra Information

| EPBC Act Referrals | | | [ Resource Information ] |
|---|---|---|---|
| Title of referral | Reference | Referral Outcome | Assessment Status |
| Controlled action | | | |
| Otway Development | 2002/621 | Controlled Action | Post-Approval |
| Schomberg 3D Marine Seismic Survey | 2007/3754 | Controlled Action | Completed |
| Not controlled action | | | |
| INDIGO Central Submarine Telecommunications Cable | 2017/8127 | Not Controlled Action | Completed |
| Not controlled action (particular manner) | | | |
| 'Moonlight Head' 3D seismic survey, VIC/P38(V), VIC/P43 and VIC/RL8 | 2005/2236 | Not Controlled Action (Particular Manner) | Post-Approval |
| 3D seismic program VIC/P38(v), VIC/P43 and VIC/RL8 | 2003/1137 | Not Controlled Action (Particular Manner) | Post-Approval |
| INDIGO Marine Cable Route Survey (INDIGO) | 2017/7996 | Not Controlled Action (Particular Manner) | Post-Approval |
| Schomberg 3D Marine Seismic survey | 2007/3868 | Not Controlled Action (Particular Manner) | Post-Approval |
| The Enterprise 3D Seismic Acquisition Survey, Otway Basin, | 2012/6565 | Not Controlled Action | Post-Approval |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action (particular manner) | | | |
| Vic | | (Particular Manner) | |
| Vic/P37(v) and Vic/P44 3D marine seismic survey | 2003/1102 | Not Controlled Action (Particular Manner) | Post-Approval |
| Referral decision | | | |
| The Enterprise 3D Seismic Acquisition Survey, Otway Basin, VIC | 2012/6545 | Referral Decision | Completed |

## Biologically Important Areas [ Resource Information ]

| Scientific Name | Behaviour | Presence |
|---|---|---|
| Seabirds | | |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Foraging | Likely to occur |
| Diomedea exulans (sensu lato)<br>Wandering Albatross [1073] | Foraging | Known to occur |
| Diomedea exulans antipodensis<br>Antipodean Albatross [82269] | Foraging | Known to occur |
| Pelecanoides urinatrix<br>Common Diving-petrel [1018] | Foraging | Known to occur |
| Thalassarche bulleri<br>Bullers Albatross [64460] | Foraging | Known to occur |
| Thalassarche cauta cauta<br>Shy Albatross [82345] | Foraging likely | Likely to occur |
| Thalassarche chlororhynchos bassi<br>Indian Yellow-nosed Albatross [85249] | Foraging | Known to occur |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Foraging | Known to occur |
| Thalassarche melanophris impavida<br>Campbell Albatross [82449] | Foraging | Known to occur |
| Whales | | |

| Scientific Name | Behaviour | Presence |
| --- | --- | --- |
| Balaenoptera musculus brevicauda | | |
| Pygmy Blue Whale [81317] | Foraging (annual high use area) | Known to occur |

# Caveat

## 1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

## 2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

## 3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

## 4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.



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# EPBC Act Protected Matters Report

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected. Please see the caveat for interpretation of information provided here.

Report created: 26-Jun-2024

# Summary

## Matters of National Environment Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance.

| | |
|---|---|
| World Heritage Properties: | None |
| National Heritage Places: | 1 |
| Wetlands of International Importance (Ramsar | None |
| Great Barrier Reef Marine Park: | None |
| Commonwealth Marine Area: | 2 |
| Listed Threatened Ecological Communities: | 3 |
| Listed Threatened Species: | 85 |
| Listed Migratory Species: | 50 |

## Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

| | |
|---|---|
| Commonwealth Lands: | 1 |
| Commonwealth Heritage Places: | None |
| Listed Marine Species: | 88 |
| Whales and Other Cetaceans: | 14 |
| Critical Habitats: | None |
| Commonwealth Reserves Terrestrial: | None |
| Australian Marine Parks: | 1 |
| Habitat Critical to the Survival of Marine Turtles: | None |

## Extra Information

This part of the report provides information that may also be relevant to the area you have

| | |
|---|---|
| State and Territory Reserves: | 6 |
| Regional Forest Agreements: | 1 |
| Nationally Important Wetlands: | 1 |
| EPBC Act Referrals: | 30 |
| Key Ecological Features (Marine): | None |
| Biologically Important Areas: | 14 |
| Bioregional Assessments: | None |
| Geological and Bioregional Assessments: | None |

# Details

## Matters of National Environmental Significance

### National Heritage Places [ Resource Information ]

| Name | State | Legal Status |
|---|---|---|
| Historic | | |
| Great Ocean Road and Scenic Environs | VIC | Listed place |

### Commonwealth Marine Area [ Resource Information ]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

| Feature Name |
|---|
| Commonwealth Marine Areas (EPBC Act) |
| Commonwealth Marine Areas (EPBC Act) |

### Listed Threatened Ecological Communities [ Resource Information ]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.
Status of Vulnerable, Disallowed and Ineligible are not MNES under the EPBC Act.

| Community Name | Threatened Category | Presence Text |
|---|---|---|
| Assemblages of species associated with open-coast salt-wedge estuaries of western and central Victoria ecological community | Endangered | Community likely to occur within area |
| Giant Kelp Marine Forests of South East Australia | Endangered | Community may occur within area |
| Natural Damp Grassland of the Victorian Coastal Plains | Critically Endangered | Community may occur within area |

### Listed Threatened Species [ Resource Information ]

Status of Conservation Dependent and Extinct are not MNES under the EPBC Act.
Number is the current name ID.

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| BIRD | | |
| Anthochaera phrygia | | |
| Regent Honeyeater [82338] | Critically Endangered | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Botaurus poiciloptilus<br>Australasian Bittern [1001] | Endangered | Species or species habitat known to occur within area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat known to occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |
| Callocephalon fimbriatum<br>Gang-gang Cockatoo [768] | Endangered | Species or species habitat known to occur within area |
| Charadrius leschenaultii<br>Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area |
| Climacteris picumnus victoriae<br>Brown Treecreeper (south-eastern) [67062] | Vulnerable | Species or species habitat may occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Falco hypoleucos<br>Grey Falcon [929] | Vulnerable | Species or species habitat may occur within area |
| Gallinago hardwickii<br>Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat known to occur within area |
| Grantiella picta<br>Painted Honeyeater [470] | Vulnerable | Species or species habitat may occur within area |
| Halobaena caerulea<br>Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area |
| Lathamus discolor<br>Swift Parrot [744] | Critically Endangered | Species or species habitat likely to occur within area |
| Limosa lapponica baueri<br>Nunivak Bar-tailed Godwit, Western Alaskan Bar-tailed Godwit [86380] | Endangered | Species or species habitat known to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Neophema chrysogaster<br>Orange-bellied Parrot [747] | Critically Endangered | Migration route likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Neophema chrysostoma<br>Blue-winged Parrot [726] | Vulnerable | Species or species habitat known to occur within area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |
| Pachyptila turtur subantarctica<br>Fairy Prion (southern) [64445] | Vulnerable | Species or species habitat known to occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |
| Pterodroma leucoptera leucoptera<br>Gould's Petrel, Australian Gould's Petrel [26033] | Endangered | Species or species habitat may occur within area |
| Pterodroma mollis<br>Soft-plumaged Petrel [1036] | Vulnerable | Species or species habitat may occur within area |
| Rostratula australis<br>Australian Painted Snipe [77037] | Endangered | Species or species habitat likely to occur within area |
| Stagonopleura guttata<br>Diamond Firetail [59398] | Vulnerable | Species or species habitat known to occur within area |
| Sternula nereis nereis<br>Australian Fairy Tern [82950] | Vulnerable | Species or species habitat known to occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche bulleri platei<br>Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Thinornis cucullatus cucullatus<br>Eastern Hooded Plover, Eastern Hooded Plover [90381] | Vulnerable | Species or species habitat known to occur within area |
| Tringa nebularia<br>Common Greenshank, Greenshank [832] | Endangered | Species or species habitat likely to occur within area |
| FISH | | |
| Nannoperca obscura<br>Yarra Pygmy Perch [26177] | Endangered | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| [Prototroctes maraena](#)<br>Australian Grayling [26179] | Vulnerable | Species or species habitat known to occur within area |
| [Seriolella brama](#)<br>Blue Warehou [69374] | Conservation Dependent | Species or species habitat known to occur within area |
| [Thunnus maccoyii](#)<br>Southern Bluefin Tuna [69402] | Conservation Dependent | Species or species habitat likely to occur within area |
| FROG | | |
| [Litoria raniformis](#)<br>Southern Bell Frog,, Growling Grass Frog, Green and Golden Frog, Warty Swamp Frog, Golden Bell Frog [1828] | Vulnerable | Species or species habitat known to occur within area |
| MAMMAL | | |
| [Antechinus minimus maritimus](#)<br>Swamp Antechinus (mainland) [83086] | Vulnerable | Species or species habitat known to occur within area |
| [Balaenoptera borealis](#)<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Balaenoptera musculus](#)<br>Blue Whale [36] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| [Balaenoptera physalus](#)<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| [Dasyurus maculatus maculatus (SE mainland population)](#)<br>Spot-tailed Quoll, Spotted-tail Quoll, Tiger Quoll (southeastern mainland population) [75184] | Endangered | Species or species habitat likely to occur within area |
| [Eubalaena australis](#)<br>Southern Right Whale [40] | Endangered | Breeding known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Isoodon obesulus obesulus | | |
| Southern Brown Bandicoot (eastern), Southern Brown Bandicoot (south-eastern) [68050] | Endangered | Species or species habitat known to occur within area |
| Mastacomys fuscus mordicus | | |
| Broad-toothed Rat (mainland), Tooarrana [87617] | Endangered | Species or species habitat known to occur within area |
| Miniopterus orianae bassanii | | |
| Southern Bent-wing Bat [87645] | Critically Endangered | Roosting known to occur within area |
| Neophoca cinerea | | |
| Australian Sea-lion, Australian Sea Lion [22] | Endangered | Species or species habitat may occur within area |
| Petauroides volans | | |
| Greater Glider (southern and central) [254] | Endangered | Species or species habitat may occur within area |
| Petaurus australis australis | | |
| Yellow-bellied Glider (south-eastern) [87600] | Vulnerable | Species or species habitat likely to occur within area |
| Potorous tridactylus trisulcatus | | |
| Long-nosed Potoroo (southern mainland) [86367] | Vulnerable | Species or species habitat likely to occur within area |
| Pseudomys fumeus | | |
| Smoky Mouse, Konoom [88] | Endangered | Species or species habitat may occur within area |
| Pseudomys novaehollandiae | | |
| New Holland Mouse, Pookila [96] | Vulnerable | Species or species habitat likely to occur within area |
| Pteropus poliocephalus | | |
| Grey-headed Flying-fox [186] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| PLANT | | |
| Amphibromus fluitans | | |
| River Swamp Wallaby-grass, Floating Swamp Wallaby-grass [19215] | Vulnerable | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Caladenia concolor<br>Crimson Spider-orchid, Maroon Spider-orchid [5505] | Vulnerable | Species or species habitat may occur within area |
| Eucalyptus strzeleckii<br>Strzelecki Gum [55400] | Vulnerable | Species or species habitat known to occur within area |
| Glycine latrobeana<br>Clover Glycine, Purple Clover [13910] | Vulnerable | Species or species habitat known to occur within area |
| Haloragis exalata subsp. exalata<br>Wingless Raspwort, Square Raspwort [24636] | Vulnerable | Species or species habitat known to occur within area |
| Lepidium aschersonii<br>Spiny Peppercress [10976] | Vulnerable | Species or species habitat may occur within area |
| Lepidium hyssopifolium<br>Basalt Pepper-cress, Peppercress, Rubble Pepper-cress, Pepperweed [16542] | Endangered | Species or species habitat may occur within area |
| Prasophyllum spicatum<br>Dense Leek-orchid [55146] | Vulnerable | Species or species habitat known to occur within area |
| Pterostylis chlorogramma<br>Green-striped Greenhood [56510] | Vulnerable | Species or species habitat may occur within area |
| Pterostylis cucullata<br>Leafy Greenhood [15459] | Vulnerable | Species or species habitat likely to occur within area |
| Pterostylis tenuissima<br>Swamp Greenhood, Dainty Swamp Orchid [13139] | Vulnerable | Species or species habitat known to occur within area |
| Senecio psilocarpus<br>Swamp Fireweed, Smooth-fruited Groundsel [64976] | Vulnerable | Species or species habitat known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Thelymitra epipactoides<br>Metallic Sun-orchid [11896] | Endangered | Species or species habitat known to occur within area |
| Thelymitra orientalis<br>Hoary Sun-orchid [88011] | Critically Endangered | Species or species habitat may occur within area |
| Xerochrysum palustre<br>Swamp Everlasting, Swamp Paper Daisy [76215] | Vulnerable | Species or species habitat likely to occur within area |
| REPTILE | | |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |
| Lissolepis coventryi<br>Swamp Skink, Eastern Mourning Skink [84053] | Endangered | Species or species habitat known to occur within area |
| SHARK | | |
| Carcharodon carcharias<br>White Shark, Great White Shark [64470] | Vulnerable | Migration route known to occur within area |
| Galeorhinus galeus<br>School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark [68453] | Conservation Dependent | Species or species habitat may occur within area |

| Listed Migratory Species | | [ Resource Information ] |
|---|---|---|
| Scientific Name | Threatened Category | Presence Text |
| Migratory Marine Birds | | |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Ardenna carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Foraging, feeding or related behaviour likely to occur within area |
| Ardenna grisea<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | | Breeding known to occur within area |
| Diomedea antipodensis<br>Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora<br>Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans<br>Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi<br>Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Sternula albifrons<br>Little Tern [82849] | | Species or species habitat may occur within area |
| Thalassarche bulleri<br>Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche carteri<br>Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta<br>Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma<br>Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche impavida<br>Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini<br>Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi<br>White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |
| Migratory Marine Species | | |
| Balaenoptera borealis<br>Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Balaenoptera musculus<br>Blue Whale [36] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Balaenoptera physalus<br>Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Caperea marginata<br>Pygmy Right Whale [39] | | Foraging, feeding or related behaviour may occur within area |
| Carcharodon carcharias<br>White Shark, Great White Shark [64470] | Vulnerable | Migration route known to occur within area |
| Caretta caretta<br>Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area |
| Chelonia mydas<br>Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| Dermochelys coriacea<br>Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |
| Eubalaena australis as Balaena glacialis australis<br>Southern Right Whale [40] | Endangered | Breeding known to occur within area |
| Isurus oxyrinchus<br>Shortfin Mako, Mako Shark [79073] | | Species or species habitat likely to occur within area |
| Lagenorhynchus obscurus<br>Dusky Dolphin [43] | | Species or species habitat may occur within area |
| Lamna nasus<br>Porbeagle, Mackerel Shark [83288] | | Species or species habitat likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Megaptera novaeangliae<br>Humpback Whale [38] | | Species or species habitat known to occur within area |
| Orcinus orca<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area |
| **Migratory Terrestrial Species** | | |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area |
| Monarcha melanopsis<br>Black-faced Monarch [609] | | Species or species habitat may occur within area |
| Motacilla flava<br>Yellow Wagtail [644] | | Species or species habitat may occur within area |
| Myiagra cyanoleuca<br>Satin Flycatcher [612] | | Species or species habitat known to occur within area |
| Rhipidura rufifrons<br>Rufous Fantail [592] | | Species or species habitat known to occur within area |
| **Migratory Wetlands Species** | | |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat known to occur within area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat known to occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Calidris melanotos | | |
| Pectoral Sandpiper [858] | | Species or species habitat known to occur within area |
| Charadrius leschenaultii | | |
| Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area |
| Gallinago hardwickii | | |
| Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat known to occur within area |
| Limosa lapponica | | |
| Bar-tailed Godwit [844] | | Species or species habitat known to occur within area |
| Numenius madagascariensis | | |
| Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |
| Pandion haliaetus | | |
| Osprey [952] | | Species or species habitat known to occur within area |
| Tringa nebularia | | |
| Common Greenshank, Greenshank [832] | Endangered | Species or species habitat likely to occur within area |

## Other Matters Protected by the EPBC Act

### Commonwealth Lands [ Resource Information ]

The Commonwealth area listed below may indicate the presence of Commonwealth land in this vicinity. Due to the unreliability of the data source, all proposals should be checked as to whether it impacts on a Commonwealth area, before making a definitive decision. Contact the State or Territory government land department for further information.

| Commonwealth Land Name | State |
|---|---|
| Unknown | |
| Commonwealth Land - [21583] | VIC |

### Listed Marine Species [ Resource Information ]

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Bird | | |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Actitis hypoleucos<br>Common Sandpiper [59309] | | Species or species habitat known to occur within area |
| Apus pacificus<br>Fork-tailed Swift [678] | | Species or species habitat likely to occur within area overfly marine area |
| Ardenna carneipes as Puffinus carneipes<br>Flesh-footed Shearwater, Fleshy-footed Shearwater [82404] | | Foraging, feeding or related behaviour likely to occur within area |
| Ardenna grisea as Puffinus griseus<br>Sooty Shearwater [82651] | Vulnerable | Species or species habitat may occur within area |
| Ardenna tenuirostris as Puffinus tenuirostris<br>Short-tailed Shearwater [82652] | | Breeding known to occur within area |
| Bubulcus ibis as Ardea ibis<br>Cattle Egret [66521] | | Species or species habitat may occur within area overfly marine area |
| Calidris acuminata<br>Sharp-tailed Sandpiper [874] | Vulnerable | Species or species habitat known to occur within area |
| Calidris canutus<br>Red Knot, Knot [855] | Vulnerable | Species or species habitat may occur within area overfly marine area |
| Calidris ferruginea<br>Curlew Sandpiper [856] | Critically Endangered | Species or species habitat may occur within area overfly marine area |
| Calidris melanotos<br>Pectoral Sandpiper [858] | | Species or species habitat known to occur within area overfly marine area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Chalcites osculans as Chrysococcyx osculans | | |
| Black-eared Cuckoo [83425] | | Species or species habitat likely to occur within area overfly marine area |
| Charadrius leschenaultii | | |
| Greater Sand Plover, Large Sand Plover [877] | Vulnerable | Species or species habitat likely to occur within area |
| Diomedea antipodensis | | |
| Antipodean Albatross [64458] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea epomophora | | |
| Southern Royal Albatross [89221] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea exulans | | |
| Wandering Albatross [89223] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Diomedea sanfordi | | |
| Northern Royal Albatross [64456] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Eudyptula minor | | |
| Little Penguin [1085] | | Breeding known to occur within area |
| Gallinago hardwickii | | |
| Latham's Snipe, Japanese Snipe [863] | Vulnerable | Species or species habitat known to occur within area overfly marine area |
| Haliaeetus leucogaster | | |
| White-bellied Sea-Eagle [943] | | Species or species habitat known to occur within area |
| Halobaena caerulea | | |
| Blue Petrel [1059] | Vulnerable | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Hirundapus caudacutus<br>White-throated Needletail [682] | Vulnerable | Species or species habitat known to occur within area overfly marine area |
| Lathamus discolor<br>Swift Parrot [744] | Critically Endangered | Species or species habitat likely to occur within area overfly marine area |
| Limosa lapponica<br>Bar-tailed Godwit [844] | | Species or species habitat known to occur within area |
| Macronectes giganteus<br>Southern Giant-Petrel, Southern Giant Petrel [1060] | Endangered | Species or species habitat may occur within area |
| Macronectes halli<br>Northern Giant Petrel [1061] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Merops ornatus<br>Rainbow Bee-eater [670] | | Species or species habitat may occur within area overfly marine area |
| Monarcha melanopsis<br>Black-faced Monarch [609] | | Species or species habitat may occur within area overfly marine area |
| Motacilla flava<br>Yellow Wagtail [644] | | Species or species habitat may occur within area overfly marine area |
| Myiagra cyanoleuca<br>Satin Flycatcher [612] | | Species or species habitat known to occur within area overfly marine area |
| Neophema chrysogaster<br>Orange-bellied Parrot [747] | Critically Endangered | Migration route likely to occur within area overfly marine area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Neophema chrysostoma<br>Blue-winged Parrot [726] | Vulnerable | Species or species habitat known to occur within area overfly marine area |
| Numenius madagascariensis<br>Eastern Curlew, Far Eastern Curlew [847] | Critically Endangered | Species or species habitat may occur within area |
| Pachyptila turtur<br>Fairy Prion [1066] | | Species or species habitat known to occur within area |
| Pandion haliaetus<br>Osprey [952] | | Species or species habitat known to occur within area |
| Phalacrocorax fuscescens<br>Black-faced Cormorant [59660] | | Breeding known to occur within area |
| Phoebetria fusca<br>Sooty Albatross [1075] | Vulnerable | Species or species habitat likely to occur within area |
| Pterodroma mollis<br>Soft-plumaged Petrel [1036] | Vulnerable | Species or species habitat may occur within area |
| Rhipidura rufifrons<br>Rufous Fantail [592] | | Species or species habitat known to occur within area overfly marine area |
| Rostratula australis as Rostratula benghalensis (sensu lato)<br>Australian Painted Snipe [77037] | Endangered | Species or species habitat likely to occur within area overfly marine area |
| Stercorarius antarcticus as Catharacta skua<br>Brown Skua [85039] | | Species or species habitat may occur within area |
| Sterna striata<br>White-fronted Tern [799] | | Foraging, feeding or related behaviour likely to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Sternula albifrons as Sterna albifrons | | |
| Little Tern [82849] | | Species or species habitat may occur within area |
| Thalassarche bulleri | | |
| Buller's Albatross, Pacific Albatross [64460] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche bulleri platei as Thalassarche sp. nov. | | |
| Northern Buller's Albatross, Pacific Albatross [82273] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche carteri | | |
| Indian Yellow-nosed Albatross [64464] | Vulnerable | Species or species habitat likely to occur within area |
| Thalassarche cauta | | |
| Shy Albatross [89224] | Endangered | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche chrysostoma | | |
| Grey-headed Albatross [66491] | Endangered | Species or species habitat may occur within area |
| Thalassarche impavida | | |
| Campbell Albatross, Campbell Black-browed Albatross [64459] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche melanophris | | |
| Black-browed Albatross [66472] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche salvini | | |
| Salvin's Albatross [64463] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Thalassarche steadi | | |
| White-capped Albatross [64462] | Vulnerable | Foraging, feeding or related behaviour known to occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| [Thinornis cucullatus as Thinornis rubricollis](#) | | |
| Hooded Plover, Hooded Dotterel [87735] | | Species or species habitat known to occur within area overfly marine area |
| [Thinornis cucullatus cucullatus as Thinornis rubricollis rubricollis](#) | | |
| Eastern Hooded Plover, Eastern Hooded Plover [90381] | Vulnerable | Species or species habitat known to occur within area overfly marine area |
| [Tringa nebularia](#) | | |
| Common Greenshank, Greenshank [832] | Endangered | Species or species habitat likely to occur within area overfly marine area |
| Fish | | |
| [Heraldia nocturna](#) | | |
| Upside-down Pipefish, Eastern Upside-down Pipefish, Eastern Upside-down Pipefish [66227] | | Species or species habitat may occur within area |
| [Hippocampus abdominalis](#) | | |
| Big-belly Seahorse, Eastern Potbelly Seahorse, New Zealand Potbelly Seahorse [66233] | | Species or species habitat may occur within area |
| [Hippocampus breviceps](#) | | |
| Short-head Seahorse, Short-snouted Seahorse [66235] | | Species or species habitat may occur within area |
| [Hippocampus minotaur](#) | | |
| Bullneck Seahorse [66705] | | Species or species habitat may occur within area |
| [Histiogamphelus briggsii](#) | | |
| Crested Pipefish, Briggs' Crested Pipefish, Briggs' Pipefish [66242] | | Species or species habitat may occur within area |
| [Histiogamphelus cristatus](#) | | |
| Rhino Pipefish, Macleay's Crested Pipefish, Ring-back Pipefish [66243] | | Species or species habitat may occur within area |
| [Hypselognathus rostratus](#) | | |
| Knifesnout Pipefish, Knife-snouted Pipefish [66245] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Kaupus costatus<br>Deepbody Pipefish, Deep-bodied Pipefish [66246] | | Species or species habitat may occur within area |
| Leptoichthys fistularius<br>Brushtail Pipefish [66248] | | Species or species habitat may occur within area |
| Lissocampus caudalis<br>Australian Smooth Pipefish, Smooth Pipefish [66249] | | Species or species habitat may occur within area |
| Lissocampus runa<br>Javelin Pipefish [66251] | | Species or species habitat may occur within area |
| Maroubra perserrata<br>Sawtooth Pipefish [66252] | | Species or species habitat may occur within area |
| Mitotichthys mollisoni<br>Mollison's Pipefish [66260] | | Species or species habitat may occur within area |
| Mitotichthys semistriatus<br>Halfbanded Pipefish [66261] | | Species or species habitat may occur within area |
| Mitotichthys tuckeri<br>Tucker's Pipefish [66262] | | Species or species habitat may occur within area |
| Notiocampus ruber<br>Red Pipefish [66265] | | Species or species habitat may occur within area |
| Phycodurus eques<br>Leafy Seadragon [66267] | | Species or species habitat may occur within area |
| Phyllopteryx taeniolatus<br>Common Seadragon, Weedy Seadragon [66268] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
| --- | --- | --- |
| Pugnaso curtirostris<br>Pugnose Pipefish, Pug-nosed Pipefish [66269] | | Species or species habitat may occur within area |
| Solegnathus robustus<br>Robust Pipehorse, Robust Spiny Pipehorse [66274] | | Species or species habitat may occur within area |
| Solegnathus spinosissimus<br>Spiny Pipehorse, Australian Spiny Pipehorse [66275] | | Species or species habitat may occur within area |
| Stigmatopora argus<br>Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276] | | Species or species habitat may occur within area |
| Stigmatopora nigra<br>Widebody Pipefish, Wide-bodied Pipefish, Black Pipefish [66277] | | Species or species habitat may occur within area |
| Stipecampus cristatus<br>Ringback Pipefish, Ring-backed Pipefish [66278] | | Species or species habitat may occur within area |
| Urocampus carinirostris<br>Hairy Pipefish [66282] | | Species or species habitat may occur within area |
| Vanacampus margaritifer<br>Mother-of-pearl Pipefish [66283] | | Species or species habitat may occur within area |
| Vanacampus phillipi<br>Port Phillip Pipefish [66284] | | Species or species habitat may occur within area |
| Vanacampus poecilolaemus<br>Longsnout Pipefish, Australian Long-snout Pipefish, Long-snouted Pipefish [66285] | | Species or species habitat may occur within area |
| Mammal | | |
| Arctocephalus forsteri<br>Long-nosed Fur-seal, New Zealand Fur-seal [20] | | Species or species habitat may occur within area |

| Scientific Name | Threatened Category | Presence Text |
|---|---|---|
| Arctocephalus pusillus | | |
| Australian Fur-seal, Australo-African Fur-seal [21] | | Species or species habitat may occur within area |
| Neophoca cinerea | | |
| Australian Sea-lion, Australian Sea Lion [22] | Endangered | Species or species habitat may occur within area |
| **Reptile** | | |
| Caretta caretta | | |
| Loggerhead Turtle [1763] | Endangered | Breeding likely to occur within area |
| Chelonia mydas | | |
| Green Turtle [1765] | Vulnerable | Species or species habitat may occur within area |
| Dermochelys coriacea | | |
| Leatherback Turtle, Leathery Turtle, Luth [1768] | Endangered | Breeding likely to occur within area |

| Whales and Other Cetaceans | | [ Resource Information ] |
|---|---|---|
| Current Scientific Name | Status | Type of Presence |
| Mammal | | |
| Balaenoptera acutorostrata | | |
| Minke Whale [33] | | Species or species habitat may occur within area |
| Balaenoptera borealis | | |
| Sei Whale [34] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Balaenoptera musculus | | |
| Blue Whale [36] | Endangered | Foraging, feeding or related behaviour known to occur within area |
| Balaenoptera physalus | | |
| Fin Whale [37] | Vulnerable | Foraging, feeding or related behaviour likely to occur within area |
| Caperea marginata | | |
| Pygmy Right Whale [39] | | Foraging, feeding or related behaviour may occur within area |

| Current Scientific Name | Status | Type of Presence |
|---|---|---|
| Delphinus delphis<br>Common Dolphin, Short-beaked Common Dolphin [60] | | Species or species habitat may occur within area |
| Eubalaena australis<br>Southern Right Whale [40] | Endangered | Breeding known to occur within area |
| Grampus griseus<br>Risso's Dolphin, Grampus [64] | | Species or species habitat may occur within area |
| Lagenorhynchus obscurus<br>Dusky Dolphin [43] | | Species or species habitat may occur within area |
| Megaptera novaeangliae<br>Humpback Whale [38] | | Species or species habitat known to occur within area |
| Orcinus orca<br>Killer Whale, Orca [46] | | Species or species habitat likely to occur within area |
| Pseudorca crassidens<br>False Killer Whale [48] | | Species or species habitat likely to occur within area |
| Tursiops aduncus<br>Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418] | | Species or species habitat likely to occur within area |
| Tursiops truncatus s. str.<br>Bottlenose Dolphin [68417] | | Species or species habitat may occur within area |

| Australian Marine Parks | [ Resource Information ] |
|---|---|
| Park Name | Zone & IUCN Categories |
| Apollo | Multiple Use Zone (IUCN VI) |

# Extra Information

## State and Territory Reserves [ Resource Information ]

| Protected Area Name | Reserve Type | State |
|---|---|---|
| Aire River | Heritage River | VIC |
| Bay of Islands Coastal Park | Conservation Park | VIC |
| Great Otway | National Park | VIC |
| Port Campbell | National Park | VIC |
| The Arches | Marine Sanctuary | VIC |
| Twelve Apostles | Marine National Park | VIC |

## Regional Forest Agreements [ Resource Information ]

Note that all areas with completed RFAs have been included. Please see the associated resource information for specific caveats and use limitations associated with RFA boundary information.

| RFA Name | State |
|---|---|
| West Victoria RFA | Victoria |

## Nationally Important Wetlands [ Resource Information ]

| Wetland Name | State |
|---|---|
| Princetown Wetlands | VIC |

## EPBC Act Referrals [ Resource Information ]

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| **Controlled action** | | | |
| Casino Gas Field Development | 2003/1295 | Controlled Action | Post-Approval |
| Otway Development | 2002/621 | Controlled Action | Post-Approval |
| Schomberg 3D Marine Seismic Survey | 2007/3754 | Controlled Action | Completed |
| Strike Oil Gas Exploration Well, Otway Basin (VIC/P44) | 2000/97 | Controlled Action | Completed |
| Twelve Apostles Saddle Lookout | 2019/8571 | Controlled Action | Post-Approval |
| **Not controlled action** | | | |
| Marine Route Survey for Subsea Fibre Optic Data Cable System - Australia East | 2024/09795 | | Completed |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action | | | |
| Enterprise 1 Exploration Drilling Program, near Port Campbell, Vic | 2019/8438 | Not Controlled Action | Completed |
| Exploration drilling for liquid/gaseous hydrocarbons | 2004/1681 | Not Controlled Action | Completed |
| Gas Field Development | 2006/2635 | Not Controlled Action | Completed |
| Henry-1 Exploration Well, Petroleum Permit Area VIC/P44 | 2005/2147 | Not Controlled Action | Completed |
| Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia | 2015/7522 | Not Controlled Action | Completed |
| INDIGO Central Submarine Telecommunications Cable | 2017/8127 | Not Controlled Action | Completed |
| Offshore exploration drilling within permit area VIC/P 37(v) | 2004/1466 | Not Controlled Action | Completed |
| Port Campbell Headland Walking Trail Realignment | 2012/6676 | Not Controlled Action | Completed |
| Track construction - Great Ocean Walk | 2002/793 | Not Controlled Action | Completed |
| VIC-P44 Stage 2 Gas Field Development | 2007/3767 | Not Controlled Action | Completed |
| Victorian Generator Project | 2005/1984 | Not Controlled Action | Completed |
| Wind Farm Construction and Operation | 2001/471 | Not Controlled Action | Completed |
| Not controlled action (particular manner) | | | |
| 'Moonlight Head' 3D seismic survey, VIC/P38(V), VIC/P43 and VIC/RL8 | 2005/2236 | Not Controlled Action (Particular Manner) | Post-Approval |
| 3D seismic program VIC/P38(v), VIC/P43 and VIC/RL8 | 2003/1137 | Not Controlled Action (Particular Manner) | Post-Approval |
| Enterprise Three-dimensional Transition Zone Seismic Survey, Victoria | 2016/7800 | Not Controlled Action (Particular Manner) | Post-Approval |
| INDIGO Marine Cable Route Survey (INDIGO) | 2017/7996 | Not Controlled Action (Particular Manner) | Post-Approval |

| Title of referral | Reference | Referral Outcome | Assessment Status |
|---|---|---|---|
| Not controlled action (particular manner) | | | |
| Santos Otway 3d Seismic VIC/P44 | 2007/3367 | Not Controlled Action (Particular Manner) | Post-Approval |
| Schomberg 3D Marine Seismic survey | 2007/3868 | Not Controlled Action (Particular Manner) | Post-Approval |
| Speculant 3D Transition Zone Seismic Survey | 2010/5558 | Not Controlled Action (Particular Manner) | Post-Approval |
| Strike Oil NL Seismic Surveys | 2000/107 | Not Controlled Action (Particular Manner) | Post-Approval |
| The Enterprise 3D Seismic Acquisition Survey, Otway Basin, Vic | 2012/6565 | Not Controlled Action (Particular Manner) | Post-Approval |
| Vic/P37(v) and Vic/P44 3D marine seismic survey | 2003/1102 | Not Controlled Action (Particular Manner) | Post-Approval |
| VIC P44 Gas Exploration Wells | 2002/662 | Not Controlled Action (Particular Manner) | Post-Approval |
| Referral decision | | | |
| The Enterprise 3D Seismic Acquisition Survey, Otway Basin, VIC | 2012/6545 | Referral Decision | Completed |

| Biologically Important Areas | | [ Resource Information ] |
|---|---|---|
| Scientific Name | Behaviour | Presence |
| Seabirds | | |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Foraging | Likely to occur |
| Ardenna tenuirostris<br>Short-tailed Shearwater [82652] | Foraging | Known to occur |
| Diomedea exulans (sensu lato)<br>Wandering Albatross [1073] | Foraging | Known to occur |

| Scientific Name | Behaviour | Presence |
|---|---|---|
| Diomedea exulans antipodensis<br>Antipodean Albatross [82269] | Foraging | Known to occur |
| Pelagodroma marina<br>White-faced Storm-petrel [1016] | Foraging | Known to occur |
| Pelecanoides urinatrix<br>Common Diving-petrel [1018] | Foraging | Known to occur |
| Thalassarche bulleri<br>Bullers Albatross [64460] | Foraging | Known to occur |
| Thalassarche cauta cauta<br>Shy Albatross [82345] | Foraging likely | Likely to occur |
| Thalassarche chlororhynchos bassi<br>Indian Yellow-nosed Albatross [85249] | Foraging | Known to occur |
| Thalassarche melanophris<br>Black-browed Albatross [66472] | Foraging | Known to occur |
| Thalassarche melanophris impavida<br>Campbell Albatross [82449] | Foraging | Known to occur |
| Whales | | |
| Balaenoptera musculus brevicauda<br>Pygmy Blue Whale [81317] | Foraging | Likely to be present |
| Balaenoptera musculus brevicauda<br>Pygmy Blue Whale [81317] | Foraging (annual high use area) | Known to occur |
| Balaenoptera musculus brevicauda<br>Pygmy Blue Whale [81317] | Known Foraging Area | Known to occur |

# Caveat

## 1 PURPOSE

This report is designed to assist in identifying the location of matters of national environmental significance (MNES) and other matters protected by the Environment Protection and Biodiversity Conservation Act 1999 (Cth) (EPBC Act) which may be relevant in determining obligations and requirements under the EPBC Act.

The report contains the mapped locations of:

- World and National Heritage properties;
- Wetlands of International and National Importance;
- Commonwealth and State/Territory reserves;
- distribution of listed threatened, migratory and marine species;
- listed threatened ecological communities; and
- other information that may be useful as an indicator of potential habitat value.

## 2 DISCLAIMER

This report is not intended to be exhaustive and should only be relied upon as a general guide as mapped data is not available for all species or ecological communities listed under the EPBC Act (see below). Persons seeking to use the information contained in this report to inform the referral of a proposed action under the EPBC Act should consider the limitations noted below and whether additional information is required to determine the existence and location of MNES and other protected matters.

Where data are available to inform the mapping of protected species, the presence type (e.g. known, likely or may occur) that can be determined from the data is indicated in general terms. It is the responsibility of any person using or relying on the information in this report to ensure that it is suitable for the circumstances of any proposed use. The Commonwealth cannot accept responsibility for the consequences of any use of the report or any part thereof. To the maximum extent allowed under governing law, the Commonwealth will not be liable for any loss or damage that may be occasioned directly or indirectly through the use of, or reliance

## 3 DATA SOURCES

Threatened ecological communities

For threatened ecological communities where the distribution is well known, maps are generated based on information contained in recovery plans, State vegetation maps and remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Threatened, migratory and marine species

Threatened, migratory and marine species distributions have been discerned through a variety of methods. Where distributions are well known and if time permits, distributions are inferred from either thematic spatial data (i.e. vegetation, soils, geology, elevation, aspect, terrain, etc.) together with point locations and described habitat; or modelled (MAXENT or BIOCLIM habitat modelling) using

Where little information is available for a species or large number of maps are required in a short time-frame, maps are derived either from 0.04 or 0.02 decimal degree cells; by an automated process using polygon capture techniques (static two kilometre grid cells, alpha-hull and convex hull); or captured manually or by using topographic features (national park boundaries, islands, etc.).

In the early stages of the distribution mapping process (1999-early 2000s) distributions were defined by degree blocks, 100K or 250K map sheets to rapidly create distribution maps. More detailed distribution mapping methods are used to update these distributions

## 4 LIMITATIONS

The following species and ecological communities have not been mapped and do not appear in this report:

- threatened species listed as extinct or considered vagrants;
- some recently listed species and ecological communities;
- some listed migratory and listed marine species, which are not listed as threatened species; and
- migratory species that are very widespread, vagrant, or only occur in Australia in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- listed migratory and/or listed marine seabirds, which are not listed as threatened, have only been mapped for recorded
- seals which have only been mapped for breeding sites near the Australian continent

The breeding sites may be important for the protection of the Commonwealth Marine environment.

Refer to the metadata for the feature group (using the Resource Information link) for the currency of the information.

# Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Office of Environment and Heritage, New South Wales
-Department of Environment and Primary Industries, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment, Water and Natural Resources, South Australia
-Department of Land and Resource Management, Northern Territory
-Department of Environmental and Heritage Protection, Queensland
-Department of Parks and Wildlife, Western Australia
-Environment and Planning Directorate, ACT
-Birdlife Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-South Australian Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
Forestry Corporation, NSW
-Geoscience Australia
-CSIRO
-Australian Tropical Herbarium, Cairns
-eBird Australia
-Australian Government – Australian Antarctic Data Centre
-Museum and Art Gallery of the Northern Territory
-Australian Government National Environmental Science Program
-Australian Institute of Marine Science
-Reef Life Survey Australia
-American Museum of Natural History
-Queen Victoria Museum and Art Gallery, Inveresk, Tasmania
-Tasmanian Museum and Art Gallery, Hobart, Tasmania
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact us page.



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# Appendix E Minerva Field Oil Pollution Emergency Plan

# Oil Spill Preparedness and Response Mitigation Assessment for Minerva Plug and Abandonment Environment Plan

Corporate HSE

Hydrocarbon Spill Preparedness

March 2024
Revision 0

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# FIGURES



# TABLES

# EXECUTIVE SUMMARY

Woodside Energy (Victoria) Pty Ltd (Woodside) has developed its oil spill preparedness and response position for Minerva Plug and Abandonment activities, hereafter known as the Petroleum Activities Program (PAP).

This document demonstrates that the risks and impacts from an unplanned hydrocarbon release, and the associated response operations, are controlled to As Low as Reasonably Practicable (ALARP) and Acceptable levels. It achieves this by evaluating response options to address the potential environmental impacts resulting from an unplanned loss of hydrocarbon containment associated with the PAP detailed in the Environment Plan (EP). This document then details Woodside's decisions and techniques for responding to a hydrocarbon release event and the process for determining its level of hydrocarbon spill preparedness.

A summary of the key facts and references to additional detail within this document are presented below.

**Table 0-1: Summary of the key details for assessment**

| Key details of assessment | Summary | Reference to additional detail |
|---|---|---|
| **Worst Case Credible Scenario** | **Credible Scenario-01 (CS-01):** Subsea loss of well containment (LOWC) event discharging condensate at the Minerva-4 well site.<br>38° 43' 7.37" S 142° 57' 44.02" E, release depth of ~60 m.<br>~8368 $m^3$ over 81 days of Minerva-4 Condensate. | Section 2.2 |
| | **Credible Scenario-02 (CS-02):** Loss of containment of Marine Diesel Oil (MDO) resulting from a vessel collision at the nearest point of the operational area to the Victorian coast<br>38° 42' 6.89" S 142° 57' 17.28" E, surface release.<br>Six-hour release of 330 $m^3$ of MDO | |
| **Hydrocarbon Properties** | **Minerva-4 Condensate (API Gravity 49.9)**<br>*Marulk 13C 2014* (Marulk) was selected as representative of Minerva-4 Condensate for the subsea loss of well containment scenario (CS-01).<br>Marulk is a light, non-persistent oil with a high tendency to evaporate. Under low wind speeds of 1 m/s, approximately 90% of the surface slick is predicted to evaporate after 5 days (120 hours), with ~10% remaining on the sea surface and minimal dispersion into the water column. Under moderate wind speeds of 5 m/s, the entire surface slick is predicted to evaporate (89%) or disperse (21%) after 24 hours. High wind speeds of 10 m/s are predicted to disperse ~30% of the oil and evaporate the remaining ~70% after only 6 hours.<br>Marulk has a low tendency to form emulsions, attaining a maximum water content of 10% under all wind conditions simulated.<br>**Marine Diesel Oil (MDO) (API Gravity 0.843)**<br>Marine Diesel (IKU) was selected as representative of MDO for the vessel collision loss of containment scenario (CS-02).<br>MDO is a moderate weight, moderately persistent oil in the marine environment. Under low winds (1 m/s), 60% of the surface slick is predicted to remain after 120 hours (5 days). Under moderate winds (5 m/s), 40% of the initial surface slick is predicted to remain after 24 hours, decreasing further to ~10% after 48 hours and ~1% after 72 | Section 8 of the EP<br>Appendix A of the First Strike Plan |

<table>
<tr><td></td><td colspan="3">hours. With high winds (10 m/s), the surface slick is predicted to be almost entirely evaporated (~25%) and dispersed (~75%) after 12 hours.</td><td></td></tr>
<tr><td>Modelling Results</td><td colspan="3">Stochastic modelling<br>A quantitative, stochastic assessment has been undertaken for credible spill scenarios to help assess the environmental risk of a hydrocarbon spill.<br>A total of 200 replicate simulations were completed for CS-01 and 400 replicate simulations were completed for CS-02 to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed in Autumn-Winter and Spring-Summer seasons.</td><td>Section 2.2</td></tr>
<tr><td></td><td colspan="3">Deterministic modelling<br>Deterministic modelling was then undertaken for scenario CS-01 as the worst-case credible scenario (WCCS) to establish the following for response planning purposes:<br>• Minimum time to commencement of oil accumulation at any shoreline receptor (at a threshold of 100 g/m$^2$)<br>• Peak mass of oil ashore (tonnes) at any individual shoreline receptor (at concentrations exceeding 100 g/m$^2$)<br>• Peak mass shoreline accumulation (above 100 g/m$^2$) all shorelines</td><td></td></tr>
<tr><td></td><td></td><td>CS-01: Subsea LOWC of ~8368 m$^3$ of Minerva-4 Condensate over 81 days – results from deterministic modelling</td><td>CS-02: MDO release of 330 m$^3$ over six hours resulting from a vessel collision – results from stochastic modelling</td><td></td></tr>
<tr><td></td><td>Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m$^2$)</td><td>No contact at any of the assessed thresholds</td><td>0.1 days at Otway</td><td></td></tr>
<tr><td></td><td>Minimum time to shoreline contact (above 100 g/m$^2$)</td><td>14.9 days at Warrnambool Plain (6.4 tonnes) – model realisation 75</td><td>0.2 days at Warrnambool Plain (186.7 tonnes)</td><td></td></tr>
<tr><td></td><td>Peak mass of oil ashore (tonnes) at any individual shoreline receptor (at concentrations exceeding 100 g/m$^2$)</td><td>6.4 tonnes at Warrnambool Plain (14.9 days) – model realisation 75</td><td>186.7 tonnes at Warrnambool Plain (0.2 days)</td><td></td></tr>
<tr><td></td><td>Peak mass shoreline accumulation (above 100 g/m$^2$) all shorelines</td><td>7.5 tonnes at Warrnambool Plain, Otway Plain and Otway Ranges (from 14.9 days) – model realisation 75</td><td>186.7 tonnes at Warrnambool Plain (0.2 days)</td><td></td></tr>
</table>

| | | | | |
|---|---|---|---|---|
| | Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb) | 0.1 days at Otway | 0.1 days at Otway | |
| **Net Environmental Benefit Analysis** | Operational monitoring, source control via relief well, source control via vessel SOPEP, protection and deflection, shoreline clean-up, oiled wildlife response, are all identified as potentially having a net environmental benefit (dependent on the actual spill scenario) and carried forward for further assessment. | | | Section 4 |
| **ALARP evaluation of selected response techniques** | The evaluation of the selected response techniques shows the proposed controls reduced the risk to an ALARP and Acceptable level for the risk presented in Section 2, without the implementation of considered additional, alternative or improved control measures. | | | Section 7 |

# 1 INTRODUCTION

## 1.1 Overview

Woodside Energy (Victoria) Pty Ltd (Woodside) has developed its oil spill preparedness and response position for Minerva Plug and Abandonment activities, hereafter known as the Petroleum Activities Program (PAP). This document details Woodside's decisions and techniques for responding to a hydrocarbon loss of containment event and the process for determining its level of hydrocarbon spill preparedness.

## 1.2 Purpose

This document, together with the documents listed below, meets the requirements of the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Environment Regulations) relating to hydrocarbon spill response arrangements.

- The Minerva Plug and Abandonment Environment Plan (EPs)
- Oil Pollution Emergency Arrangements (OPEA) (Australia)
- The Minerva Plug and Abandonment Oil Pollution Emergency Plan (OPEP) including
  - First Strike Plan (FSP)
  - Relevant Operations Plans
  - Relevant Tactical Response Plans (TRPs)
  - Relevant Supporting Plans
  - Data Directory.

## 1.3 Scope

This document demonstrates that the risks and impacts from an unplanned hydrocarbon release, and the associated response operations, are controlled to As Low as Reasonably Practicable (ALARP) and Acceptable levels. It achieves this by evaluating response options to address the potential environmental risks and impacts resulting from an unplanned loss of hydrocarbon containment associated with the PAP detailed in the EP. This document then details Woodside's decisions and techniques for responding to a hydrocarbon release event and the process for determining its level of hydrocarbon spill preparedness. It should be read in conjunction with the documents listed in **Table 1-1**. The location of the PAP is shown in Figure 2-3.

## 1.4 Oil spill response document overview

The documents outlined in **Table 1-1** and **Figure 1-1** are collectively used to manage the preparedness and response for a hydrocarbon release.

The Oil Pollution First Strike Plan (FSP) contains a pre-operational Net Environmental Benefit Analysis (NEBA) summary, detailing the selected response techniques for this PAP. Relevant Operational Plans to be initiated for associated response techniques are identified in the FSP and relevant forms to initiate a response are appended to the FSP.

The process to develop an Incident Action Plan (IAP) begins once the Oil Pollution FSP is underway. The IAP includes inputs from the Operational Monitoring operations and the operational NEBA (**Section 4**). Planning, coordination and resource management are initiated by the Corporate Incident Management Team (CIMT). In some instances, technical specialists may be utilised to provide expert advice. The planning may also involve liaison officers from supporting government agencies.

During each operational period, field reports are continually reviewed to evaluate the effectiveness of response operations. In addition, the operational NEBA is continually reviewed and updated to

confirm that the response techniques implemented continue to result in a net environmental benefit (**Section 4**).

The response will continue as described in **Section 5** until the response termination criteria have been met.

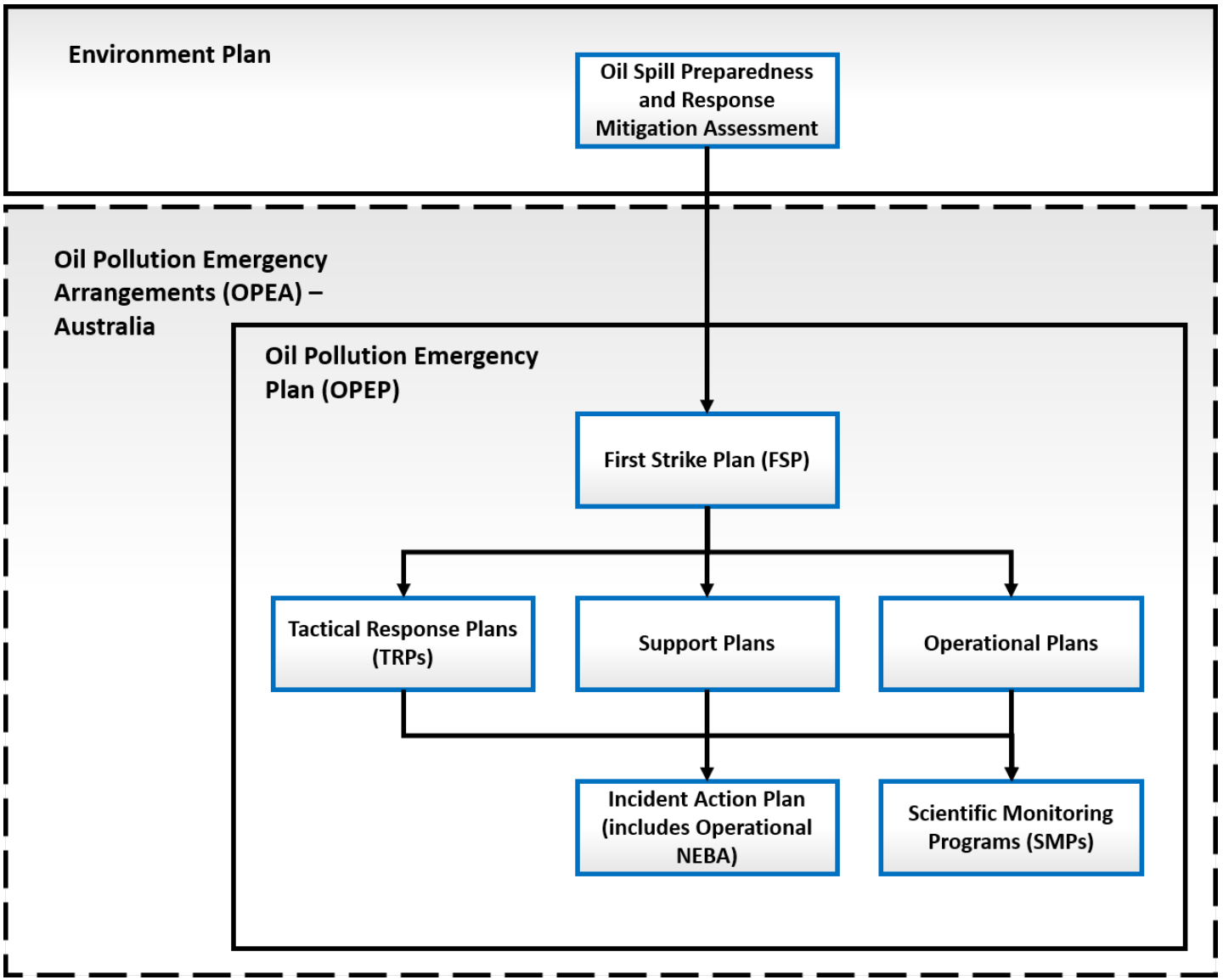


**Figure 1-1: Woodside hydrocarbon spill document structure**

**Table 1-1: Hydrocarbon Spill preparedness and response – document references**

| Document | Document overview | Stakeholders | Relevant information | Document subsections (if applicable) |
|---|---|---|---|---|
| **Minerva Plug and Abandonment Environment Plan (EP)** | Demonstrates that potential adverse impacts on the environment associated with Minerva Plug and Abandonment activities (during both routine and non-routine operations) are mitigated and managed to As Low As Reasonably Practicable (ALARP) and will be of an acceptable level. | NOPSEMA<br>Woodside internal | EP Section 4 (Identification and evaluation of environmental risks and impacts, including credible spill scenarios)<br>EP Section 8 (Performance outcomes, standards and measurement criteria)<br>EP Section 9 (Implementation strategy – including emergency preparedness and response, and reporting and compliance) | |
| **Oil Pollution Emergency Arrangements (OPEA) Australia** | Describes the arrangements and processes adopted by Woodside when responding to a hydrocarbon spill from a petroleum activity. | Regulatory agencies<br>Woodside internal | All | |
| **Oil Spill Preparedness and Response Mitigation Assessment for Minerva Plug and Abandonment activities (this document)** | Evaluates response options to address the potential environmental impacts resulting from an unplanned loss of hydrocarbon containment associated with the PAP described in the EP. | Regulatory agencies<br>Corporate Incident Management Team (CIMT): Control function in an ongoing spill response for activity-specific response information. | All<br>Performance outcomes, standards and measurement criteria related to hydrocarbon spill preparedness and response are included in this document. | |
| **Minerva Plug and Abandonment Oil Pollution First Strike Plan** | Facility specific document providing details and tasks to mobilise a first strike response.<br>Primarily applied to the first 24 hours of a response until a full Incident Action Plan (IAP) | Site-based IMT for initial response, activation and notification.<br>CIMT for initial response, activation and notification.<br>CIMT: Control function in an ongoing spill response | Initial notifications and reporting within the first 24 hours of a spill event.<br>Relevant spill response options that could be initiated for mobilisation in the event of a spill. | |

| Document | Document overview | Stakeholders | Relevant information | Document subsections (if applicable) |
|---|---|---|---|---|
| | specific to the event is developed.<br><br>Oil Pollution First Strike Plans are intended to be the first document used to provide immediate guidance to the responding Incident Management Team (IMT). | for activity-specific response information. | Recommended pre-planned tactics.<br><br>Details and forms for use in immediate response. Activation process for oil spill trajectory modelling, aerial surveillance and oil spill tracking buoy details. | |
| **Operational Plans** | Lists the actions to activate, mobilise and deploy personnel and resources to commence response operations.<br><br>Includes details on access to equipment and personnel (available immediately) and steps to mobilise additional resources depending on the nature and scale of a release.<br><br>Relevant operational plans will be initially selected based on the Oil Pollution First Strike Plan; additional operational plans will be activated depending on the nature and scale of the release. | CIMT: Operations and Logistics functions for first strike activities.<br><br>CIMT: Planning Function to help inform the IAP on resources available. | Locations from where resources may be mobilised.<br><br>How resources will be mobilised.<br><br>Details of where resources may be mobilised to and what facilities are needed once the resources arrive.<br><br>Details on how to implement resources to undertake a response. | Operational Monitoring Operational Plan<br><br>Source Control Emergency Response Planning Guideline<br><br>Vessel Shipboard Oil Pollution Emergency Plan (SOPEP)<br><br>Shoreline Protection and Deflection Operational Plan<br><br>Shoreline Clean-Up Operational Plan<br><br>Oiled Wildlife Response Operational Plan<br><br>Scientific Monitoring Program |

| Document | Document overview | Stakeholders | Relevant information | Document subsections (if applicable) |
|---|---|---|---|---|
| **Tactical Response Plans** | Provides options for response techniques in selected RPAs. Provides site, access and deployment information to support a response at the location. | CIMT: Planning Function to help develop IAPs, and Logistics Function to assist with determining resources needed. | Indicative response techniques.<br>Access requirements and/or permissions.<br>Relevant information for undertaking a response at that site.<br>Where applicable, may include equipment deployment locations and site layouts. | Tactical Response Plans available for Minerva Plug and Abandonment activities include:<br>• Aire River<br>• Curdies Inlet<br>• Gellibrand River<br>• Warrnambool |
| **Support Plans** | Support Plans detail Woodside's approach to resourcing and the provision of services during a hydrocarbon spill response. | CIMT: Operations, Logistics and Planning functions. | Technique for mobilising and managing additional resources outside of Woodside's immediate preparedness arrangements. | Logistics Support Plan<br>Aviation Support Plan<br>Marine Support Plan<br>Waste Management Plan – Australia<br>Health and Safety Support Plan<br>Hydrocarbon Spill Responder Health Monitoring Guidelines<br>People and Global Capability (Surge Labour Requirements) Support Plan<br>Stakeholder Engagement Support Plan<br>Guidance for Hydrocarbon Spill Claims Management |

# 2 RESPONSE PLANNING PROCESS

This document details Woodside's process for identifying potential response options for the hydrocarbon release scenarios identified in the EP. **Figure 2-1** details the interaction between Woodside's response, planning/preparedness and selection process.

This structure has been used because it shows how the planning and preparedness activities inform a response and provides indicative guidance on what activities would be undertaken, in sequential order, if a real event were to occur. The process also evaluates alternative, additional and/or improved control measures specific to the PAP.

The Minerva Plug and Abandonment Oil Pollution First Strike Plan (FSP) then summarises the outcome of the response planning process and provides initial response guidance and a summary of ongoing response activities, if an incident were to occur.

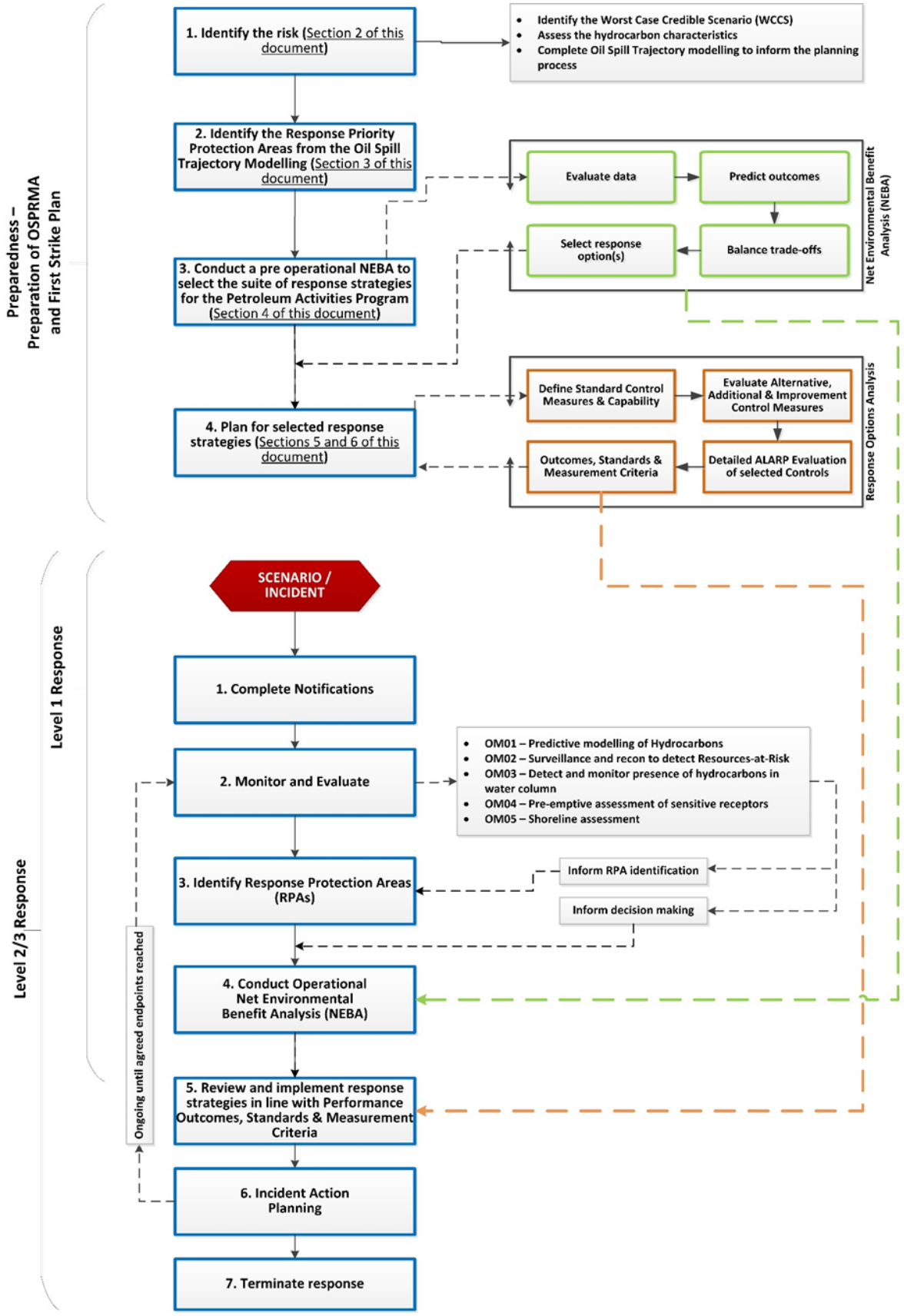


**Figure 2-1: Response planning and selection process**

## 2.1 Response planning process outline

This document is expanded below to provide additional context on the key steps in determining capability, evaluating ALARP and hydrocarbon spill response requirements.

Section 1. INTRODUCTION

Section 2. RESPONSE PLANNING PROCESS

- identification of worst-case credible scenario(s) (WCCS)
- spill modelling for WCCS.

Section 3. IDENTIFY RESPONSE PROTECTION AREAS (RPAs)

- areas predicted to be contacted at concentration >100 g/m$^2$.

Section 4. NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)

- pre-operational NEBA (during planning/ALARP evaluation): this must be reviewed during the initial response to an incident to confirm its accuracy
- selected response techniques prioritised and carried forward for ALARP assessment.

Section 5. HYDROCARBON SPILL ALARP PROCESS

- determines the response need based on predicted consequence parameters.
- details the environmental performance of the selected response options based on need.
- sets the environmental performance outcomes, environmental performance standards and measurement criteria.

Section 6. ALARP EVALUATION

- evaluates alternative, additional, and improved options for each response technique to demonstrate the risk has been reduced to ALARP.
- provides a detailed ALARP assessment of selected control measure options against:
  - predicted cost associated with implementing the option
  - predicted change to environmental benefit
  - predicted effectiveness/ feasibility of the control measure.

Section 7. ENVIRONMENTAL RISK ASSESSMENT OF SELECTED RESPONSE TECHNIQUES

- evaluation of impacts and risks from implementing selected response options.

Section 8. ALARP CONCLUSION

Section 9. ACCEPTABILITY CONCLUSION

### 2.1.1 Response Planning Assumptions

**Figure 2-2** illustrates the initial steps of a response to an oil spill event and, where available, the indicative timing. For the latter stages, the timing will be specific to the selective response option.

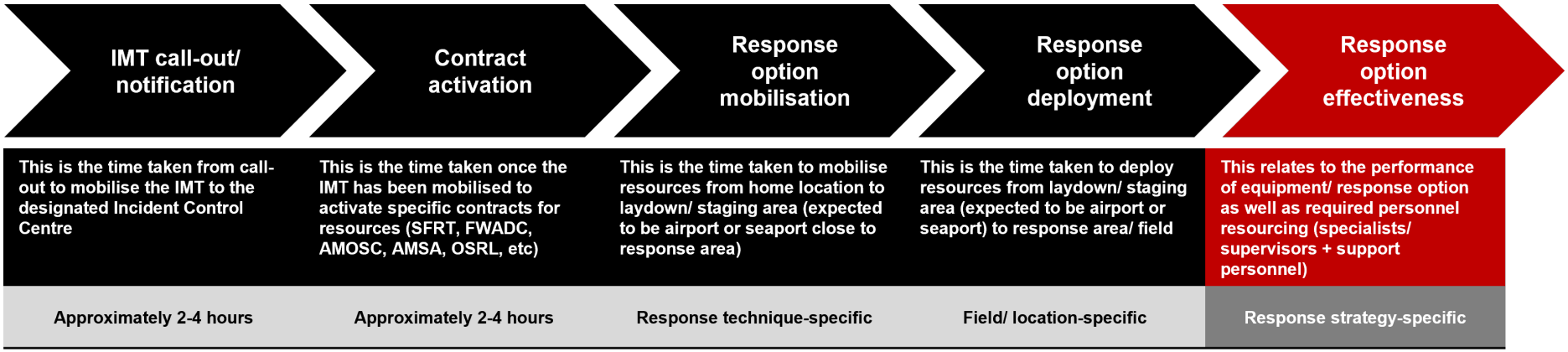


**Figure 2-2: Response planning assumption – timing, resourcing and effectiveness**

## 2.2 Environment plan risk assessment (credible spill scenarios)

Potential hydrocarbon release scenarios from the PAP have been identified during the risk assessment process in the EPs. Further descriptions of risk, impacts and mitigation measures (which are not related to hydrocarbon preparedness and response) are provided in Section 8 of the EP. Two unplanned events or credible spill scenarios for the PAP have been selected as representative across types, sources and incident/response levels, up to and including the WCCS.

Table 2-1 presents the credible scenarios for the PAP. The WCCS for the activity is then used for response planning purposes, as all other scenarios are of a lesser scale and extent. By demonstrating capability to manage the response to the WCCS, Woodside assumes other scenarios that are smaller in nature and scale can also be managed by the same capability. Response performance measures have been defined based on a response to the WCCS.

Two oil spill modelling scenarios were selected as representative of the planned Minerva Plug and Abandonment activities. Credible Scenario-01 (CS-01) is a loss of well containment from the Minerva-4 well during decommissioning activities, and Credible Scenario-02 (CS-02) is a loss of containment of marine diesel oil (MDO) following a collision between the project vessel and a third-party vessel at the nearest point of the Operational Area to the Victorian Coast. Whilst the release scenario for CS-02 is significantly smaller than CS-01, the proximity to the coastline results in larger and faster contact with shorelines. Both scenarios will be used for response planning purposes due to the differing response options required.

The locations of CS-01 and CS-02 are shown in Figure 2-3.

**Table 2-1: Petroleum Activities Program credible spill scenarios**

| Credible Spill Scenarios | Scenario selected for planning purposes | Scenario description | Maximum credible volume released (liquid $m^3$) | Incident level | Hydrocarbon type | Residual proportion | |
|---|---|---|---|---|---|---|---|
| **CS-01** | Yes | Subsea loss of well containment (LOWC) over 81 days at the Minerva-4 well site. | ~8368 $m^3$ Minerva-4 Condensate | 3 | Minerva-4 Condensate[1] | **Wind speed** | **Residue** |
| | | | | | | Low wind | 10%, 836.8 $m^3$ |
| | | | | | | Moderate wind | 0%, 0 $m^3$ (within 24 hours) |
| | | | | | | High wind | 0%, 0 $m^3$ (within 6 hours) |
| **CS-02** | Yes | Surface loss of containment resulting from a vessel collision at the nearest point of the Operational Area to the Victorian coast | 330 $m^3$ MDO | 2 | MDO | **Wind speed** | **Residue** |
| | | | | | | Low wind | 40%, 132 $m^3$ |
| | | | | | | Moderate wind | 1%, 3.3 $m^3$ (within 72 hours) |
| | | | | | | High wind | 0%, 0 $m^3$ (within 12 hours) |

[1] *Marulk 13C 2014* (Marulk) was selected as representative of Minerva-4 Condensate for the subsea loss of well containment scenario (CS-01).

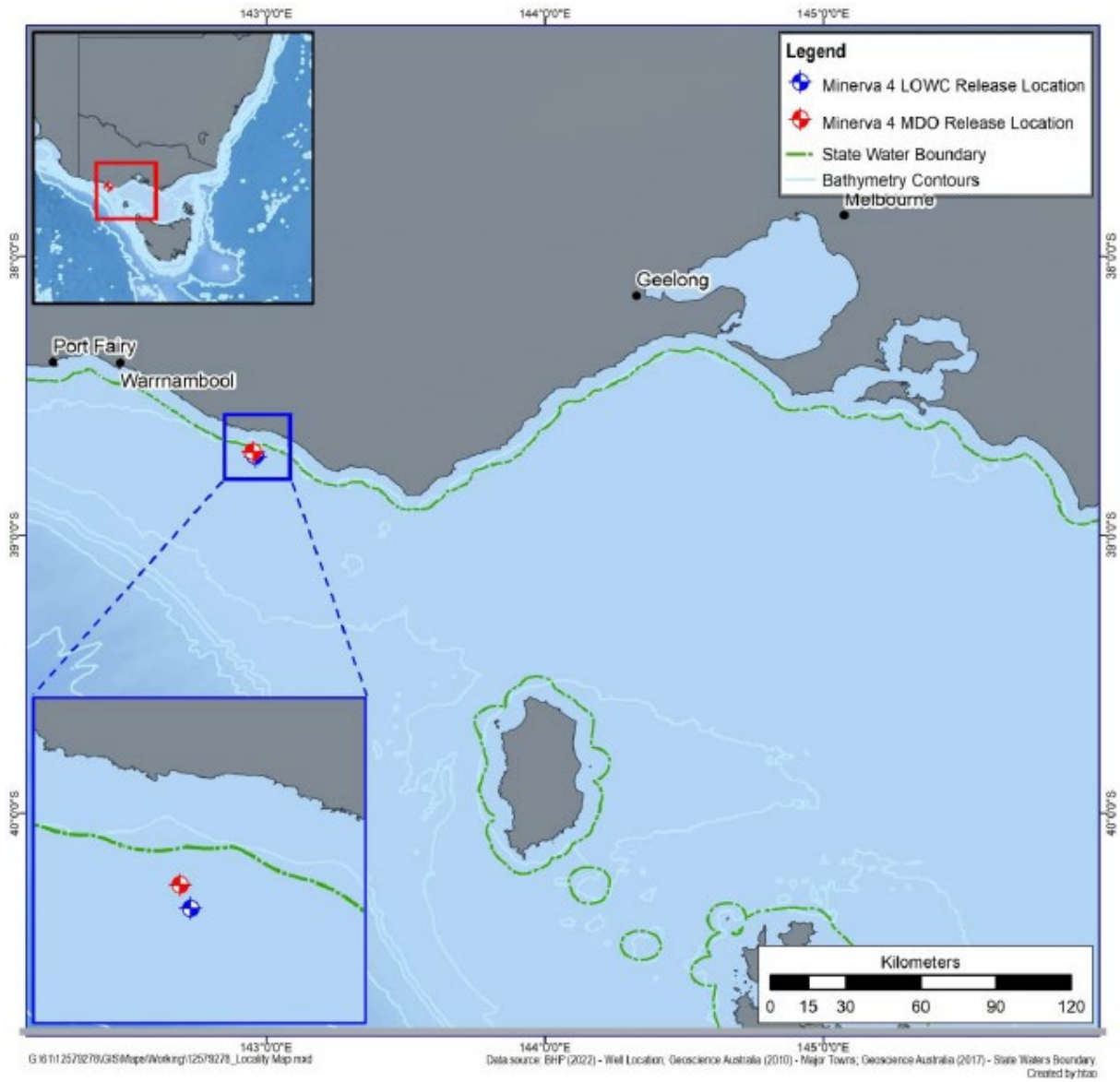


**Figure 2-3: Locations of CS-01 and CS-02**

### 2.2.1 Hydrocarbon characteristics

Hydrocarbon characteristics, including modelled weathering data and ecotoxicity, are included in Section 8 of the EP.

**Minerva-4 Condensate (API Gravity 49.9)**

*Marulk 13C 2014* (Marulk) was selected as representative of Minerva-4 Condensate for the subsea loss of well containment scenario (CS-01).

Marulk is a light, non-persistent oil with a high tendency to evaporate. Under low wind speeds of 1 m/s, approximately 90% of the surface slick is predicted to evaporate after 5 days (120 hours), with ~10% remaining on the sea surface and minimal dispersion into the water column. Under moderate wind speeds of 5 m/s, the entire surface slick is predicted to evaporate (89%) or disperse (21%) after 24 hours. High wind speeds of 10 m/s are predicted to disperse ~30% of the oil and evaporate the remaining ~70% after only 6 hours.

Marulk has a low tendency to form emulsions, attaining a maximum water content of 10% under all wind conditions simulated.

**Marine Diesel Oil**

*Marine Diesel (IKU)* was selected as representative of MDO for the vessel collision loss of containment scenario (CS-02).

MDO is a moderate weight, moderately persistent oil in the marine environment. Under low winds (1 m/s), 60% of the surface slick is predicted to remain after 120 hours (5 days). Under moderate winds (5 m/s), 40% of the initial surface slick is predicted to remain after 24 hours, decreasing further to ~10% after 48 hours and ~1% after 72 hours. With high winds (10 m/s), the surface slick is predicted to be almost entirely evaporated (~25%) and dispersed (~75%) after 12 hours.

## 2.3 Hydrocarbon spill modelling

Oil spill trajectory modelling tools are used for environmental impact assessment and during response planning to understand spatial scale and timeframes for response operations. Woodside recognises that there is a degree of uncertainty related to the use of modelling data and has subsequently utilised conservative approaches to volumes, weathering, spatial areas, timing and response effectiveness to scale capability to need.

Spill modelling was carried out using SINTEF's Oil Spill Contingency and Response (OSCAR) System (Version 13.0.1). OSCAR is a system of integrated models that quantitatively assess the fate and transport of hydrocarbons in the marine environment, as well as evaluate the efficacy of response measures (Reed et al., 2001; Reed et al., 2004).

OSCAR provides an integrated hydrocarbon transport and weathering model that accounts for hydrocarbon advection, dispersion, surface spreading, entrainment, dissolution, biodegradation, emulsification, volatilisation and shoreline interaction.

Three-dimensional (3D) OSCAR modelling was undertaken in stochastic mode with start dates spaced approximately fortnightly over a five-year period. Inputs into the model were sourced from HYCOM (regional ocean currents, temperature and salinity profiles), TPXO7.2 (tidal currents) and NCEP/NCAR (regional winds). The weathering model (Daling et al., 1997) is supported by an extensive oil library that contains detailed, laboratory-derived data for a wide range of hydrocarbons subjected to a wide range of environmental conditions.

OSCAR enables simulation of a hydrocarbon release scenario in deterministic mode (i.e., a scenario is simulated with one start date with spatial results available at fixed time intervals over the duration of the simulation) or stochastic mode (i.e., a scenario is simulated numerous times with varying start dates, and the results are outputted spatially in a probabilistic manner).

### 2.3.1 Environmental impact thresholds – EMBA and hydrocarbon exposure

The outputs of the stochastic spill modelling are used to assess the potential environmental impact from the credible scenario. The stochastic modelling results are used to delineate areas of the marine and shoreline environment that could be exposed to hydrocarbon levels exceeding environmental impact threshold concentrations. The summary of all the locations where hydrocarbon thresholds could be exceeded by any of the simulations modelled is defined as the EMBA and is discussed further in Section 8 of the EP. As the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean mechanism of transportation, a different EMBA is presented for each fate within the EP.

A conservative approach – adopting accepted contact thresholds for impacts on the marine environment – is used to define the EMBA. These hydrocarbon thresholds are presented in **Table 2-2**.

Deterministic modelling is undertaken where initial stochastic modelling has indicated that floating oil is present at a contact threshold of 50 g/m$^2$ and/or where there are shoreline accumulations at a contact threshold of 100 g/m$^2$. The deterministic modelling outputs are then used to scale the required capability for the offshore (containment and recovery and dispersant) and/or shoreline responses. Deterministic modelling was undertaken for CS-01 only.

**Table 2-2: Summary of thresholds applied to the stochastic hydrocarbon spill modelling to determine the EMBA and environmental impacts**

| Threshold (condensate and MDO) | Description |
|---|---|
| 10 g/m² | Surface hydrocarbon |
| 100 ppb | Entrained hydrocarbon |
| 50 ppb | Dissolved aromatic hydrocarbon |
| 100 g/m² | Shoreline accumulation |

### 2.3.2 Response planning thresholds for surface and shoreline hydrocarbon exposure

Thresholds to determine the EMBA are used to predict and assess environmental impacts and inform the scientific monitoring program (SMP); however, they do not appropriately represent the thresholds at which an effective response can be implemented. Additional response thresholds are used for response planning and to determine areas where response techniques would be most effective.

In the event of an actual response, modelling would be reviewed for suitability and additional modelling would be conducted using real-time data and field information to inform Incident Management Team decisions.

The modelling outputs are presented at response planning thresholds for surface hydrocarbons for the WCCS. Surface spill concentrations are expressed as grams per square metre (g/m²). The thresholds used are derived from oil spill response planning literature and industry guidance and are summarised in the next subsections.

#### 2.3.2.1 Surface hydrocarbon concentrations

The surface hydrocarbon thresholds for response planning are summarised in **Table 2-3**. The surface thickness of oil at which dispersants are typically effective is approximately 100 g/m². However, substantial variations occur in the thickness of the oil within the slick, and most fresh crude oils spread within a few hours, so that overall, the average thickness is 0.1 mm (or approximately 100 g/m²) (ITOPF, 2011). Additionally, the recommended rate of application for surface dispersant is typically one part dispersant to 20 or 25 parts of spilled oil. These figures assume a 0.1 mm slick thickness, averaged over the thickest part of the spill, to calculate a litres/hectare application rate

from vessels and aircraft. In practice, this can be difficult to achieve as it is not possible to accurately assess the thickness of the floating oil.

**Table 2-3: Surface hydrocarbon thresholds for response planning**

| Surface hydrocarbon concentration (g/m²) | Description | Bonn Agreement Oil Appearance Code (BAOAC) | Mass per area (g/m²) |
|---|---|---|---|
| >10 | Predicted minimum threshold for commencing operational monitoring [2] | Code 3 – Dull metallic colours | 5 to 50 |
| >50 | Predicted minimum floating oil threshold for containment and recovery and surface dispersant application [3] | Code 4 – Discontinuous true oil colour | 50 to 200 |
| >100 | Predicted optimum floating oil threshold for containment and recovery and surface dispersant application | Code 5 – Continuous true oil colour | >200 |
| >100 | Predicted minimum shoreline accumulation threshold for shoreline assessment operations | Stain | >100 |
| >250 | Predicted minimum threshold for commencing shoreline clean-up operations | Level 3 – Thin Coating | 200 to 1000 |

Some degree of localised over-dosage and under-dosage is inevitable in dispersant response. An average oil layer thickness of 0.1 mm is often assumed, although the actual thickness can vary over a wide range (from less than 0.0001 mm to more than 1 mm) over short distances (International Petroleum Industry Environment Conservation Association [IPIECA], 2015).

Guidance from Australian Maritime Safety Authority (AMSA) (AMSA, 2020) indicates that spreading of spills of Group II or III products will rapidly decrease slick thickness over the first 24 hours of a spill resulting in the potential requirement of up to a ten-fold increase in capability on day 2 to achieve the same level of performance.

Further guidance from the European Maritime Safety Authority (EMSA) states that spraying the 'metallic' looking area of an oil slick (Bonn Agreement Oil Appearance Code (BAOAC) 3, approximately 5 to 50 µm) with dispersant from spraying gear designed to treat an oil layer 0.1 mm (100 µm) thick, will inevitably cause dispersant over-treatment by a factor of 2 to 20 times (EMSA, 2012).

Therefore, dispersant application should be concentrated on the thickest areas of an oil slick and Woodside intends on applying surface dispersants to only BAOAC 4 and 5. Spraying areas of oil designated as BAOAC Code 4 (Discontinuous true oil colour) with dispersant will, on average, deliver approximately the recommended treatment rate of dispersant.

Spraying areas of oil designated as BAOAC Code 5 with dispersant (Continuous true oil colour and more than 0.2 mm thick) will, on average, deliver approximately half the recommended treatment

[2] Operational monitoring will be undertaken from the outset of a spill as to whether this threshold has been reached. Monitoring is needed throughout the response to assess the nature of the spill, track its location and inform the need for any additional monitoring and/or response techniques. It also informs when the spill has entered State Waters and control of the incident passes to a regulatory or other jurisdictional authority.

[3] At 50 g/m², containment and recovery and surface dispersant application operations are not expected to be particularly effective. This threshold represents a conservative approach to planning response capability and containing the spread of surface oil.

rate of dispersant. Repeated application of these areas of thicker oil, or increased dosage ratios, will be required to achieve the recommended treatment rate of dispersant (EMSA, 2012).

Stochastic modelling for CS-01 did not predict floating hydrocarbons at a surface thickness at which dispersants would be effective. For CS-02, the volatile nature of MDO is not appropriate for surface dispersant application.

Guidance from the National Oceanic and Atmospheric Administration (NOAA) in the United States is found in the document: Characteristics of Response Techniques: A Guide for Spill Response Planning in Marine Environments 2013 (NOAA, 2013). This guide outlines advice for response planning across all common techniques, including surface dispersant spraying and containment and recovery. It states that oil thickness can vary by orders of magnitude within distinct areas of a slick, thus the actual slick thickness and oil distribution of target areas are crucial for determining response method feasibility. Further to this, ITOPF also states that in terms of oil spill response, sheen can be disregarded as it represents a negligible quantity of oil, cannot be recovered or otherwise dealt with to a significant degree by existing response techniques, and is likely to dissipate readily and naturally (ITOPF, 2014a, 2014b).

Figure 2-4 from AMSA's Identification of Oil on Water – Aerial Observation and Identification Guide (AMSA, 2014) shows expected percent coverage of surface hydrocarbons as a proportion of total surface area. Windrows, heavy oil patches and tar balls, for example, must be considered, as they influence oil encounter rates, chemical dosages and ignition potential. Each method has different thickness thresholds for effective response.

From this information and other relevant sources (Allen and Dale, 1996; EMSA, 2012; Spence, 2018) the surface threshold of 50 g/m² was chosen as an average/equilibrium thickness (50 g/m² as an average is 50% coverage of 0.1 mm Bonn Agreement Code 4 – discontinuous true oil colour, or 25% coverage of 0.2 mm Bonn Agreement Code 5 – continuous true oil colour, which would represent small patches of thick oil or windrows).

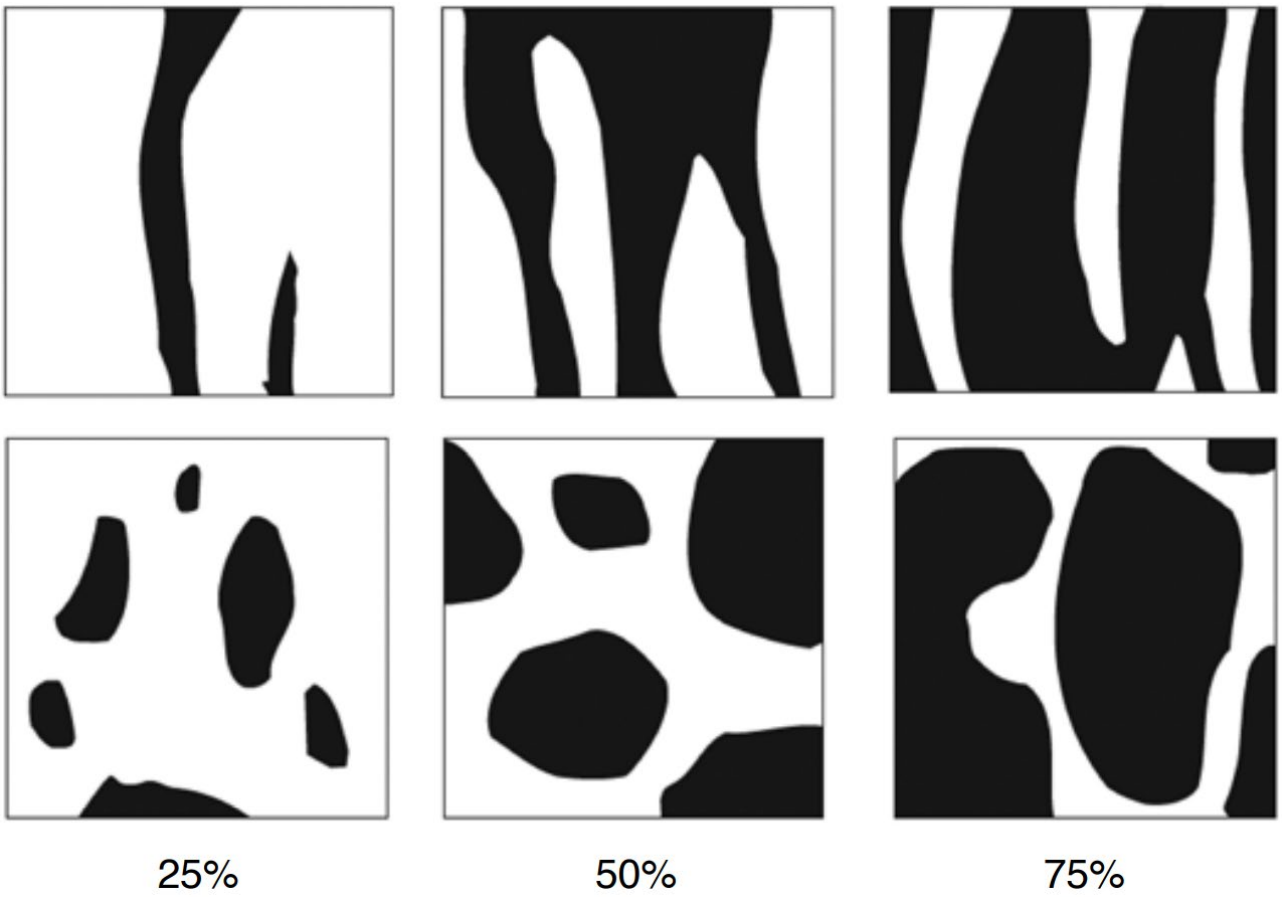


**Figure 2-4: Proportion of total area coverage (AMSA, 2014)**

Figure 2-5 illustrates the general relationships between on-water response techniques and slick thickness. Windrows, heavy oil patches and tar balls, for example, must be considered, as they influence oil encounter rates, chemical dosages and ignition potential. Each method has different thickness thresholds for effective response.

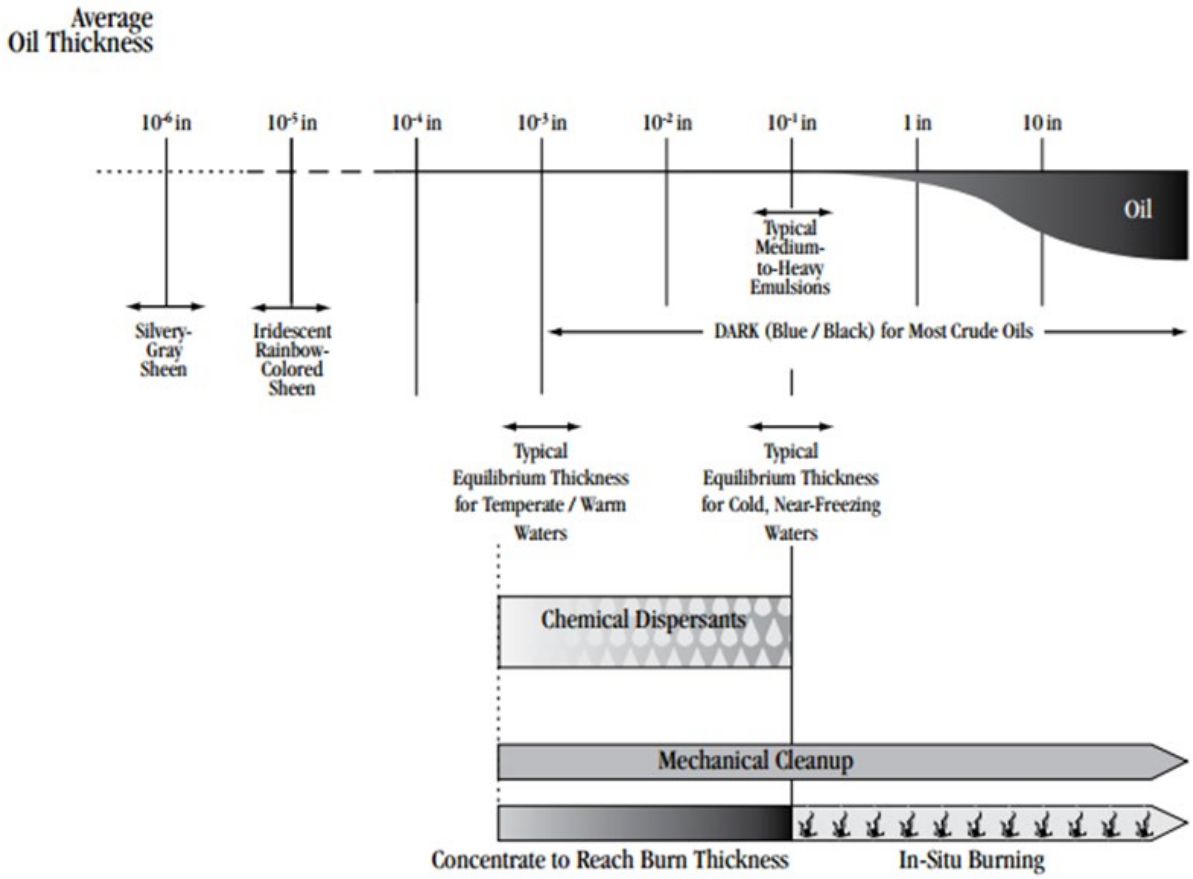


**Figure 2-5: Oil thickness versus potential response options (from Allen and Dale, 1996)**

Wind and waves influence the feasibility of mechanical clean-up operations, dropping the effectiveness significantly because of entrainment and/or splash-over as short period waves develop beyond two to three feet (0.6 to 0.9 m) in height. Waves and wind can also be limiting factors for the safe operation of vessels and aircraft.

### 2.3.2.2 Surface hydrocarbon viscosity

**Table 2-4: Surface hydrocarbon viscosity thresholds**

| Surface viscosity (cSt) | Description | European Maritime Safety Authority | Viscosity at sea temperature (cSt) |
|---|---|---|---|
| 5,000* | Predicted optimum viscosity for surface dispersant operations | Generally possible to disperse | 500 to 5000 |
| 10,000* | Predicted maximum viscosity for effective surface dispersant operations | Sometimes possible to disperse | 5,000 to 10,000 |

* Measured at sea surface temperature

Further to the required thickness for surface dispersant application and containment and recovery to be deployed effectively as outlined above, changes to viscosity will also limit the treatment of offshore response techniques. As outlined in the EMSA Manual on the Applicability of Oil Spill Dispersants (EMSA, 2012), guidance around changes to viscosity and likely effectiveness of surface dispersant application is provided.

This includes the following statements: "*It has been known for many years that it is more difficult to disperse a high viscosity oil than a low or medium viscosity oil. Laboratory testing had shown that the effectiveness of dispersants is related to oil viscosity, being highest for modern "Concentrate, UK Type 2/3" dispersants at an oil viscosity of about 1000 or 2000 mPa.s (1000 to 2000 cSt) and*

*then declining to a low level with an oil viscosity of 10,000 mPa.s (10,000 cSt). It was considered that some generally applicable viscosity limit, such as 2000 or 5000 mPa.s (2000 to 5000 cSt), could be applied to all oils.*"

However, modern oil spill dispersants are generally effective up to an oil viscosity of 5000 mPa.s (5000 cSt) or more, and their performance gradually decreases with increasing viscosity; oils with a viscosity of more than 10,000 cSt are, in most cases, no longer dispersible. Guidance from CEDRE (EMSA, 2012) also indicates that products with a range of 500 to 5000 cSt at sea temperature are generally possible to disperse, while 5000 to 10,000 cSt at sea temperature above pour point are sometimes possible to disperse, with products beyond 10,000 cSt at sea temperature below pour point are generally impossible to disperse.

To support decision making and response planning, a threshold of 10,000 cSt at sea temperature was chosen as a conservative estimate of maximum viscosity for surface dispersant spraying operations.

A condensate or MDO spill scenario will not reach the 10,000 cSt threshold for the duration of the spill.

### 2.3.3 Spill modelling results

Details of the scenario and modelling inputs are included along with deterministic results in **Table 2-5**.

The selected deterministic runs used to represent the WCCS are:

- Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m$^2$).
- Minimum time to shoreline contact (above 100 g/m$^2$).
- Peak mass of oil ashore (tonnes) at any individual shoreline receptor (at concentrations exceeding 100 g/m$^2$).
- Peak mass shoreline accumulation (above 100 g/m$^2$) all shorelines.
- Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb).

**Table 2-5: Worst case credible scenario modelling results**

| Scenario description | Results | | | |
|---|---|---|---|---|
| | CS-01 | | CS-02 | |
| **WCCS – total volume released**<br>Refer to **Section 2.1.1** for detailed hydrocarbon characteristics | Subsea loss of well containment (LOWC) event discharging condensate at the Minerva-4 well site.<br>Hydrocarbon release – ~8368 $m^3$ Minerva-4 Condensate over 81 days<br>Water depth of ~60 m | | Loss of MDO containment resulting from a vessel collision at the nearest point of the operational area to the Victorian coast<br>Hydrocarbon release – 330 $m^3$ MDO over 6 hours<br>Surface release | |
| **WCCS – residual volume remaining post-weathering** | **Wind speed** | **Residue** | **Wind speed** | **Residue** |
| | Low wind | 10%, 836.8 $m^3$ | Low wind | 40%, 132 $m^3$ |
| | Moderate wind | 0%, 0 $m^3$ (within 24 hours) | Moderate wind | 1%, 3.3 $m^3$ (within 72 hours) |
| | High wind | 0%, 0 $m^3$ (within 6 hours) | High wind | 0%, 0 $m^3$ (within 12 hours) |
| **Location** | 38° 43' 7.37" S 142° 57' 44.02" E | | 38° 42' 6.89" S 142° 57' 17.28" E | |
| **Modelling results** | | | | |
| **Surface area of hydrocarbons (>50 g/$m^2$)** | *No contact at any of the assessed thresholds* | | *Surface area not available.*<br>Contact at 50 g/$m^2$ predicted on day 0.1 day at Otway | |
| **Surface area of hydrocarbons (>50 g/$m^2$ and <10,000 cSt)** | *No contact at any of the assessed thresholds* | | *Surface area not available.* | |
| **Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/$m^2$)** | *No contact at any of the assessed thresholds* | | 0.1 day at Otway | |
| **Minimum time to shoreline contact (above 100 g/$m^2$)** | 14.9 days at Warrnambool Plain (6.4 tonnes) – model realisation 75 | | 0.2 days at Warrnambool Plain (186.7 tonnes) | |
| **Peak mass of oil ashore (tonnes) at any individual shoreline receptor (at concentrations exceeding 100 g/$m^2$)** | 6.4 tonnes at Warrnambool Plain (14.9 days) – model realisation 75 | | 186.7 tonnes at Warrnambool Plain (0.2 days) | |
| **Peak mass shoreline accumulation (above 100 g/$m^2$) all shorelines** | 7.5 tonnes at Warrnambool Plain, Otway Plain and Otway Ranges (from 14.9 days) – model realisation 75 | | 186.7 tonnes at Warrnambool Plain (0.2 days) | |
| **Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb)** | 0.1 days at Otway | | 0.1 days at Otway | |
| **The full list of response protection areas (RPAs) predicted from modelling is available in Table 3-1** | | | | |

From the above modelling results, deterministic results from modelling realisation 75 have been used as the basis for response planning for CS-01 and the stochastic modelling results for CS-02.

Analysis of the modelling results, results in the following predictions:

**CS-01 – LOWC**

- The subsea release does not result in surface concentrations for feasible containment and recovery or surface dispersant operations (>50 g/m$^2$).
- Response operations cannot be implemented if the safety of response personnel cannot be guaranteed. Safety circumstances that limit the execution of this control measure include volatile concentrations of hydrocarbons in the atmosphere, high winds (>20 knots), waves and/or sea states (>1.5m waves) and high ambient temperatures.

**CS-02 – MDO**

- Whilst modelling predicts that floating oil will reach the minimum feasible thresholds (>50 g/m$^2$) at which to commence offshore response techniques (containment and recovery and surface dispersant application), these techniques are not suitable for MDO spills:
  - surface dispersant is not effective when applied on thin surface films such as marine diesel as the dispersant droplets tend to pass through the surface films without binding to the hydrocarbon resulting in the unnecessary addition of chemicals to the marine environment
  - corralling a volatile hydrocarbon such as MDO is deemed unsafe for response personnel. MDO is also prone to rapid spreading and evaporation and thus is deemed unsuitable for effective containment and recovery operations.

# 3 IDENTIFY RESPONSE PROTECTION AREAS (RPAs)

In a response, operational monitoring programs – including trajectory modelling and vessel/aerial observations – would be used to predict RPAs that may be impacted. For the purposes of planning and appropriately scaling a response, modelling has been used to identify RPAs as outlined below in Figure 3-1.

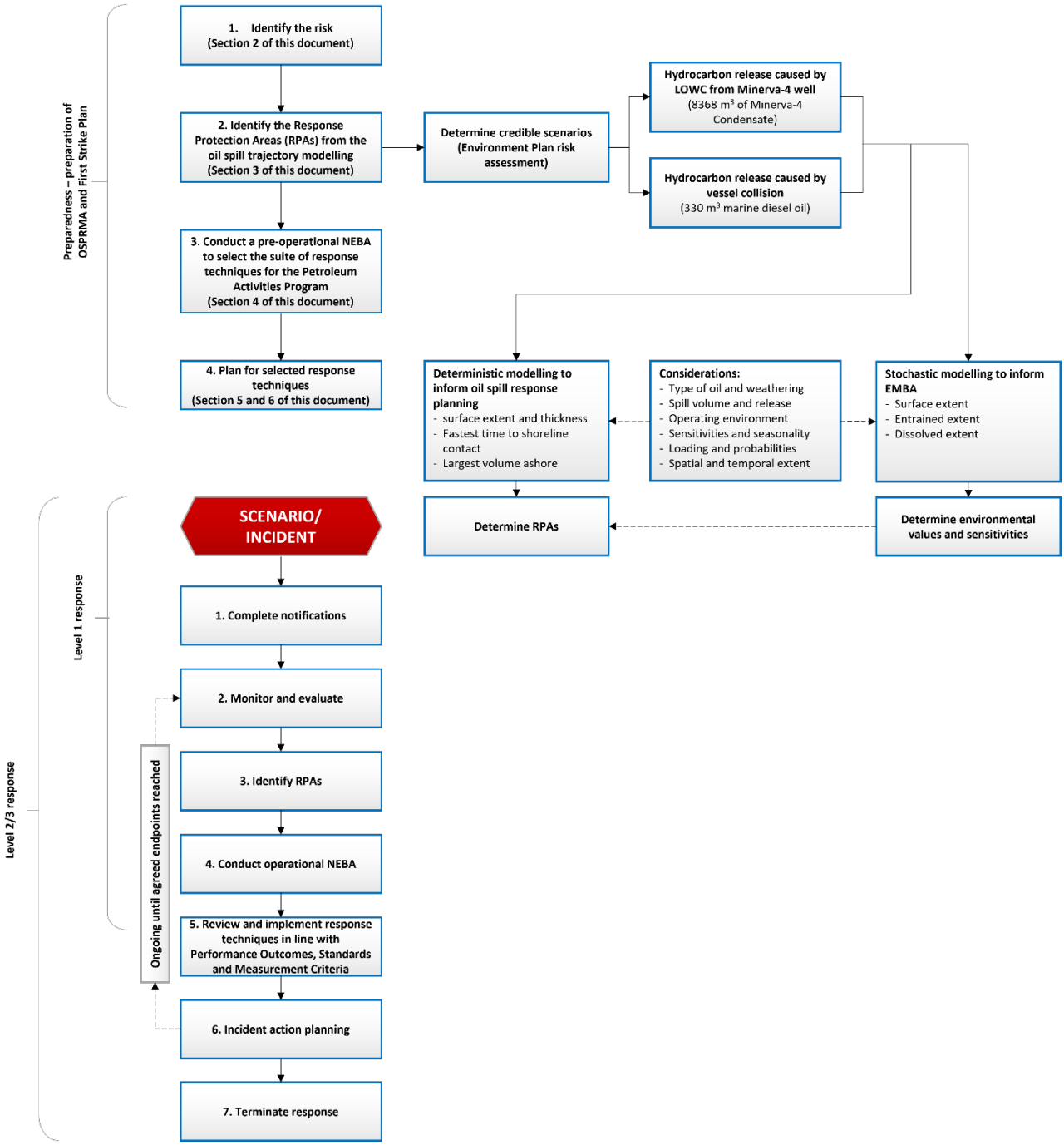


**Figure 3-1: Identify Response Protection Areas (RPAs) flowchart**

## 3.1 Identified sensitive receptor locations

Section 8 of the EP includes the list of sensitive receptor locations that have been identified by stochastic modelling as meeting the requirements outlined below:

- receptors with the potential to incur surface, entrained or shoreline accumulation contact above environmental impact thresholds
- receptors within the EMBA which meet any of the following:
  - priority protection criteria/ categories
  - International Union of Conservation of Nature IUCN marine protected area categories
  - high conservation value habitat and species
  - important socio-economic/ heritage value.

## 3.2 Identify Response Protection Areas (RPAs)

RPAs have been selected based on their environmental ecological, social, economic, cultural and heritage values and sensitivities and the ability to conduct a response based on the minimum response thresholds (Section 2.3.1). The figures outlined in Table 3-1 are the combined results of the individual worst-case runs and do not indicate a single worst case credible scenario (where the timings and volumes are all expected from one release).

From the identified sensitive receptors described in Section 8 of the EP, only those which a shoreline response could feasibly be conducted (accumulation >100 g/m$^2$ for shoreline assessment and/or contact with surface slicks >10 g/m$^2$ for operational monitoring) have been selected for response planning purposes. While not discounting other sensitivities, these RPAs have been used as the basis for demonstrating the capability to respond to the nature and scale of a spill from the WCCS and prioritising response techniques.

Table 3-1 outlines locations which were identified from the modelling runs for the WCCS but does not constitute the full list of Priority Protection Areas (PPAs) potentially contacted from stochastic modelling (as per EMBA definition) (see Section 8 of the EP). Other RPA outliers were identified from the modelling and have been included in the assessment of capability in Sections 5 and 6.

Additional sensitive receptors are presented the existing environment description (Section 4 of the EP) and impact assessment section (Section 8 of the EP) for each respective spill scenario. The pre-operational NEBA (Section 4) considers the results from the stochastic modelling to consider all feasible response techniques in the planning phase, therefore additional receptors are also included in the pre-operational NEBA.

The RPAs identified in Table 3-1 are used to plan for the nature and scale of a shoreline response.

**Table 3-1: Response Protection Areas (RPAs) from deterministic modelling (CS-01) and stochastic modelling (CS-02)**

| Response protection area | Conservation status | IUCN protection category | Minimum time to shoreline contact (above 100 g/m$^2$) in days [4] | Maximum shoreline accumulation (above 100 g/m$^2$) in tonnes [5] | Minimum time to shoreline contact (above 100 g/m$^2$) in days [6] | Maximum shoreline accumulation (above 100 g/m$^2$) in tonnes [7] |
|---|---|---|---|---|---|---|
| Warrnambool Plain | State Marine Park | IUCN II – National Park<br>IUCN III – Natural Monument or Feature | 14.9 days (6.4 tonnes) | 6.4 tonnes (14.9 days) | 0.2 days (186.7 tonnes) | 186.7 (0.2 days) |
| Otway Plain | State Marine Park | IUCN II – National Park<br>IUCN III – Natural Monument or Feature | 23.6 days (1 tonne) | 1 tonne (23.6 days) | 1 day (26.5 tonnes) | 26.5 tonnes (1 days) |
| Otway Ranges | Ramsar Site and State Marine Park | IUCN II – National Park<br>IUCN III – Natural Monument or Feature | 34.3 days (0.7 tonnes) | 0.7 tonnes (34.3 days) | 0.8 days (7.6 tonnes) | 7.6 tonnes (0.8 days) |

[4] This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24-hour period.
[5] This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24-hour time period
[6] This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24-hour period.
[7] This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24-hour time period

# 4 NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)

A Net Environmental Benefit Analysis (NEBA) is a structured process to consider which response techniques are likely to provide the greatest net environmental benefit.

The NEBA process typically involves four key steps outlined in Figure 4-1: evaluate data, predict outcomes, balance trade-offs, and select response options. These steps are followed in the planning/preparedness process and would also be followed in a response.

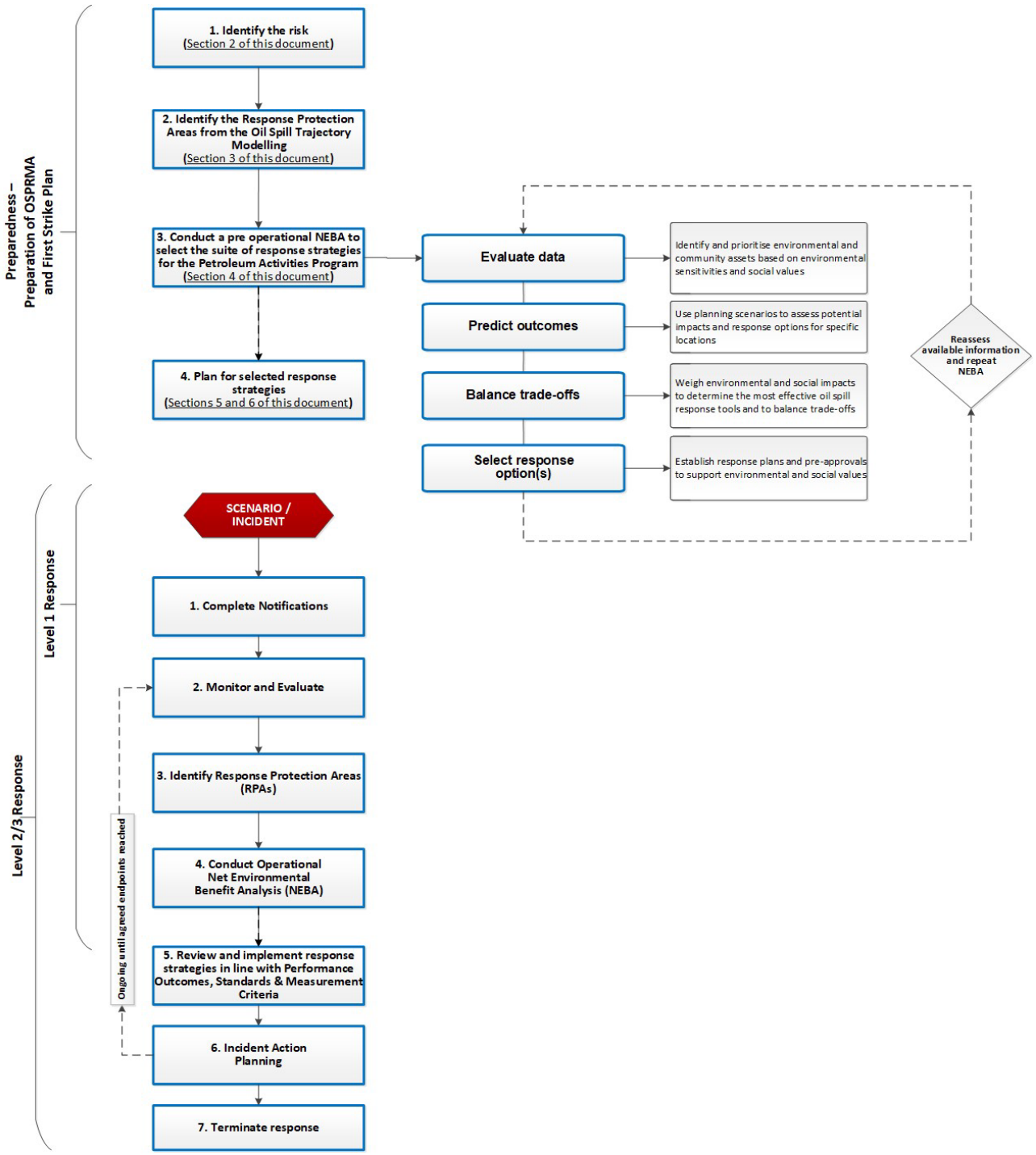


**Figure 4-1: Net Environmental Benefit Analysis (NEBA) flowchart**

## 4.1 Pre-operational / Strategic NEBA

The pre-operational NEBA identifies positive and negative impacts to sensitive receptors from implementing the response techniques. Feasibility is considered by assessing the receptors potentially impacted above response thresholds and the surface concentrations (Table 2-3) from the modelling.

Completing a pre-operational NEBA is a key response planning control that reduces the environmental risks and impacts of implementing the selected response techniques. Comprehensive details of the pre-operational NEBA for this PAP are contained in **ANNEX A: Net Environmental Benefit Analysis detailed outcomes.**

## 4.2 Stage 1: Evaluate data

Woodside identifies and prioritises environmental and community assets based on environmental sensitivities and social values, informed using trajectory modelling. Interpretation of stochastic oil spill modelling determines the EMBA for the release, which defines the spatial area that may be potentially impacted by the PAP.

### 4.2.1 Define the scenario(s)

Woodside uses scenarios identified from the risk assessment in the EP to assess potential impacts and response options for specific locations. The WCCS is then selected for deterministic modelling and is used for this pre-operational NEBA. Outlier locations with potential environmental impacts, selected from the stochastic modelling may also be included for assessment. Response thresholds and deterministic modelling are then used to assess the feasibility/effectiveness and scale of the response. Modelling results are available in **Table 3-1**.

## 4.3 Stage 2: Predict outcomes

Woodside uses planning scenarios to assess potential impacts and response options for specific locations. Locations with potential environmental impacts, selected from the stochastic modelling are included for assessment. Response thresholds and deterministic modelling are then used to assess the feasibility/effectiveness of a response.

## 4.4 Stage 3: Balance trade-offs

Woodside considers environmental impacts and response feasibility/effectiveness to determine the most effective oil spill response tools and balance trade-offs, using an automated NEBA tool. The tool considers potential benefits and impacts associated with a response at sensitive receptors and then considers the feasibility/effectiveness of the response to select the response techniques carried forward to the ALARP assessment. The NEBA can be found in **ANNEX A: Net Environmental Benefit Analysis detailed outcomes**.

## 4.5 Stage 4: Select best response options

To select the response technique, all the other stages in the NEBA process are considered and used to establish response plans and any pre-approvals to support protection of identified environmental and social values.

The response techniques implemented may vary according to a particular spill. The hydrocarbon type released and the sensitivities of the receptors (both ecological and socio-economic) may influence the response. The pre-operational NEBA broadly evaluates each response technique and supports decisions on whether they are feasible and of net environmental benefit. Response techniques that are not feasible or beneficial are rejected at this stage and not progressed to planning.

Further risks and impacts from implementing these selected response options are outlined in Section 7.

### 4.5.1 Determining potential response options

The available response techniques based on current technology can be summarised under the following headings:

- Operational monitoring
- Source control
  - Remotely operated vehicle (ROV) intervention
  - debris clearance and/or removal
  - capping stack
  - relief well drilling
- Source control via vessel SOPEP
- Subsea dispersant injection
- Surface dispersant application:
  - aerial dispersant application
  - vessel dispersant application
- Mechanical dispersion
- In-situ burning
- Containment and recovery
- Shoreline protection and deflection:
  - protection
  - deflection
- Shoreline clean-up:
  - Phase 1 – mechanical clean-up
  - Phase 2 – manual clean-up
  - Phase 3 – final polishing
- Oiled wildlife response (including hazing)

Support functions may include:

- Waste management
- Post spill/scientific monitoring

Table 4-1 and Table 4-2 include scenario-specific assessments of feasible response options and justification for the exclusion of inappropriate options. These options are evaluated against the scenario parameters including oil type, volume, characteristics, prevailing weather conditions, logistical support, and resource availability to determine deployment feasibility.

A shortlist of the feasible response options is then carried forward for the ALARP assessment. This assessment will typically result in a range of available options, that are deployed at different areas (at-source, offshore, nearshore and onshore) and different times during the response. The NEBA process assists in prioritising which options to use where and when, and timings throughout the response.

**Table 4-1: Response technique evaluation – loss of well containment at Minerva-4 well (CS-01)**

| Response Technique | Effectiveness | Feasibility | Decision | Rationale for the decision |
|---|---|---|---|---|
| **Hydrocarbon: Minerva-4 Condensate** | | | | |
| Operational Monitoring | Will be effective in tracking the location of the spill, informing when it has entered State Waters, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include:<br>• OM01 Predictive modelling of hydrocarbons – used throughout spill. 'Ground-truthed' using the outputs of all other monitoring techniques.<br>• OM02 Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill.<br>• OM03 Monitoring of hydrocarbon presence, properties, behaviour and weathering in water – from outset of spill.<br>• OM04 Pre-emptive assessment of sensitive receptors at risk – triggered once OM01, OM02 and OM03 inform likely RPAs at risk.<br>• OM05 Shoreline assessment – once OM02, OM03 and OM04 inform which RPAs have been impacted. | Monitoring of a Minerva-4 Condensate spill is a feasible response technique and an essential element of all spill response incidents. Outputs will be used to guide decision making on the use of other monitoring/response techniques and providing required information to regulatory agencies. | Yes | Monitoring the spill will make it possible to:<br>• validate trajectory and weathering models<br>• determine the behaviour of the oil in water<br>• determine the location and state of the slick<br>• provide forecasts of spill trajectory<br>• determine appropriate response techniques<br>• determine effectiveness of response techniques<br>• confirm impact pathways to receptors<br>• provide regulatory agencies with required information. |
| Source control via blowout preventer (BOP) intervention using ROV and hotstab | Controlling a loss of well containment at source via BOP intervention would be the most effective way to limit the quantity of hydrocarbon entering the marine environment. | In the event of the worst-case scenario with a loss of well containment during drilling operations, ROV operations to locally operate the BOP would be attempted. | Yes | The use of source control intervention via ROV may be feasible (depending on local concentration of atmospheric volatiles) and would reduce quantity of hydrocarbons entering the marine environment. |
| Source control via debris clearance and capping stack | Controlling a loss of well containment at source via capping stack would be an effective way to limit the quantity of hydrocarbon entering the marine environment. | Capping the Minerva wells is not feasible due to the shallow water depths at the well site (~60m) which preclude safe deployment of the capping stack.<br>Woodside does, however, monitor the location of suitable vessels for capping stack deployment monthly and maintains the ability to call-off services with a capping stack and debris clearance agreement. | No | Conventional/vertical capping stack deployment with a heavy lift vessel will not be feasible at the well site due to the shallow water depths.<br>Furthermore, capping stack deployment would only be considered at the discretion of the vessel master on the day, giving due regard to the safety of the vessel and crew. Circumstances that limit the safe execution of this control measure include lower explosive limit (LEL) concentrations, volatile concentrations of hydrocarbons in the atmosphere, weather window, waves and/or sea states and high ambient temperatures. |
| Source control via relief well drilling | A release of condensate will be over approximately 81 days. Relief well drilling is one of the primary options to stop the release. | For a spill from the Minerva wells, relief well drilling will be a feasible means of stopping a loss of well containment event. Relief well drilling is a widely accepted and utilised technique. | Yes | Relief well drilling will be the main technique employed to control a loss of well containment event. |
| Subsea dispersant injection | Application of subsea dispersant may reduce the scale and extent of hydrocarbons reaching the surface and thus may reduce spill volumes contacting predicted RPAs.<br>SSDI can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons.<br>Entrained oil could potentially impact on sensitive shallow-water receptors e.g. corals and fish, which may be otherwise unaffected. | Response not considered feasible for the Minerva wells given the water depth is less than the required minimum of 100 m (Minerva wells release depth is ~60 m). | No | Not appropriate due to the shallow water depths at the Minerva wells (~60 m).<br>Furthermore, due to the minimal surface and shoreline exposure predicted at RPAs from the modelled LOWC scenario, together with this technique not being required to facilitate other source control techniques, the use of SSDI is not deemed appropriate. The application of subsea dispersant would unnecessarily introduce additional chemical substances to the marine environment and further increase exposure of subsea ecosystems to entrained hydrocarbons. |

| Response Technique | Effectiveness | Feasibility | Decision | Rationale for the decision |
|---|---|---|---|---|
| | Entrained oil plume likely to be increased resulting in greater spatial extent of entrained oil. | | | |
| Surface dispersant application | Application of surface dispersant would likely reduce the volumes of hydrocarbons contacting sensitive surface receptors.<br><br>Dispersant can also enhance biodegradation and may reduce VOCs in some circumstances therefore reducing potential health and safety risk to responders.<br><br>Dispersant can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons.<br><br>Subsurface oil plume likely to increase in size resulting in greater spatial extent of entrained oil.<br><br>Entrained oil could potentially impact on sensitive shallow-water receptors e.g. corals, which otherwise may have been unaffected. | Modelling of a LOWC spill for Minerva Plug and Abandonment activities predicts that floating oil will not reach the required minimum threshold (>50 g/m$^2$) for surface dispersant to be effective.<br><br>The volatile nature of Minerva-4 Condensate is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon spill, thus this response technique is deemed unsuitable for this activity. | No | Minerva-4 Condensate will rapidly evaporate and disperse and does not result in minimum spill thickness required for effective surface dispersant application. The use of surface dispersant could unnecessarily introduce additional chemical substances to the marine environment. |
| Mechanical dispersion | Mechanical dispersion involves the use of a vessel's prop wash and/or fire hose to target surface hydrocarbons to achieve dispersion into the water column. However, this technique is of limited benefit in an open ocean environment where wind and wave action are likely to deliver similar advantages. | Although the technique is feasible, highly volatile hydrocarbons are likely to weather, spread and evaporate quickly.<br><br>The volatile nature of the oil likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon.<br><br>Additionally, any vessel used for mechanical dispersion activities would be contaminated by the hydrocarbon and could potentially cause secondary contamination of unimpacted areas when exiting the spill area.<br><br>The decontamination of a vessel used for mechanical dispersion activities would result in additional quantities of oily waste requiring appropriate handling and treatment. | No | Given the limited benefit of mechanical dispersion over natural wind and wave action, secondary contamination and waste issues, and the associated safety risk of implementing the response for this activity, this strategy is deemed unsuitable. |
| In-situ burning | In-situ burning is only effective where minimum slick thickness can be achieved and where calm metocean conditions can be ensured. Use of this technique would also cause an increase the release of atmospheric pollutants. | There is a limited window of opportunity in which this technique can be applied (prior to evaporation of the volatiles) which would be difficult to achieve.<br><br>Furthermore, this technique may be prevented from being undertaken due to personnel safety issues arising from predicted high local concentrations of atmospheric volatiles. | No | The safety concerns and the predicted low effectiveness associated with implementing an in-situ burning response outweigh the potential environmental benefit. |
| Containment and recovery | Containment and recovery have an effective recovery rate of 5-10% when a hydrocarbon encounter rate of 25-50% is achieved at BAOAC 4 and 5. It has the potential to reduce the magnitude, probability, extent, contact and accumulation of hydrocarbon on shorelines receptors when suitable encounter rates can be achieved. It also has the potential to reduce the magnitude and extent of contact with submerged receptors by removing oil before further natural entraining/dissolving of hydrocarbons occurs. | Modelling of a LOWC spill for Minerva Plug and Abandonment activities predicts that floating oil will not reach the required minimum threshold (>50 g/m$^2$) for containment and recovery to be feasible.<br><br>The volatile nature of Minerva-4 Condensate is also likely to lead to unsafe conditions near release location. | No | Containment and recovery would be an ineffective response technique as it requires a hydrocarbon thickness of BAOAC 4-5 with a 50-100% coverage of 100-200 g/m$^2$. Modelling does not predict any surface hydrocarbons above 50 g/m$^2$, thus this response strategy is considered ineffective. |
| Shoreline protection and deflection | Shoreline protection and deflection can be effective at preventing contamination of sensitive resources and can be used to corral oil into slicks thick enough to skim effectively. | For CS-01, deterministic modelling predicts first shoreline accumulation from floating surface hydrocarbon will occur on Day 14.9 (6.4 tonnes at Warrnambool Plain) allowing adequate time to deploy this technique.<br><br>Protection strategies can be used for targeted protection of sensitive resources. | Yes | RPAs predicted to be contacted are based on modelling outputs and thus may differ under the prevailing conditions of a real event.<br><br>If RPAs are deemed to be at risk, based on real-time operational monitoring during a spill event, shoreline protection and deflection techniques will be employed to |

| Response Technique | Effectiveness | Feasibility | Decision | Rationale for the decision |
|---|---|---|---|---|
| | | Real-time Operational Monitoring activities (OM01, OM02 and OM03) will be deployed to inform shorelines at risk of contact. Pre-emptive assessments of sensitive receptors at risk (OM04) and existing TRPs will be utilised to guide shoreline protection and deflection operations, in agreement with regulatory and control agencies (for Level 2/3 spills).<br><br>Access to sensitive areas may cause more negative impact than benefit. | | minimise hydrocarbon accumulations providing net environmental benefit. |
| Shoreline clean-up | Shoreline clean-up is an effective means of hydrocarbon removal from contaminated shorelines where coverage is at an optimum level of 250 g/m$^2$. | For CS-01, deterministic modelling predicts first shoreline accumulation from floating surface hydrocarbon will occur on Day 14.9 (6.4 tonnes at Warrnambool Plain) allowing adequate time to deploy this technique.<br><br>Can reduce or prevent impact on sensitive receptors in most cases.<br><br>Real-time Operational Monitoring activities (OM01, OM02 and OM03) will be deployed to inform shorelines at risk of contact. Pre-emptive assessments of sensitive receptors at risk (OM04), shoreline assessment (OM05) and existing TRPs will be utilised to guide shoreline clean-up operations, in agreement with regulatory and control agencies (for Level 2/3 spills).<br><br>Through shoreline assessment, verify that sensitive sites will benefit from clean-up activities as the response itself may cause more negative impact than benefit through disturbance of habitats and species. | Yes | Response Protection Areas predicted to be contacted are based on modelling outputs and thus may differ under the prevailing conditions of a real event.<br><br>If RPAs are at risk, based on real-time operational monitoring during a spill event, shoreline clean-up techniques will be deployed to expedite clean-up of the impacted sites.<br><br>Removal of hydrocarbons will help shorten the recovery window unless shoreline type is of a sensitive nature.<br><br>This technique can help prevent remobilisation of hydrocarbon and impact on shorelines. |
| Oiled wildlife | Oiled wildlife response is an effective response technique for reducing the overall impact of a spill on wildlife. This is mostly achieved through hazing to prevent additional wildlife from being contaminated and through rehabilitation of those already subject to contamination. | If wildlife is at risk of contamination, oiled wildlife response will be undertaken in accordance with the Oiled Wildlife Response Operational Plan as and where required. In addition, any rehabilitation could only be undertaken by trained specialists.<br><br>Due to the likely volatile atmospheric conditions surrounding a Minerva-4 Condensate spill, response options may be limited to hazing to keep response personnel safe. | Yes | This technique may prevent impact to and/or treat oiled wildlife providing net environmental benefit. |

**Table 4-2: Response technique evaluation – vessel collision at nearest point of the operational area to the Victorian coast (CS-02)**

| Response Technique | Effectiveness | Feasibility | Decision | Rationale for the decision |
|---|---|---|---|---|
| **Hydrocarbon: MDO** | | | | |
| Operational Monitoring | Will be effective in tracking the location of the spill, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include:<br>• OM01 Predictive modelling of hydrocarbons – used throughout spill. 'Ground-truthed' using the outputs of all other monitoring techniques.<br>• OM02 Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill.<br>• OM03 Monitoring of hydrocarbon presence, properties, behaviour and weathering in water – from outset of spill.<br>• OM04 Pre-emptive assessment of sensitive receptors at risk – triggered once OM01, OM02 and OM03 inform likely RPAs at risk.<br>OM05 Shoreline assessment – once OM02, OM03 and OM04 inform if any RPAs have been impacted. | Monitoring of a MDO spill is a feasible response technique and an essential element of all spill response incidents. Outputs will be used to guide decision making on the use of other monitoring/response techniques and providing required information to regulatory agencies. | Yes | Monitoring the spill will make it possible to:<br>• validate trajectory and weathering models<br>• determine the behaviour of the oil in water<br>• determine the location and state of the slick<br>• provide forecasts of spill trajectory<br>• determine appropriate response techniques<br>• determine effectiveness of response techniques<br>• confirm impact pathways to receptors<br>• provide regulatory agencies with required information. |
| Source control via vessel SOPEP | Controlling the spill of diesel at source would be the most effective way to limit the quantity of hydrocarbon entering the marine environment. | A spill of diesel from a vessel collision will be instantaneous and source control will be limited to what the vessel or facility can safely achieve whilst responding to the incident. | Yes | Ability to stop the spill at source will be dependent upon the specific spill circumstances and whether it is safe for response personnel to access/isolate the source of the spill. |
| Surface dispersant application | Application of surface dispersant would likely reduce the volumes of hydrocarbons contacting sensitive surface receptors.<br>Dispersant can also enhance biodegradation and may reduce VOCs in some circumstances therefore reducing potential health and safety risk to responders.<br>Dispersant can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons.<br>Subsurface oil plume likely to increase in size resulting in greater spatial extent of entrained oil.<br>Entrained oil could potentially impact on sensitive shallow-water receptors e.g. corals, which otherwise may have been unaffected. | Whilst modelling predicts that floating oil will reach the minimum feasible threshold at which to commence surface dispersant application (>50 g/m$^2$) within Otway, this technique is not suitable for MDO spills as this hydrocarbon is prone to rapid spreading and evaporation. Dispersants are not considered effective when applied on thin surface films such as MDO as the dispersant droplets tend to pass through the surface films without binding to the hydrocarbon resulting in the unnecessary addition of chemicals to the marine environment.<br>The volatile nature of MDO is also likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon thus this response technique is deemed inappropriate. | No | The application of dispersant to marine diesel is unnecessary as the diesel will rapidly evaporate and would thus unnecessarily introduce additional chemical substances to the marine environment. The additional entrainment would also increase exposure of subsea species and habitats to hydrocarbons. |
| Mechanical dispersion | Mechanical dispersion involves the use of a vessel's prop wash and/or fire hose to target surface hydrocarbons to achieve dispersion into the water column. However, this technique is of limited benefit in an open ocean environment where wind and wave action are likely to deliver similar advantages. | Although the technique is feasible, highly volatile hydrocarbons are likely to weather, spread and evaporate quickly.<br>The volatile nature of the oil likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon.<br>Additionally, any vessel used for mechanical dispersion activities would be contaminated by the hydrocarbon and could potentially cause secondary contamination of unimpacted areas when exiting the spill area. | No | Given the limited benefit of mechanical dispersion over natural wind and wave action, secondary contamination and waste issues, and the associated safety risk of implementing the response for this activity, this strategy is deemed unsuitable. |

| Response Technique | Effectiveness | Feasibility | Decision | Rationale for the decision |
|---|---|---|---|---|
| | | The decontamination of a vessel used for mechanical dispersion activities would result in additional quantities of oily waste requiring appropriate handling and treatment. | | |
| In-situ burning | In-situ burning is only effective where minimum slick thickness can be achieved. | Use of in-situ burning as a response technique for marine diesel is unfeasible as the minimum slick thickness cannot be attained due to rapid spreading.<br>In addition, there is a limited window of opportunity in which this technique can be applied (prior to evaporation of the volatiles) which is unlikely to be achieved.<br>Furthermore, entering a volatile environment to undertake this technique would be unsafe for response personnel and its used would unnecessarily cause an increase the release of atmospheric pollutants. | No | Diesel characteristics are not appropriate for the use of in-situ burning and would unnecessarily cause an increase the release of atmospheric pollutants. |
| Containment and recovery | Containment and recovery has an effective recovery rate of 5-10% when a hydrocarbon encounter rate of 25-50% is achieved at BAOAC 4 and 5 with a 50-100% coverage of 100 g/m$^2$ to 200 g/m$^2$. | Whilst modelling predicts that floating oil will reach the minimum feasible threshold at which to commence containment and recovery (50 g/m$^2$) within Otway, this technique is not suitable for MDO spills as it is prone to rapid spreading and evaporation and is therefore deemed unsuitable for effective containment and recovery operations.<br>The volatile nature of marine diesel is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon thus this response technique is deemed inappropriate. | No | Containment and recovery would be an inappropriate response technique for a spill of marine diesel. Corralling a volatile hydrocarbon such as MDO is deemed unsafe for response personnel thus this response strategy is not considered feasible. In addition to the safety issues, most of the spilled diesel would have been subject to rapid evaporation prior to the commencement of containment and recovery operations. |
| Shoreline protection and deflection | Shoreline protection and deflection can be effective at preventing contamination of sensitive resources and can be used to corral oil into slicks thick enough to skim effectively. | For CS-02, stochastic modelling predicts first shoreline accumulation from floating surface hydrocarbon will occur on Day 0.2 (186.7 tonnes at Warrnambool Plain).<br>Protection strategies can be used for targeted protection of sensitive resources.<br>Real-time Operational Monitoring activities (OM01, OM02 and OM03) will be deployed to inform shorelines at risk of contact. Pre-emptive assessments of sensitive receptors at risk (OM04) and existing TRPs will be utilised to guide shoreline protection and deflection operations, in agreement with regulatory and control agencies (for Level 2/3 spills).<br>Access to sensitive areas may cause more negative impact than benefit. | Yes | RPAs predicted to be contacted are based on modelling outputs and thus may differ under the prevailing conditions of a real event.<br>If RPAs are deemed to be at risk, based on real-time operational monitoring during a spill event, shoreline protection and deflection techniques will be employed to minimise hydrocarbon accumulations providing net environmental benefit. |
| Shoreline clean-up | Shoreline clean-up is an effective means of hydrocarbon removal from contaminated shorelines where coverage is at an optimum level of 250 g/m$^2$. | For CS-02, stochastic modelling predicts first shoreline accumulation from floating surface hydrocarbon will occur on Day 0.2 (186.7 tonnes at Warrnambool Plain).<br>Can reduce or prevent impact on sensitive receptors in most cases.<br>Real-time Operational Monitoring activities (OM01, OM02 and OM03) will be deployed to inform shorelines at risk of contact. Pre-emptive assessments of sensitive receptors at risk (OM04), shoreline assessment (OM05) and existing TRPs will be utilised to guide shoreline clean-up operations, in agreement with regulatory and control agencies (for Level 2/3 spills).<br>Through shoreline assessment, verify that sensitive sites will benefit from clean-up activities as the response itself may cause more negative impact than benefit through disturbance of habitats and species. | Yes | Response Protection Areas predicted to be contacted are based on modelling outputs and thus may differ under the prevailing conditions of a real event.<br>If RPAs are at risk, based on real-time operational monitoring during a spill event, shoreline clean-up techniques will be deployed to expedite clean-up of the impacted sites.<br>Removal of hydrocarbons will help shorten the recovery window unless shoreline type is of a sensitive nature.<br>This technique can help prevent remobilisation of hydrocarbon and impact on shorelines. |
| Oiled wildlife response | Oiled wildlife response is an effective response technique for reducing the overall impact of a spill on wildlife. This is mostly achieved through hazing to prevent additional wildlife from being contaminated and through rehabilitation of those already subject to contamination. | If wildlife is at risk of contamination, oiled wildlife response will be undertaken in accordance with the Oiled Wildlife Response Operational Plan as and where required. In addition, any rehabilitation could only be undertaken by trained specialists. | Yes | This technique may prevent impact to and/or treat oiled wildlife providing net environmental benefit. |

| Response Technique | Effectiveness | Feasibility | Decision | Rationale for the decision |
|---|---|---|---|---|
| | | Due to the likely volatile atmospheric conditions surrounding an MDO spill, response options may be limited to hazing to keep response personnel safe. | | |

# 5 HYDROCARBON SPILL ALARP PROCESS

Woodside's hydrocarbon spill ALARP process is aligned with guidance provided by NOPSEMA in *ALARP Guidance Note N-04300-GN0166* (2022) and *Oil Spill Risk Management Guidance Note N-04750-GN1488* (2021) and is set out in the 'Woodside Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) Guidelines'.

From the identified response planning need and pre-operational NEBA/SIMA, Woodside conducts a structured, semi-quantitative hydrocarbon spill process which has the following steps:

1. considers the Response Planning Need identified in terms of surface area ($km^2$) and available surface hydrocarbon volumes ($tonnes/m^3$) against existing Woodside capability.
2. considers alternative, additional, and improved options for each response technique/control measure by providing an initial and, if required, detailed evaluation of:
    - predicted cost associated with adopting the control measure
    - predicted change/environmental benefit
    - predicted effectiveness/feasibility of the control measure.
3. evaluates the risks and impacts of implementing the proposed response techniques, and any further control measures with associated environmental performance to manage these additional risks and impacts.

Woodside considers the risks and impacts from a hydrocarbon spill to have been reduced to ALARP when:

1. a structured process for identifying and considering alternative, additional, and improved options has been completed for each selected response technique.
2. the analysis of alternate, additional, and improved control measures meets one of the following criteria:
    - all identified, reasonably practicable control measures have been adopted; or
    - no identified reasonably practicable additional, alternative and/or improved control measures would provide further overall increased proportionate environmental benefit; or
    - no reasonably practical additional, alternative, and/or improved control measures have been identified.
3. where an alternative, additional and/or improved control measure is adopted, a measurable level of environmental performance has been assigned.
4. higher order impacts/risks have received more comprehensive alternative, additional, and improved control measure evaluations and do not just compare the cost of the adopted control measures to the costs of an extreme or unreasonable control measure.
5. cumulative effects have been analysed when considered in combination across the whole activity.

The response technique selection is based on the risk assessment conducted in the EP. The risk assessment identifies the type of oil, volume of release, duration of release, predicted fate, weathering and the EMBA (along with other requirements such as time to impact and predicted volumes ashore). Modelling is then used to inform the NEBA and the prioritisation of suitable response options. The scale of the response techniques selected in the pre-operational NEBA is informed through the assessment of results from deterministic modelling.

For the ALARP assessment, the following terms and definitions have been used:

- Response techniques are considered the control measures that reduce consequences from hydrocarbon spill events. The terms ‘response technique’ and ‘control measure’ are used interchangeably.
- Cost is defined as the time, effort and/or trouble taken in financial, safety, design/storage/installation, capital/lease, and/or operations/maintenance terms to adopt a control measure.
- Where the predicted change to environmental impact is compared against standard environmental values and sensitivities impacts using positive or negative criteria from the NEBA Impact Ranking Classification Guidance in Annex A.

## 5.1 Operational Monitoring

Operational Monitoring includes the gathering and evaluation of data to inform the oil spill response planning and operations. It includes fate and trajectory modelling, spill tracking, weather updates and field observations. This response option is deployed in some capacity for every event.

The table below provides the operations monitoring plans that support the successful execution of this response technique.

**Table 5-1: Description of supporting operational monitoring plans**

| ID | Title |
|---|---|
| **OM01** | Predictive modelling of hydrocarbons to assess resources at risk |
| **OM02** | Surveillance and reconnaissance to detect hydrocarbons and resources at risk |
| **OM03** | Monitoring of hydrocarbon presence, properties, behaviour and weathering in water |
| **OM04** | Pre-emptive assessment of sensitive receptors at risk |
| **OM05** | Shoreline assessment |

Woodside maintains an *Operational Monitoring Operational Plan*. If shoreline contact is predicted, Response Protection Areas (RPAs) will be identified and assessed before contact. If shorelines are contacted, a shoreline assessment survey will be completed to guide effective shoreline clean-up operations. This plan includes the process for the CIMT to mobilise resources depending on the nature and scale of the spill.

The proximity of Avalon and Ballarat airports to the spill event location means that multiple logistical options are available to monitor the spill in relatively short timeframes. In the unlikely event of an extended spill with potential to impact receptors further afield, monitoring activities may also be mobilised from other airfields in Victoria.

### 5.1.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which a response need can be based:

- For CS-01, floating any of the assessed thresholds (1 g/m$^2$, 10 g/m$^2$ or 50 g/m$^2$) is not predicted for the duration of the spill.
- For CS-02, floating oil at 1 g/m$^2$, 10 g/m$^2$ or 50 g/m$^2$ are predicted up to 75 km, 25 km and 10 km from the spill location respectively.
- The shortest timeframe that shoreline contact from floating oil is predicted is 0.2 days (CS-02) and 14.9 days (CS-01).
- The time to contact for oil at concentrations of entrained hydrocarbons greater than 100 ppb at shoreline receptors is 0.1 days at Otway for both scenarios.
- Arrangements for support organisations who provide specialist services or resources should be tested regularly.
- Plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.
- The duration of the spill may extend up to 81 days with response operations extending to month 3 based on the predicted time to complete shoreline clean-up operations.

### 5.1.2 Environmental performance based on need

**Table 5-2: Environmental Performance – Operational Monitoring**

| **Environmental Performance Outcome** | | To gather information from multiple sources to establish an accurate common operating picture as soon as possible and predict the fate and behaviour of the spill to validate planning assumptions and adjust response plans as appropriate to the scenario. | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| 1 | Oil spill trajectory modelling | 1.1 | Initial modelling available within 6 hours using the Rapid Assessment Tool | 1, 3B, 3C, 4 |
| | | 1.2 | Detailed modelling available within 4 hours of APASA receiving information from Woodside | |
| | | 1.3 | Detailed modelling service available for the duration of the incident upon contract activation | |
| 2 | Tracking buoy | 2.1 | Tracking buoy located on facility/lead vessel and ready for deployment 24/7 | 1, 3A, 3C, 4 |
| | | 2.2 | Deploy tracking buoy from facility/lead vessel within 2 hours as per the First Strike Plan. | 1, 3A, 3B, 4 |
| | | 2.3 | Contract in place with service provider to allow data from tracking buoy to be received 24/7 and processed. | 1, 3B, 3C, 4 |
| | | 2.4 | Data received to be uploaded into Woodside COP daily to improve the accuracy of other Operational Monitoring techniques. | 1, 3B, 4 |
| 3 | Satellite imagery | 3.1 | Contract in place with 3rd party provider to enable access and analysis of satellite imagery. Imagery source/type requested on activation of service. | 1, 3C, 4 |
| | | 3.2 | 3rd party provider will confirm availability of an initial acquisition within 2 hours | 1, 3B, 3C, 4 |
| | | 3.3 | First image received with 24 hours of Woodside confirming to 3rd party provider its acceptance of the proposed acquisition plan. | 1 |
| | | 3.4 | 3rd party provider to submit report to Woodside per image. Report is to include a polygon of any possible or identified slick(s) with metadata. | 1 |
| | | 3.5 | Data received to be uploaded into Woodside COP daily to improve accuracy of other Operational Monitoring techniques. | 1, 3B, 4 |
| | | 3.6 | Satellite Imagery services available and employed during response | 1, 3C, 4 |
| 4 | Aerial surveillance | 4.1 | 1 trained aerial observer available to be deployed by day 1 from resource pool. | 1, 2, 3B, 3C, 4 |
| | | 4.2 | 1 aircraft available for two sorties per day, available for the duration of the response from day 1 | 1, 3C, 4 |
| | | 4.3 | Observer to compile report during flight as per First Strike Plan. Observers report available to the CIMT within 2 hours of landing after each sortie. | 1, 2, 3B, 4 |

| **Environmental Performance Outcome** | | To gather information from multiple sources to establish an accurate common operating picture as soon as possible and predict the fate and behaviour of the spill to validate planning assumptions and adjust response plans as appropriate to the scenario. | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| | | 4.4 | Unmanned Aerial Vehicles/Systems (UAV/UASs) to support SCAT, containment and recovery and surface dispersal and pre-emptive assessments as contingency if required. | 1, 2 |
| 5 | Hydrocarbon detections in water | 5.1 | Activate 3rd party service provider as per First Strike Plan. Deploy resources within 3 days:<br>• 3 specialists in water quality monitoring<br>• 2 monitoring systems and ancillaries<br>• 1 vessel for deploying the monitoring systems with a dedicated winch, A-frame or Hiab and ancillaries to deploy the equipment. | 1, 2, 3C, 3D, 4 |
| | | 5.2 | Water monitoring services available and employed during response | 1, 3C, 4 |
| | | 5.3 | Preliminary results of water sample as per contractor's implementation plan within 7 days of receipt of samples at the accredited lab | |
| | | 5.4 | Daily fluorometry reports as per service provider's implementation plan will be provided to CIMT to validate modelling and monitor presence/absence of entrained hydrocarbons. | |
| 6 | Pre-emptive assessment of sensitive receptors | 6.1 | Within 24 hours, in liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), deployment of 2 specialists from resource pool in establishing the status of sensitive receptors. | 1, 2, 3B, 3C, 4 |
| | | 6.2 | Daily reports provided to CIMT on the status of the receptors to prioritise Response Protection Areas (RPAs) and maximise effective utilisation of resources. | 1, 3B, 4 |
| 7 | Shoreline assessment | 7.1 | Within 24 hours, in liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), deployment of 2 specialists in SCAT from resource pool for each of the Response Protection Areas (RPAs) with predicted impacts | 1, 2, 3B, 3C, 4 |
| | | 7.2 | SCAT reports provided to CIMT daily detailing the assessed areas to maximise effective utilisation of resources | 1, 3B, 4 |
| | | 7.3 | Shoreline access routes with the least environmental impact identified will be selected by a specialist in SCAT operations | 1 |

The control measures and capability of Woodside and its third-party service providers are shown to support Operational Monitoring activities up to and including the identified WCCS. This is demonstrated by the following:

- Woodside has a documented, structured and tested capability for Operational Monitoring operations including internal trajectory modelling capabilities, tracking buoys located offshore and contracted aerial observation platforms with access to trained observers.
- Woodside and its third-party service providers seek to maintain sufficient capability for the duration of the response.

- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in **Section 6.1**.

## 5.2 Source control and well intervention

The worst-case credible scenario for a LOWC (CS-01), is considered major damage to, or complete loss of, the Xmas tree during decommissioning activities. This scenario would result in an uncontrolled flow from the well as outlined in the EP. In the event of a complete break or separation of the tree, the primary response would be relief well drilling.

Woodside is a signatory to a MoU between Australian offshore operators to provide mutual aid to facilitate and expedite mobilising a MODU and drilling a relief well, if a subsea scenario were to occur. The MoU commits the signatories to share rigs, equipment, personnel and services to assist another operator in need.

### 5.2.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which a response need can be based:

- Prior to any source control activities, Woodside will implement protocols seeking to ensure that the site is safe including subsea ROV surveys and surface air monitoring.
- Hydrocarbons will flow from the well until one of the following interventions can be made:
  - direct intervention by ROV to close BOP
  - a relief well is drilled and first attempt at well kill within 81 days.
- Arrangements for support organisations who provide specialist services or resources should be tested regularly.
- Plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.
- The duration of the spill may extend up to 81 days with response operations extending to 3 months based on the predicted time to complete shoreline clean-up operations.

In addition, assumptions are required to estimate the response need for source control. These assumptions have been described in the table below.

**Table 5-3: Response Planning Assumptions – Source Control**

| Response planning assumptions | |
|---|---|
| **Safety considerations** | Source control operations cannot be implemented if the safety of response personnel cannot be guaranteed. This requires an initial and ongoing risk assessment of health and safety hazards and risks at the site, in accordance with the Woodside Management System (WMS). Personnel safety issues may include:<br>• hydrocarbon gas and/or liquid exposure<br>• high winds, waves and/or sea states<br>• high ambient temperatures. |
| **Feasibility considerations** | Woodside's primary source control option would be ROV intervention followed by relief well drilling for the Minerva-4 well.<br>The following approaches outline Woodside's hierarchy for relief well drilling;<br>• Primary – Review internal drilling programs and MODU availability to source an appropriate rig operating within Australia with an approved Safety Case;<br>• Alternate – Source and contract a MODU through Australian Energy Producers (AEP) MOU that is operating within Australia with an approved Safety Case;<br>• Contingency – Source and contract a MODU outside Australia with an approved Australian Safety Case |

### 5.2.2 Environmental performance based on need

**Table 5-4: Environmental Performance – Source Control**

| **Environmental Performance Outcome** | | To stop the flow of hydrocarbons into the marine environment | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| 8 | Subsea First Response Toolkit (SFRT) | 8.1 | Oceaneering support staff available all year round, via contract, to assist with the mobilisation, deployment, and operation of the SFRT equipment. | 1, 3B, 3C |
| | | 8.2 | Intervention vessel with minimum requirement of a working class ROV and operator. | 1, 3C |
| | | 8.3 | Mobilised to site for deployment within 11 days. | 1, 3B, 3C |
| | | 8.4 | Open communication line to be maintained between CIMT and infield operations to ensure awareness of progress against plan(s). | 1, 3A, 3B |
| 9 | Well intervention | 9.1 | Frame agreements with ROV providers in place to be mobilised upon notification. ROV equipment deployed within 7 days for locally available vessel or 15 days for vessel outside the region. | 1, 3B, 3C |
| | | 9.2 | Source control vessel will have the following minimum specifications:<br>• active heave compensated crane, rated to at least 250 T.<br>• at least 90 m in length<br>• deck has water/electricity supply | 1, 3B, 3C |
| | | 9.3 | Identify source control vessel availability within 24 hours and begin contracting process. Vessel mobilised to site for deployment within 16 days. | 1, 3B, 3C |
| | | 9.4 | ROV available on MODU ready for deployment within 48 hours to attempt initial BOP well intervention. | 1, 3B, 3C |
| | | 9.5 | Hot Stab and/or well intervention attempt made using ROV and SFRT within 48 hours. | 1, 3B, 3C |
| | | 9.6 | Wild Well Control Inc (WWCI) staff available all year round to assist with relief well drilling activities. | 1, 3B, 3C |
| | | 9.7 | MODU mobilised to site for relief well drilling within 21 days for a locally available MODU, or 43 days for a MODU from outside the region. | 1, 3C |
| | | 9.8 | First well kill attempt completed within 81 days | 1, 3B, 3C |
| | | 9.9 | Open communication line(s) to be maintained between CIMT and infield operations to ensure awareness of progress against plan(s). | 1, 3A, 3B |
| | | 9.10 | Relief Well Peer review undertaken during well design which includes screening and identification of suitable MODU(s) with in-force Australian safety cases for relief well drilling. | 1, 3C |
| | | 9.11 | Monthly monitoring of the availability of MODUs through existing market intelligence including current Safety Case | 3C |

| **Environmental Performance Outcome** | | To stop the flow of hydrocarbons into the marine environment | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| | | | history, to meet specifications for relief well drilling. Titleholders of suitable MODUs notified. | |
| | | 9.12 | Prior to commencing activity, reconfirm that pre-identified/screened MODU(s) remain available for relief well drilling and engage titleholder. | 1, 3C |
| 10 | Support vessels | 10.1 | Monthly monitoring of the availability of larger vessels through existing Frame Agreements and market intelligence to meet specifications for source control. | 3C |
| | | 10.2 | Frame agreements for installation support vessels (ISVs) require vessels to maintain in-force safety case approvals covering ROV operations and provide support in the event of an emergency. | 1, 3B, 3C |
| | | 10.3 | MODU and vessel contracts include clause outlining requirement for support in the event of an emergency | 1, 3C |
| 11 | Safety Case | 11.1 | Woodside will prioritise MODU or vessel(s) for intervention work(s) that have an existing safety case | 1, 3C |
| | | 11.2 | Woodside Planning, Logistics, and Safety Officers (on roster/Call 24/7) to assist in expediting the safety case assessment process as far as practicable. | 1, 3C |
| | | 11.3 | Woodside will maintain minimum safe operating standards that can be provided to MODU and vessel operators for Safety Case guidance. | 1, 3C |

The resulting source control capability has been assessed against the WCCS. The range of techniques provide a feasible and viable approach to relief well drilling operations to stop the well flowing.

- The health and safety, financial, capital and operations/maintenance costs of implementing the alternative, additional or improved control measures identified and not carried forward are considered grossly disproportionate to the insignificant environmental benefit gained and/or not reasonably practicable for this PAP.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.2.

## 5.3 Source Control via Vessel SOPEP

Vessel source control will be conducted, where feasible and in accordance with MARPOL 73/78 Annex I, by the Vessel Master under the Shipboard Oil Pollution Emergency Plan (SOPEP) triggered by any loss of containment from the PAP vessels.

The SOPEP provides guidance to the Master and Officers on board the vessel with respect to the extra steps to be taken when an unexpected pollution incident has occurred or is likely to occur. The SOPEP contains all information and operational instructions required by IMO Resolution MEPC.54 (32) adopted on 6 March 1992, as amended by resolution MEPC.86 (44) adopted on 13 March 2000.

The SOPEP's purpose is to set in motion the necessary actions to stop or minimise oil discharge and mitigate its effects and outlines responsibilities, pollution reporting requirements, procedures and resources needed in the event of a hydrocarbon spill from vessel activities.

In the event of the WCCS vessel collision event, the vessel master may engage precautionary marine manoeuvres to avoid collision or commence pumping operations to transfer marine diesel and thus minimise the release.

### 5.3.1 Environmental performance based on need

Woodside has established control measures, environmental performance outcomes, performance standards and measurement criteria to be used for vessel-source oil spill response during the PAP, which are detailed in Section 8 of the EP. The vessel master's roles and responsibilities are described in EP Section 9.

Performance standards for each contracted PAP vessel are detailed in the vessel's specific SOPEP.

These standards confirm the availability of sufficient resources and adequate testing of those resources to implement the SOPEP in the event of a hydrocarbon spill.

## 5.4 Shoreline Protection and Deflection

The placement of containment, protection or deflection booms on and near a shoreline is a response technique to reduce the potential volume of hydrocarbons contacting or spreading along shorelines, which may reduce the scale of shoreline clean-up. Hydrocarbons contained by the booms would be collected where practicable.

Shorelines would be protected where accessible via vessel or shore. Where hydrocarbon contact has already occurred, there may still be value in deploying protection equipment to limit further accumulations and preventing remobilisation of stranded hydrocarbons.

Shoreline protection and deflection equipment would be mobilised to selected locations, where the following conditions were met:

- Sea-states and hydrocarbon characteristics are safe to deploy protection and deflection measures,
- Oil trajectory has been identified as heading towards identified RPAs.

### 5.4.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which the response need can be based:

- The shortest timeframe that shoreline contact from floating oil is predicted is at Warrnambool Plains on 0.2 days (CS-02) and 14.9 days (CS-01).
- Pre-emptive assessment and shoreline assessments (OM04 and OM05) will be mobilised to locations with shoreline contact at 100 g/m$^2$, which occurs at Warrnambool Plains on 0.2 days (CS-02) and 14.9 days (CS-01).
- The duration of the spill may be up to 81 days with shoreline response operations extending to 3 months based on the predicted time to complete shoreline clean-up operations.
- Arrangements for support organisations who provide specialist services (trained personnel, protection and deflection equipment) and/or resources and should be tested regularly.
- Tactical Response Plans (TRPs) for Response Protection Areas (RPAs) along with other relevant plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.
- Following Shoreline Assessment and agreement of prioritisation with regulatory or jurisdictional authorities, clean-up operations would commence until agreed termination criteria are reached.

In addition, assumptions are required to estimate the response need for Shoreline Protection and Deflection. These assumptions have been described in the table below.

**Table 5-5: Response Planning Assumptions – Shoreline Protection and Deflection**

| Response Planning Assumptions | |
|---|---|
| **Safety considerations** | Shoreline protection and deflection operations cannot be implemented if the safety of response personnel cannot be guaranteed. This requires an initial and ongoing risk assessment of health and safety hazards and risks at the site. Personnel safety issues may include:<br>• hydrocarbon gas and/or liquid exposure<br>• safe for deployment and conditions within range of vessels<br>• high ambient temperatures. |
| **Shoreline Protection and Deflection** | One shoreline protection and deflection operation may include:<br>• Quantity of shoreline sealing boom (as outlined in TRP)<br>• Quantity of fence or curtain boom (as outlined in TRP)<br>• 1-2 x trained supervisors<br>• 8-10 x personnel/labour hire<br>Specific details of each operation would be tailored to the Tactical Response Plan implemented (where available). |

### 5.4.2 Environmental performance based on need

**Table 5-6: Environmental Performance – Shoreline protection and deflection**

| **Environmental Performance Outcome** | | To stop hydrocarbons encountering particularly sensitive areas | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| 12 | Response teams | 12.1 | In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), relevant Tactical Response Plans (TRPs) will be identified in the First Strike Plan for activation within 24-48 hours of predicted impact. | 1, 3A, 3C, 4 |
| | | 12.2 | In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), mobilise teams to RPAs within 24-48 hours of predicted impact. Teams to contaminated RPAs comprised of:<br>• 1-2 trained specialists per operation<br>• 8-10 personnel/labour hire<br>• Personnel sourced through resource pool. | 1, 2, 3B, 3C, 4 |
| | | 12.3 | In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents),1 operation mobilised within 24-48 hours to each identified RPA. Expected to be 3 RPAs within 24-48 hours for CS-02 (operation as detailed above). | 1, 3A, 3B, 4 |
| | | 12.4 | 14 trained personnel available within 24-48 hours sourced through resource pool. | 1, 2, 3A, 3B, 3C, 4 |
| | | 12.5 | Open communication line to be maintained between CIMT and infield operations to ensure awareness of progress against plan(s) | 1, 3A, 3B |
| | | 12.6 | The safety of shoreline response operations will be considered and appropriately managed. During shoreline operations:<br>• All personnel in a response will receive an operational/safety briefing before commencing operations<br>• Gas monitoring and site entry protocols will be used to assess safety of an operational area before allowing access to response personnel | 1, 3B, 4 |
| 13 | Response equipment | 13.1 | Equipment mobilised from closest stockpile within 24 hours. | 1, 3A, 3C, 4 |
| | | 13.2 | Supplementary equipment mobilised from State and AMSA stockpiles 48 hours. | 1, 3C, 3D, 4 |
| | | 13.3 | Supplementary equipment mobilised from OSRL within 48 hours. | |
| | | 13.4 | Woodside would have access to campaign vessels and additional vessels can be sourced through other operators, existing contracts or emergency contracting process. | 1, 3A, 3C, 4 |
| 14 | Management of Environmental Impact of the response risks | 14.1 | If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified | 1 |
| | | 14.2 | Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines | |

The resulting shoreline protection and deflection capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to shoreline protection and deflection at identified RPAs.

Under optimal conditions, during the subsea and surface releases the capability available meets the need identified. It indicates that, the shoreline protection and deflection capability have the following expected performance:

- The shortest timeframe that shoreline contact is predicted is at Warrnambool Plains on 0.2 days (CS-02) and 14.9 days (CS-01).
- Existing capability allows for mobilization and deployment of shoreline protection operations within 24-48 (if required). The existing capability is considered sufficient to mobilise and deploy protection at RPAs prior to hydrocarbon contact, guided by the ongoing operational monitoring.
- The most significant constraint on expanding the scale of response operations is the availability of accommodation and transport services in the region, and the management of response generated waste.
- TRPs have been developed for all identified RPAs.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in **Section 6.4**.

## 5.5 Shoreline Clean-up

Shoreline clean-up may be undertaken using a broad range of techniques when floating hydrocarbons contact shorelines. The timing, location and extent of shoreline clean-up activities can vary from one scenario to another, depending on the hydrocarbon type, sensitivities and values contacted, shoreline type and access, degree of oiling, and area oiled.

Shoreline clean-up is typically undertaken as a three-phase process:

- phase one (gross contamination removal) involving the collection of bulk oil, either floating against the shoreline or stranded on it
- phase two (moderate to heavy contamination removal) involving removal or in-situ treatment of shoreline substrates such as sand or pebble beaches, and
- phase three (final treatment or polishing) involving removal of the remaining residues of oil.

As phase one typically involves recovery of floating and pooled oil, and phase three removes minor volumes, they have not been considered in the assessment of response need for the scenarios identified.

The *Shoreline Clean-up Operational Plan* details the mobilisation and resource requirements for a shoreline clean-up operation including the logistics, support and facility arrangements to manage the movement of personnel and resources.

The *Shoreline Clean-up Operational Plan* includes the process for the CIMT to mobilise resources depending on the nature and scale of the spill. Woodside would activate and mobilise trained and competent personnel in shoreline assessment before or following shoreline contact at response thresholds.

Shoreline clean-up consists of different manual and mechanical recovery techniques to remove hydrocarbons and contaminated debris from a shoreline.  to minimise ongoing environmental contamination and impact. The National Plan also provides guidance on shoreline clean-up techniques as outlined in National Plan Guidance *Response assessment and termination of cleaning for oil contaminated foreshores* (AMSA 2015).

### 5.5.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which the response need can be based:

- The shortest timeframe that shoreline contact from floating oil is predicted is at Warrnambool Plains on 0.2 days (CS-02) and 14.9 days (CS-01).
- Pre-emptive assessment and shoreline assessments (OM04 and OM05) will be mobilised to locations with shoreline contact at 100 g/m$^2$, which occurs at Warrnambool Plains on 0.2 days (CS-02) and 14.9 days (CS-01).
- The duration of the spill may be up to 81 days with shoreline response operations extending to month 3 based on the predicted time to complete shoreline clean-up operations.
- Arrangements for support organisations who provide specialist services (trained personnel, protection and deflection equipment) and/or resources and should be tested regularly.
- Tactical Response Plans (TRPs) for Response Protection Areas (RPAs) along with other relevant plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.
- Following Shoreline Assessment and agreement of prioritisation with regulatory or jurisdictional authorities, clean-up operations would commence until agreed termination criteria are reached.

In addition, assumptions are required to estimate the response need for shoreline clean-up. These assumptions have been described in the table below.

**Table 5-7: Response Planning Assumptions – Shoreline Clean-up**

| Response planning assumptions: Shoreline clean-up | |
|---|---|
| **Safety considerations** | Shoreline clean-up operations cannot be implemented if the safety of response personnel cannot be guaranteed. This requires an initial and ongoing risk assessment of health and safety hazards and risks at the site. Personnel safety issues may include:<br>• hydrocarbon gas and/or liquid exposure<br>• waves and/or sea states, tidal cycle and intertidal zone limits<br>• presence of wildlife<br>• high ambient temperatures. |
| **Manual shoreline clean-up operation (Phase 2)** | One, manual shoreline clean-up operation (Phase 2) may include:<br>• 1–2 x trained supervisor<br>• 8–10 x personnel/labour hire<br>• Supporting equipment for manual clean-up including rakes, shovels, plastic bags etc. |
| **Physical properties** | Surface Threshold<br>• Lower – 100 g/m$^2$ –100% coverage of 'stain' – cannot be scratched off easily on coarse sediments or bedrock<br>– Expected trigger to undertake detailed shoreline survey<br>• Optimum – 250 g/m$^2$ – 25% coverage of 'coat' – can be scratched off with a fingernail on coarse sediments<br>– Expected trigger to commence clean-up operations |
| **Efficiency**<br>**(m$^3$ oil recovered per person per day)** | Manual shoreline clean-up (Phase 2) – approximately 0.25–1 m$^3$ oil recovered per person per 10-hour day is based on moderate to high coverage of oil (100 g/m$^2$–1000 g/m$^2$) with manual removal using shovels/rakes, etc. from studies of previous response operations and exercises |

**Table 5-8: Shoreline Clean-up techniques and recommendations**

| Technique | Description | Shoreline type | | Application |
|---|---|---|---|---|
| | | Recommended | Not recommended | |
| Natural recovery | Allowing shoreline to self-clean; no intervention undertaken. | Remote and inaccessible shorelines for personnel, vehicles and machinery.<br>Other clean-up techniques may cause more damage than allowing the shoreline to naturally recover.<br>Natural recovery may be recommended for areas with mangroves and coral reefs due to their sensitivity to disturbance from other shoreline clean-up techniques.<br>High-energy shorelines: where natural removal rates are high, and hydrocarbons will be removed over a short timeframe. | Low-energy shorelines: these areas tend to be where hydrocarbon accumulates and penetrates soil and substrates. | May be employed, if the operational NEBA identifies that other clean-up techniques will have a negligible or negative environmental impact on the shoreline.<br>May also be used for buried or reworked hydrocarbons where other techniques may not recover these. |
| Manual recovery | Use of manpower to collect hydrocarbons from the shoreline.<br>Use of this form of clean-up is based on type of shoreline. | Remote and inaccessible shorelines for vehicles and machinery.<br>Areas where shorelines may not be accessible by vehicles or machinery and personnel can recover hydrocarbons manually.<br>Where hydrocarbons have formed semi-solid to solid masses that can be picked up manually.<br>Areas where nesting and breeding fauna cannot or should not be disturbed. | Coral reef or other sensitive intertidal habitats, as the presence of a response may cause more environmental damage then allowing them to recover naturally.<br>For some high-energy shorelines such as cliffs and sea walls, manual recovery may not be recommended as it may pose a safety threat to responders. | May be used for sandy shorelines. Buried hydrocarbons may be recovered using shovels into small carry waste bags, but where possible the shoreline should be left to naturally recover to prevent any further burying of hydrocarbons (from general clean-up activities). |

| Technique | Description | Shoreline type | | Application |
|---|---|---|---|---|
| | | Recommended | Not recommended | |
| Sorbents | Sorbent boom or pads used to recover fluid or sticky hydrocarbons. Can also be used after manual clean-up to remove any residues from crevices or from vegetation. | When hydrocarbons are free-floating close to shore or stranded onshore.<br>As a secondary treatment method after hydrocarbon removal and in sensitive areas where access is restricted. | Access for deploying and retrieving sorbents should not be through soft or sensitive habitats or affect wildlife. | Used for rocky shorelines.<br>Sorbent boom will allow for deployment from small shallow draught vessels, which will allow deployment close to shore where water is sheltered and to aid recovery.<br>Sorbents will create more solid waste compared with manual clean-up, so will be limited to cleaning rocky shorelines. |
| Vacuum recovery, flushing, washing | The use of high volumes of low-pressure water, pumping and/or vacuuming to remove floating hydrocarbons accumulated at shorelines. | Suited to rocky or pebble shores where flushing can remobilise hydrocarbons (to be broken up) and aid natural recovery.<br>Any accessible shoreline type from land or water. May be mounted on barges for water-based operations, on trucks driven to the recovery area, or hand-carried to remote sites.<br>Flushing and vacuum may be useful for rocky substrate.<br>Medium- to high-energy shorelines where natural removal rates are moderate to high.<br>Where flushed hydrocarbons can be recovered to prevent further oiling of shorelines. | Areas of pooled light, fresh hydrocarbons may not be recoverable via vacuum due to fire and explosion risks.<br>Shorelines with limited access.<br>Flushing and washing not recommended for loose sediments.<br>High-energy shorelines where access is restricted. | High volume low pressure (HVLP) flushing and washing into a sorbent boom could be used for rocky substrate, if protection booming has been unsuccessful in deflecting hydrocarbons from these areas. |

| Technique | Description | Shoreline type | | Application |
|---|---|---|---|---|
| | | Recommended | Not recommended | |
| Sediment reworking | Movement of sediment to surf to allow hydrocarbons to be removed from the sediment and move sand via heavy machinery. | When hydrocarbons have penetrated below the surface.<br>Recommended for pebble/cobble shoreline types.<br>Medium- to high-energy shorelines where natural removal rates are moderate to high. | Low-energy shorelines as the movement of substrate will not accelerate the natural cleaning process.<br>Areas used by fauna which could potentially be affected by remobilised hydrocarbons. | Use of wave action to clean sediment: appropriate for sandy beaches where light machinery is accessible. |
| Vegetation cutting | Cutting vegetation to prevent oiling and reduce volume of waste and debris. | Vegetation cutting may be recommended to reduce the potential for wildlife being oiled.<br>Where oiling is restricted to fringing vegetation. | Access in bird-nesting areas should be restricted during nesting seasons.<br>Areas of slow-growing vegetation. | May be used on shorelines where vegetation can be safely cleared to reduce oiling. |
| Cleaning agents (OSCA) | Application of chemicals such as dispersants to remove hydrocarbons. | May be used for manmade structures and where public safety may be a concern. | Natural substrates and in low-energy environments where sufficient mixing energy is not present. | Not recommended for shorelines. Could be used for manmade structures such as boat ramps. |

### 5.5.2 Environmental performance based on need

**Table 5-9: Environmental Performance – Shoreline Clean-up**

| **Environmental Performance Outcome** | | To remove bulk and stranded hydrocarbons from shorelines and facilitate shoreline amenity habitat recovery. | | |
|---|---|---|---|---|
| **Control measure** | | | | **Measurement Criteria (Section 5.10)** |
| 11 | Shoreline responders | 15.1 | In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), deployment of 1 shoreline clean-up teams to each contaminated RPAs comprised of:<br>• 1-2 trained specialists per operation<br>• 8-10 personnel/labour hire<br>• Personnel sourced through resource pool within 24-48 hours of request from the CIMT. | 1, 2, 3A, 3B, 3C, 4 |
| | | 15.2 | In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), relevant Tactical Response Plans (TRPs) will be identified in the First Strike plan for activation within 24-48 hours of predicted impact. | 1, 3A, 3C, 4 |
| | | 15.3 | Clean-up operations for shorelines in line with results and recommendations from SCAT outputs | 1, 3A, 3B |
| | | 15.4 | All shoreline clean-up sites will be zoned and marked before clean-up operations commence to prevent secondary contamination and minimise the mixing of clean and oiled sediment and shoreline substrates. | |
| | | 15.5 | In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), mobilise and deploy up to 3 shoreline clean-up operations within 24-48 hours | 1, 2, 3A, 3C, 4 |
| | | 15.6 | The safety of shoreline response operations will be considered and appropriately managed. During shoreline clean-up operations:<br>• All personnel in a response will receive an operational/safety briefing before commencing operations<br>• Gas monitoring and site entry protocols will be used to assess safety of an operational area before allowing access to response personnel | 1, 3B, 4 |
| | | 15.7 | Open communication line to be maintained between CIMT and infield operations to ensure awareness of progress against plan(s) | 1, 3A, 3B |
| 12 | Shoreline clean up equipment | 15.8 | Contract in place with 3rd party providers to access equipment. | 1, 3A, 3C, 4 |
| | | 16.1 | Equipment mobilised from closest stockpile within 24 hours. | |
| | | 16.2 | Supplementary equipment mobilised from State and AMSA stockpiles within 48 hours. | 1, 3C, 3D, 4 |
| | | 16.3 | Supplementary equipment mobilised from OSRL within 48 hours. | |
| 13 | Management of environmental impact of the response risks | 16.4 | If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified | 1 |

| Environmental Performance Outcome | | To remove bulk and stranded hydrocarbons from shorelines and facilitate shoreline amenity habitat recovery. | | |
|---|---|---|---|---|
| **Control measure** | | | | **Measurement Criteria (Section 5.10)** |
| | | 17.1 | Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines | |
| | | 17.2 | Vehicular access will be restricted on dunes, turtle nesting beaches an in mangroves | |
| | | 17.3 | Removal of vegetation will be limited to moderately or heavily oiled vegetation | |
| | | 17.4 | Oversight by trained personnel who are aware of the risks. | |
| | | 17.5 | Trained unit leaders will brief personnel prior to operations of the environmental risks of presence of personnel on the shoreline. | |

The resulting shoreline clean-up capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to shoreline clean-up at identified RPAs. Woodside's capability can cover all required shoreline clean-up operations for the PAP.

Whilst modelling predicts shoreline contact from day 1 (Warrnambool), Woodside is satisfied that the current capability is managing risks and impacts to ALARP.

The capability available meets the need identified for this activity. The shoreline clean-up capability has the following expected performance (if required during a response):

- Woodside has the capacity to mobilise and deploy up to 6-10 shoreline clean-up teams (approximately 18-70 responders in total) by the end of week 1 using existing labour hire contracts with Woodside, AMOSC, Core Group, AMSA, and OSRL team leads.
- Assessment of response capability indicates that for a worst-case scenario the actual teams required would meet the available capability and the response would be completed by end month 3 (CS-02).
- Woodside has considered deployment of additional personnel to undertake shoreline clean-up operations but is satisfied that the identified level of resource is balanced between cost, time and effectiveness. The most significant constraint on expanding the scale of response operations is the availability of accommodation and transport services in the region and management of response generated waste.
- TRPs have been developed for all identified RPAs.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.5.

## 5.6 Oiled wildlife response (including hazing)

Oiled wildlife response (OWR) includes wildlife surveillance/reconnaissance, wildlife hazing, pre-emptive capture, and the capture, cleaning, treatment, and rehabilitation of animals that have been oiled. In addition, it includes the collection, post-mortem examination, and disposal of deceased animals that have succumbed to the effects of oiling.

For a petroleum activity spill in Commonwealth waters, Woodside will act as the Control Agency and will be responsible for the wildlife response with advice and assistance from Department of Energy, Environment and Climate Action (DEECA). For a petroleum activity spill in State waters, DEECA will act as the Control Agency and will be responsible for the wildlife response. Woodside will continue to function as a support organisation for the OWR and will continue to provide planning and resources as required.

In such circumstances, Woodside would implement a response in accordance with the *Victorian Emergency Animal Welfare Plan* (Department of Jobs, Skills, Industry and Regions (DJSIR) (formerly Department of Jobs, Precincts and the Regions (DJPR)) and DEECA (formerly Department of Environment, Land Water and Planning (DELWP)), 2019) and Woodside's *Oiled Wildlife Response Operational Plan*. The latter includes the process for the CIMT to mobilise resources depending on the nature and scale of the spill.

Woodside retains specialist personnel to support and manage oiled wildlife operations, including trained and competent responders. Additional personnel would be sourced through Woodside's arrangements to support an oiled wildlife response as required.

### 5.6.1 Response need based on predicted consequence parameters

#### Wildlife Response Priority Areas and Assessment of Wildlife Impact

French-McCay et al. (2002), based on a review of existing literature at the time, determined lethal thresholds for floating and shoreline oil for the external coating of wildlife to be 10 g/m$^2$ for floating, and 100 g/m$^2$ for shoreline accumulation. It should however be noted that toxicity thresholds for wildlife are likely to be highly variable due to differences in species sensitivity, type of hydrocarbon, type of exposure (ingestion or external oiling), life-stage, and on-water versus land habitat.

For planning purposes, determination of wildlife priority protection areas is based on stochastic modelling of the worst-case spill scenarios at 10 g/m$^2$ for floating, and 100 g/m$^2$ for shoreline accumulation (acknowledging that impacts to wildlife may occur at lower concentrations), the known presence of wildlife, and in consideration of the following:

- Presence of high densities of wildlife, threatened species, and/or endemic species with high site fidelity
- Greatest probability of shoreline accumulation
- Shortest timeframe to contact

At the time of a spill, identification and allocation of wildlife response priority areas should also take into consideration any key biological activities.

**Table 5-10: Key at-risk species potentially in Priority Protection Areas and open ocean**

| Species | Open ocean | Warrnambool Plain | Otway Plain | Otway Ranges | The Arches | Twelve Apostles | Otway |
|---|---|---|---|---|---|---|---|
| Marine turtles (including traversing/migrating and/or foraging) | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Whale sharks | x | x | x | x | x | x | x |
| Sea snakes | x | x | x | x | x | x | x |
| Seabirds and/or migratory shorebirds | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cetaceans – migratory whales | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Cetaceans – dolphins and porpoises | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Dugongs | x | x | x | x | x | x | x |
| Pinnipeds | ✓ | ✓ | x | ✓ | x | x | x |
| Sharks and rays | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |

The following statements identify the key parameters upon which a wildlife response need can be based:

- Floating oil at >10 g/m$^2$ is predicted at Otway within 0.1 day for CS-02. There is no floating oil at >10 g/m$^2$ predicted for CS-01.
- The shortest timeframe for shoreline accumulation at response thresholds (>100 g/m$^2$) is predicted at Warrnambool Plain on day 0.2 (186.7 tonnes) for CS-02 and on day 14.9 (6.4 tonnes) for CS-01.
- At sea there are likely to be low numbers of at risk or impacted wildlife, and limited opportunities to rescue wildlife, given the distribution and behaviour of animals in the open marine environment.
- As the surface oil approaches shorelines and as oil accumulates on the shoreline, potential for oiled wildlife impacts is likely to increase as well as opportunities to rescue wildlife.

**Tactics**

Where there is imminent or actual impact to wildlife, Woodside will activate the Wildlife Division and follow the oiled wildlife incident management framework and implementation plan outlined in the Woodside *Oiled Wildlife Operational Plan*.

In Commonwealth waters, Woodside will be responsible for the planning and implementation of the OWR in its entirety. Noting that at sea, and in comparison, to the shoreline, there are likely to be less wildlife impacted by an oil spill and limited opportunities to rescue wildlife, given the distribution and behaviour of animals in the open marine environment. At sea, continued wildlife reconnaissance, carcass recovery, sampling of carcasses that cannot be retrieved and integration with scientific monitoring are more likely to be the focus of the OWR.

In State waters, until formal handover to DEECA occurs, Woodside can conduct the initial first-strike response actions for wildlife and continue to manage those operations after handover at the direction of DEECA.

### 5.6.2 Environmental performance based on need

**Table 5-11: Environmental Performance – Oiled Wildlife Response**

| **Environmental Performance Outcome** | | Oiled Wildlife Response is conducted in accordance with the *Victorian Emergency Animal Welfare Plan* (DJPR and DELWP, 2019) to ensure it is conducted in accordance with legislative requirements. | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| 18 | Wildlife response arrangements | 18.1 | Oiled Wildlife Operational Plan in place and utilised during a response to plan, coordinate, implement and terminate operations. | 1, 3A, 4 |
| | | 18.2 | Initiate a wildlife first strike response within 24 hours of confirmed or imminent wildlife contact as directed by relevant Operational Monitoring techniques (OM01-05) and in liaison with DEECA. | 1 |
| 19 | Wildlife response equipment | 19.1 | Maintain contract with AMOSC for immediate access to oiled wildlife response equipment. | 1, 3C, 3D, 4 |
| | | 19.2 | Maintain contract with OSRL to access additional oiled wildlife response equipment. | 1, 3C, 3D, 4 |
| 20 | Wildlife responders | 20.1 | Two Oiled Wildlife Team Members to supervise the oiled wildlife operations who have completed an Oiled Wildlife Response Management course. | 1, 2, 3B |
| | | 20.2 | Maintain contract with AMOSC for immediate access to trained oiled wildlife response specialists. | 1, 3B, 3C |
| | | 20.3 | Maintain contract with OSRL to access additional trained oiled wildlife response specialists. | 1, 3B, 3C |
| | | 20.4 | Open communication line to be maintained between CIMT and infield operations to ensure awareness of progress against plan(s). | 1, 3A, 3B |
| 21 | Management of environmental impacts of response risks | 21.1 | Oiled wildlife operations (including hazing) would be implemented with advice and assistance from DEECA. | 1 |

The resulting wildlife response capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to response at identified RPAs.

Under optimal conditions, during the subsea or surface release, the capability available meets the need identified. It indicates that, the wildlife response capability has the following expected performance:

- Undertake OWR first strike response:
  - Mobilisation of operational monitoring (OM01-05) to identify wildlife and RPAs contacted or at imminent risk of contact by hydrocarbons.
- Availability and mobilisation of trained OWR personnel to supervise OWR activities.
- Access to wildlife resources (personnel and equipment) to meet the needs where there are medium or high levels of wildlife impact.

## 5.7 Waste Management

Waste management is considered a support technique to wildlife response, containment and recovery and shoreline clean-up. Waste generated and collected during the response that will require handling, management and disposal may consist of:

- Liquids (recovered oil/water mixture), collected during shoreline clean-up and oiled wildlife operations
- Semi-solids/solids (oily solids), collected during shoreline clean-up and oiled wildlife operations
- Debris (e.g. seaweed, sand, woods, plastics), collected during shoreline clean-up and oiled wildlife operations

Expected waste volumes during an event are likely to vary depending on oil type, volume released, response techniques employed and how weathering of hydrocarbons. Waste management, handling and capacity should be scalable to maintain continuous response operations.

All waste management activities will follow the Victoria Environment Protection Regulations 2021 and the waste will be managed to minimise final disposal volumes. Waste treatment techniques will consider contaminated solids treatment to allow disposal to landfill and solids with high concentrations of hydrocarbon will be treated and recycled where possible or used in clean fill if suitable.

The waste products would be transported from response locations to the nearest suitable staging area/waste transfer station for treatment, disposal or recycling. Waste will be transferred with appropriately licensed vehicles. Containers will be available for temporary waste storage and will be:

- labelled with the waste type
- provided with appropriate lids to prevent waste being blown overboard
- bunded if storing liquid wastes.
- processes will be in place for transfers of bulk liquid wastes and include:
  - inspection of transfer hose undertaken prior to transfer
  - watchman equipped with radio visually monitors loading hose during transfer
  - tank gauges monitored throughout operation to prevent overflow

The *Oil Spill Preparedness Waste Management Support Plan* details the procedures, capability and capacity in place between Woodside and its primary waste services contractor to manage waste volumes generated from response activities.

### 5.7.1 Response need based on predicted consequence parameters

**Table 5-12: Response Planning Assumptions – Waste Management**

| Response planning assumptions: Waste management | |
|---|---|
| Waste loading per $m^3$ oil recovered (multiplier) | Shoreline clean-up (manual) – approximately 5-10x multiplier for oily solid and liquid wastes generated by manual clean-up. |
| | Oiled wildlife response – approximately 1 $m^3$ of oily solid and liquid waste generated for each wildlife unit cleaned |

### 5.7.2 Environmental performance based on need

**Table 5-13: Environmental Performance – Waste Management**

| **Environmental Performance Outcome** | | To minimise further impacts, waste will be managed, tracked and disposed of in accordance with laws and regulations. | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| 22 | Waste Management | 22.1 | Contract with waste management services for transport, removal, treatment and disposal of waste | 1, 3A, 3B, 3C, 4 |
| | | 22.2 | Access to at least 213 $m^3$ of solid and liquid waste storage available within 2 days upon activation of 3rd party contract. | |
| | | 22.3 | Access to up to 2400 $m^3$ by end of week 1. | |
| | | 22.4 | Recovered hydrocarbons and wastes will be transferred to licensed treatment facility for reprocessing or disposal. | |
| | | 22.5 | Waste management provider support staff available year-round to assist in the event of an incident with waste management as detailed in contract. | |
| | | 22.6 | Open communication line to be maintained between CIMT and waste management services to ensure the reliable flow of accurate information between parties. | 1, 3A, 3B |
| | | 22.7 | Waste management to be conducted in accordance with Australian laws and regulations | 1, 3A, 3B, 3C, 4 |
| | | 22.8 | Waste management services available and employed during response | |
| 23 | Management of environmental impacts of response risks | 23.1 | Teams will segregate liquid and solid wastes at the earliest opportunity. | 1, 3A, 3B, 3C, 4 |

The resulting waste management capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to waste management at identified RPAs.

The largest shoreline volumes are predicted during week 1 at a maximum volume of ~220 tonnes/$m^3$ (CS-02), with ~1100-2200 tonnes/$m^3$ waste expected across all shoreline clean-up operations, therefore the capability available exceeds the need identified.

It indicates that the waste management capability has the following expected performance:

- Shoreline and nearshore operations for both CS-01 and CS-02 may generate up to ~2303 tonnes/$m^3$ over 2-3 months of operations.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in **Section 6.6**.
- Woodside's waste contractor has access to approximately 80,000 $m^3$ to treat overall waste volumes over the duration of the spill response. The waste management requirements are within Woodside's and its service providers existing capacity.

## 5.8 Scientific monitoring

A scientific monitoring program (SMP) would be activated following a Level 2 or 3 unplanned hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. This would consider receptors at risk (ecological and socio-economic) for the entire predicted EMBA and in particular, any identified Pre-emptive Baseline Areas (PBAs) for the credible spill scenario(s) or other identified unplanned hydrocarbon releases associated with the Petroleum Activities Program (PAP) (refer to Table 2-1: PAP credible spill scenarios).

The outputs of the stochastic hydrocarbon spill modelling are used to assess the environmental risk, in terms of delineating which areas of the marine environment are predicted to be exposed to hydrocarbons exceeding environmental threshold concentrations (refer to Table 2-2, Section 2.3.1). The summary of all the locations where hydrocarbon thresholds could be exceeded by any of the simulations modelled is defined as the EMBA. The Petroleum Activities Program worst-case credible spill scenarios, CS-01 and CS-02, define the EMBAs and are the basis of the SMP approach presented in this section.

It should be noted that the resulting SMP receptor locations differ from the Response Protection Areas (RPAs) presented and discussed in Section 3 of this document due to the applicability of different hydrocarbon threshold levels. The SMP would be informed by the data collected via the operational monitoring program (OMP) studies, however, it differs from the OMP in being a long-term program independent of, and not directing, the operational oil spill response or monitoring of impacts from response activities (refer to Section 5.1) for operational monitoring overview).

Key objectives of the Woodside oil spill scientific monitoring program are:

- Assess the extent, severity and persistence of the environmental impacts from the spill event; and
- Monitor subsequent recovery of impacted key species, habitats and ecosystems.

The SMP comprises ten targeted environmental monitoring programs to assess the condition of a range of physico-chemical (water and sediment) and biological (species and habitats) receptors including EPBC Act listed species, environmental values associated with protected areas and socio-economic values, such as fisheries. The ten SMPs are as follows:

- SM01 – Assessment of the presence, quantity and character of hydrocarbons in marine waters (linked to OM01 to OM03)
- SM02 – Assessment of the presence, quantity and character of hydrocarbons in marine sediments (linked to OM01 and OM05)
- SM03 – Assessment of impacts and recovery of subtidal and intertidal benthos
- SM04 – Assessment of impacts and recovery of mangroves/saltmarsh habitat
- SM05 – Assessment of impacts and recovery of seabird and shorebird populations
- SM06 – Assessment of impacts and recovery of nesting marine turtle populations
- SM07 – Assessment of impacts to pinniped colonies including haul-out site populations
- SM08 – Desktop assessment of impacts to other non-avian marine megafauna
- SM09 – Assessment of impacts and recovery of marine fish (linked to SM03)
- SM10 – Assessment of physiological impacts to important fish and shellfish species (fish health and seafood quality/safety) and recovery.

These SMPs have been designed to cover all key tropical and temperate habitats and species within Australian waters and broader, if required. A planning area for scientific monitoring is also identified to acknowledge potential hydrocarbon contact at the environmental threshold

concentrations and beyond the EMBA. This planning area has been set with reference to the entrained low exposure value of 10 ppb detailed in NOPSEMA Bulletin #1 Oil Spill Modelling (2019), as shown in Figure 5 1.

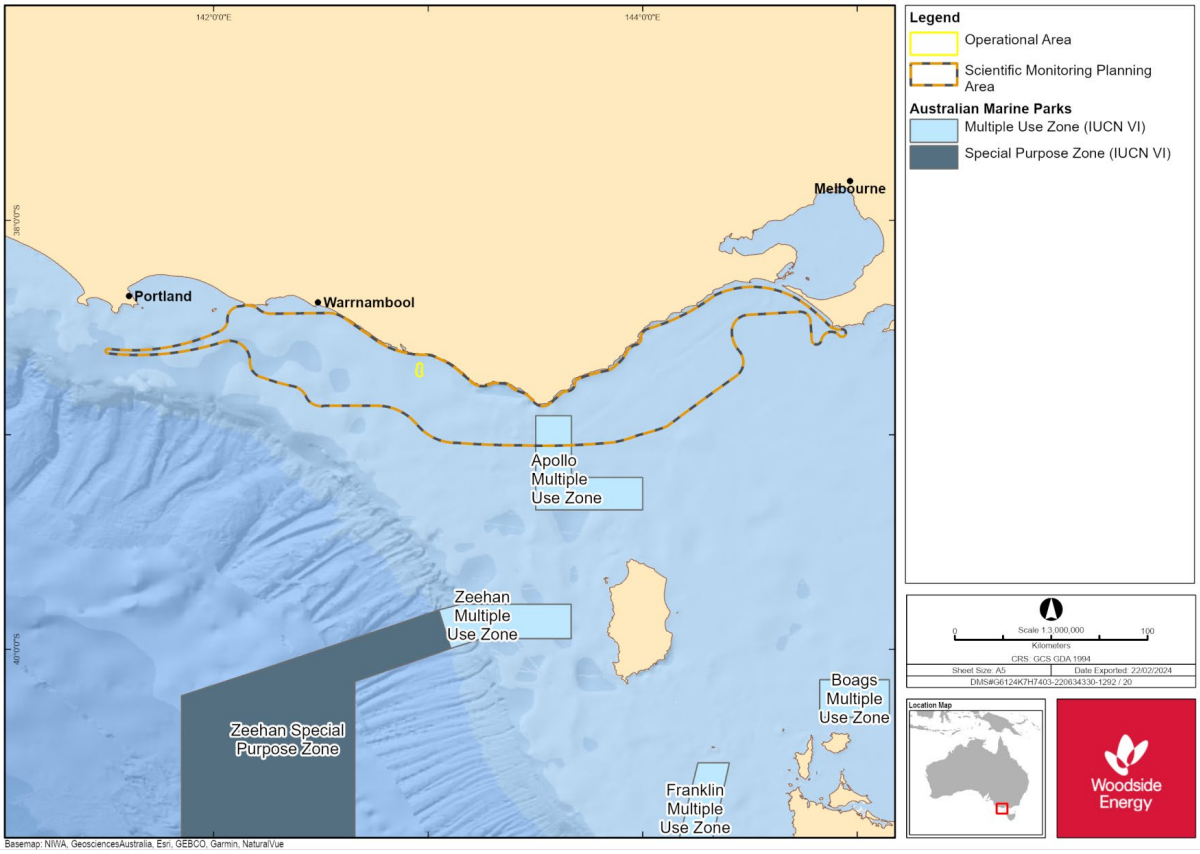


**Figure 5-1: The planning area for scientific monitoring based on the area potentially contacted by the low (below ecological impact) entrained hydrocarbon threshold of 10 ppb in the event of the worst-case credible spill scenarios (CS-01 and CS-02).**

**Please note that Figure 5-1 represents the overall combined extent of the oil spill model outputs based on a total of 200 replicate simulations over an annual period for CS-01 and 400 replicate simulations over an annual period for CS-02 and therefore represents the largest spatial boundaries of 200-400 oil spill combinations, not the spatial extent of a single spill.**

### 5.8.1 Scientific Monitoring Deployment Considerations

| Scientific Monitoring Deployment Considerations | |
|---|---|
| Existing baseline studies for sensitive receptor locations predicted to be affected by a spill | Pre-emptive Baseline Areas (PBAs) of the following two categories:<br>• PBAs within the predicted <10-day hydrocarbon contact time prediction: The approach is to conduct a desktop review of available and appropriate baseline data for key receptors for locations (if any) that are potentially impacted within 10 days of a spill and look to conduct baseline data collection to address data gaps and demonstrate spill response preparedness. Planning for baseline data acquisition is typically commenced pre-PAP and execution of studies undertaken with consideration of weather, receptor type, seasonality and temporal assessment requirements.<br>• PBAs >10 days to predicted hydrocarbon contact in the event of an unplanned hydrocarbon release (from the PAP). SMP activation (as per the Minerva Plug and Abandonment First Strike Plan) directs the SMP team to follow the steps outlined in the SMP Operational Plan. The steps include checking the availability and type of existing baseline data, with particular reference to any Pre-emptive Baseline Areas (PBAs) identified as >10 days to hydrocarbon contact. Such information is used to identify response phase PBAs and plan for the activation of SMPs for pre-emptive (i.e. pre-hydrocarbon contact) baseline assessment. |
| Pre-emptive Baseline in the event of a spill | Activation of SMPs to collect baseline data at sensitive receptor locations with predicted hydrocarbon contact time >10 days (as documented in ANNEX C). |
| Survey platform suitability and availability | In the event of the SMP activation, suitable survey platforms are available and can support the range of equipment and data collection methodologies to be implemented in nearshore and offshore marine environments. |
| Trained personnel to implement SMPs suitable and available. | Access to trained personnel and the sampling equipment contracted for scientific monitoring via a dedicated scientific monitoring program standby contract. |
| Met-ocean conditions | The following met-ocean conditions have been identified to implement SMPs:<br>• Waves <1 m for nearshore systems<br>• Waves <1.5 m for offshore systems<br>• Winds <20 knots<br>• Daylight operations only<br>SMP implementation will be planned and managed according to HSE risk reviews and the met-ocean conditions on a day-to-day basis by SMP operations. |

### 5.8.2 Response planning assumptions

| Response Planning Assumptions | |
|---|---|
| Pre-emptive Baseline Areas (PBAs) | Pre-emptive Baseline Areas (PBAs) identified through the application of defined hydrocarbon impact thresholds during the Quantitative Spill Risk Assessment process and a consideration of the minimum time to contact at receptor locations fall into two categories:<br>• PBAs for which baseline data exist or are planned for and data collection may commence pre-PAP (≤ 10 days minimum time to contact).<br>• PBAs (> 10 days minimum time to contact) for which baseline data may be collected in the event of an unplanned hydrocarbon release. Response phase |

| | |
|---|---|
| | PBAs are prioritised for SMP activities due to vulnerability (i.e. time to contact and environmental sensitivity) to potential impacts from hydrocarbon contact and an identified need to acquire baseline data.<br><br>Time to hydrocarbon contact of >10 days has been identified as a minimum timeframe within which it is feasible to plan and mobilise applicable SMPs and commence collection of baseline (pre-hydrocarbon contact) data, in the event of an unplanned hydrocarbon release from Minerva Plug and Abandonment activities.<br><br>Pre-emptive Baseline Areas for Minerva Plug and Abandonment activities are identified and listed in ANNEX D, Table D-1. The PBAs together with the situational awareness (from the operational monitoring) are the basis for the response phase SMP planning and implementation. |
| Pre-Spill | **Minerva Plug and Abandonment**<br><br>A review of existing baseline data for receptor locations (refer to Annex D) with potential to be contacted by surface, dissolved or entrained hydrocarbons at environmental thresholds within ≤10 days, relating to the credible hydrocarbon release for the PAP has identified the following:<br><br>• Warrnambool Plain<br>• Otway Ranges<br>• Otway Plain<br>• Victorian Volcanic Plain<br>• Port Phillip Bay<br>• Strzelecki Ranges<br>• Apollo AMP |
| In the Event of a Spill | Receptor locations with >10 days to hydrocarbon contact, as well as the wider area, will be investigated and identified by the SMP team (in the Environment Unit of the CIMT) as the spill event unfolds and as the situational awareness provided by the OMPs permits delineation of the spill affected area (for example, updates to the spill trajectory tracking). The full list is presented in Annex D, based on the PAP credible spill scenario(s) (Table 2-1).<br><br>To address the initial focus in a response phase SMP planning situation, receptor locations predicted to be contacted between >10 days and 20 days have been identified as follows:<br><br>• Bridgewater<br>• Glenelg Plain<br>• Gippsland Plain<br>• Wilsons Promontory<br>• Flinders<br><br>The unfolding spill affected area predictions and confirmation of appropriate baseline data will determine the selection of receptor locations and SMPs to be activated to gather pre-emptive (pre-hydrocarbon contact) data. Refer to ANNEX C for further details on scientific monitoring plan implementation and delivery). The timing of SMP activation and mobilisation of the individual SMPs to undertake data collection will be decided and documented by the Woodside SMP team following the process outlined in the SMP Operational Plan.<br><br>In the event key receptors within geographic locations that are potentially impacted after 10 days following a spill event or commencement of the spill and where adequate and appropriate baseline data are not available, there will be a response phase effort to collect baseline data for the following purposes:<br><br>i. Priority will be given to the collection of baseline data for receptors predicted to be within the spill affected area prior to hydrocarbon contact. The process is initiated with the investigation of available baseline and time to hydrocarbon |

| | |
|---|---|
| | contact (>10 days which is sufficient time to mobilise SMP teams and acquire data before hydrocarbon contact).<br>ii. Collect baseline data for receptors predicted to be outside the spill affected area so reference datasets for comparative analysis with impacted receptor types can be assessed post-spill. |
| Baseline Data | A summary of the spill affected area and receptor locations as defined by the EMBA for the PAP credible spill scenario(s) is presented Section 2.3.1<br>The key receptors at risk by location and corresponding SMPs based on the EMBA for the PAP are presented in ANNEX D, as per credible spill event scenario(s). This matrix maps the receptors at risk with their location and the applicable SMPs that may be triggered in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. Receptor locations and applicable SMPs are colour coded to highlight possible time to contact based on receptor types and locations.<br>The status of baseline studies relevant to the PAP are tracked by Woodside through the maintenance of a Corporate Environment Environmental Baseline Database (managed by the Woodside Biodiversity and Science team), as well as accessing external databases such as the DEECA CoastKit[8] (refer to ANNEX C: Oil Spill Scientific Monitoring Program). |

### 5.8.3 Summary – scientific monitoring

The resulting scientific monitoring capability has been assessed against the PAP credible spill scenario(s). The range of techniques provide an ongoing approach to monitoring operations to assess and evaluate the scale and extent of impacts. All known reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be moderate and the overall delivery effectiveness determined to be medium. The SMP's main objectives can be met, with no additional, alternative or improved control measures providing further benefit.

### 5.8.4 Response planning: need, capability and gap – scientific monitoring

The receptor locations identified in Annex D provide the basis of the SMPs likely to be selected and activated. Once the Woodside SMP Delivery team and the SMP standby contractor have been stood up and the exact nature and scale of the spill becomes known, the SMPs to be activated will be confirmed as per the process set out in the SMP Operational.

**Scope of SMP Operations in the event of a hydrocarbon spill**

Documented baseline studies are available for certain receptor locations as detailed in Annex D, Table D-2. The SMP technique would be to deploy SMP teams to maximise the opportunity to collect pre-emptive data at sensitive receptor locations. The exact locations where hydrocarbon contact occurs may be unpredictable, SM01 would be mobilised as a priority to be able to detect hydrocarbons and track the leading edge of the spill to verify where hydrocarbon contact occurs which will assist with where SMP resources are a priority need to obtain pre-emptive baseline data.

The ALARP assessment for the SMP (Section 6.8) considers alternate, additional, and/or improved control measures on each selected response technique.

[8] https://mapshare.vic.gov.au/coastkit/

### 5.8.5 Environmental performance based on need

**Table 5-14: Scientific monitoring**

| **Environmental Performance Outcome** | | Woodside can demonstrate preparedness to stand up the SMP to quantitatively assess and report on the extent, severity, persistence and recovery of sensitive receptors impacted from the spill event | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria** |
| 24 | • Woodside has an established and dedicated SMP team comprising the Biodiversity and Science Team and additional Environment Advisers within the HSEQ Function. | 24.1 | SMP team comprises a pool of competent Environment Advisers (stand up personnel) who receive training regarding the SMP, SMP activation and implementation of the SMP on an annual basis | • Training materials<br>• Training attendance registers<br>• Process that maps minimum qualification and experience with key SMP role competency and a tracker to manage availability of competent people for the SMP team including redundancy and rostering |
| 25 | • Woodside have a SMP standby contractor to provide scientific personnel to resource a base capability of one team per SMP (SM01-SM10, see Table C-2, ANNEX C) as detailed in Woodside's SMP standby contractor Implementation Plan, to implement the oil spill scientific monitoring programs. The availability of relevant personnel is reported to Woodside monthly via a simple report on the base-loading availability of people for each of the SMPs comprising field work for data collection (SMP resourcing report register.<br>• In the event of a spill and the SMP is activated, the base-loading availability of scientific personnel will be provided by SMP standby contractor for the individual SMPs and where gaps in resources are identified, SMP standby contractor/Woodside will seek additional personnel (if needed) from other sources including Woodside's Environmental Services Panel. | 25.1 | Woodside maintains the capability to mobilise personnel required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08):<br>• Personnel are sourced through the existing standby contract with SMP standby, as detailed within the SMP Implementation Plan.<br>• Scientific Monitoring Program Implementation Plan describes the process for standing up and implementing the scientific monitoring programs.<br>• SMP team stand up personnel receive training regarding the stand up, activation and implementation of the SMP on an annual basis | • HSP Internal Control Environment tracks the quarterly review of the Oil Spill Contracts Master.<br>• SMP resource report of personnel availability provided by SMP contractor on monthly basis (SMP resourcing report register).<br>• Training materials<br>• Training attendance registers<br>• Competency criteria for SMP roles<br>• SMP annual arrangement testing and reporting |
| 26 | • Roles and responsibilities for SMP implementation are captured in Table C-1 (Annex C) and the SMP team (as per the organisational structure of the CIMT) is outlined in SMP Operational Plan. Woodside has a defined Crisis and Incident Management structure including Source Control, Operations, Planning and Logistics functions to manage a loss of well control response.<br>• SMP Team structure, interface with SMP standby contractor (standby SMP contractor) and linkage to the CIMT is presented in Figure C-1, ANNEX C<br>• Woodside has a defined Command, Control and Coordination structure for Incident and Emergency Management that is based on the ICS framework.<br>• Woodside utilises an online Incident Management Information System (IMIS) to coordinate and track key incident management functions. This includes specialist modelling programs, geographic information systems (GIS), as well as communication flows within the Command, Control and Coordination structure.<br>• SMP activated via the First Strike Plan.<br>• Step by step process to activation of individual SMPs provided in the SMP Operational Plan.<br>• All decisions made regarding SMP logged in the online IMIS (SMP team members trained in using Woodside's online Incident Management System)<br>• SMP component input to the CIMT Incident Action Plan (IAP) as per the identified CIMT timed sessions and the SMP IAP logged on the online IMIS<br>• Woodside Biodiversity and Science Team provide awareness training on the activation and stand-up of the Scientific Monitoring Programme (SMP) for the Environment Advisers in Woodside who are listed on the SMP team on an annual basis.<br>• Woodside Biodiversity and Science Team provide awareness training on the activation and stand-up of the Scientific Monitoring Programme (SMP) for the SMP standby contractor.<br>• Woodside Biodiversity and Science Team co-ordinates an annual SMP arrangement testing exercise with the SMP standby contractor. | 26.1 | • Woodside have established an SMP organisational structure and processes to stand up and deliver the SMP. | • SMP Oil Spill Scientific Monitoring Operational Plan<br>• SMP Implementation Plan<br>• SMP annual arrangement testing and reporting |

| | | | | |
|---|---|---|---|---|
| 27 | • Chartered and mutual aid vessels.<br>• Suitable vessels would be secured from the Woodside support vessels, regional fleet of vessels operated by Woodside and other operators and the regional charter market.<br>• Vessel suitability will be guided by the need to be equipped to operate grab samplers, drop camera systems and water sampling equipment (the individual vessel requirements are outlined in the relevant SMP methodologies (refer to Table C-2, ANNEX C).<br>• Nearshore mainland waters could use the same approach as for open water. Smaller vessels may be used where available and appropriate. Suitable vehicles and machinery for onshore access to nearshore SMP locations would be provided by Woodside's transport services contract and sourced from the wider market.<br>• Dedicated survey equipment requirements for scientific monitoring range from remote towed video and drop camera systems to capture seabed images of benthic communities to intertidal/onshore surveying tools such as quadrats, theodolites and spades/trowels, cameras and binoculars (specific survey equipment requirements are outlined in the relevant SMP methodologies (refer to Table C-2, ANNEX C)). Equipment would be sourced through the existing SMP standby contract with SMP standby contractor for SMP resources and if additional surge capacity is required this would be available through the other Woodside Environmental Services Panel Contractors and specialist contractors. SMP standby contractor can also address equipment redundancy through either individual or multiple suppliers. MoUs are in place with one marine sampling equipment companies and one analytical laboratory (SMP resourcing report register).<br>• Availability of SMP equipment for offshore/onshore scientific monitoring team mobilisation is within one week to ten days of the commencement of a hydrocarbon release. This meets the SMP mobilisation lead time that will support meeting the response objective of 'acquire, where practicable, the environmental baseline data prior to hydrocarbon contact required to support the post-response SMP. | 27.1 | Woodside maintains standby SMP capability to mobilise equipment required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08):<br>• Equipment is sourced through the existing standby contract with SMP standby contractor, as detailed within the SMP Implementation Plan. | • HSP Internal Control Environment (ICE) tracks the quarterly review of the Oil Spill Contracts Master.<br>• SMP standby monthly resource reports of equipment availability provided by SMP contractor (SMP resourcing report register).<br>• SMP annual arrangement testing and reporting |
| 28 | Woodside's SMP approach addresses the pre-PAP acquisition of baseline data for Pre-emptive Baseline Areas (PBAs) with ≤10 days if required following a baseline gap analysis process.<br>Woodside maintains knowledge of Environmental Baseline data through:<br>• Documentation annual reviews of the Woodside Baseline Environmental Studies Database, and specific activity baseline gap analyses.<br>• Accessing external databases such as the DEECA CoastKit[8]. | 28.1 | • Annual reviews of environmental baseline data<br>• PAP specific Pre-emptive Baseline Area baseline gap analysis | • Annual review/ update of Woodside Baseline Environmental Studies Database<br>• Desktop review to assess the environmental baseline study gaps completed prior to EP submission<br>• Accessing baseline knowledge via the SMP annual arrangement testing |

| **Environmental Performance Outcome** | | | SMP plan to acquire response phase monitoring targeting pre-emptive baseline data achieved | |
|---|---|---|---|---|
| **Control measure** | | | **Performance Standard** | **Measurement Criteria** |
| 29 | Woodside's SMP approach addresses:<br>• Scientific data acquisition for PBAs >10 days to hydrocarbon contact and activated in the response phase and<br>• Transition into post-response SMP monitoring. | 29.1 | **Pre-emptive Baseline Area (PBA) baseline data acquisition in the response phase**<br>If baseline data gaps are identified for PBAs predicted to have hydrocarbon contact in >10 days, there will be a response phase effort to collect baseline data. Priority in implementing SMPs will be given to receptors where pre-emptive baseline data can be acquired or improved.<br>SMP team (within the Environment Unit of the CIMT) contribute SMP component of the CIMT Planning Function in development of the IAP. | • Response SMP plan<br>• Woodside's online Incident Management System Records<br>• SMP component of the Incident Action Plan. |
| | | 29.2 | **Post Spill contact**<br>For the receptors contacted by the spill in where baseline data are available, SMPs programs to assess and monitor receptor condition will be implemented post spill (i.e. after the response phase): | • SMP planning document<br>• SMP Decision Log<br>• Incident Action Plans (IAPs)<br>• |

| **Environmental Performance Outcome** | Implementation of the SMP (response and post-response phases) | |
|---|---|---|
| **Control measure** | **Performance Standard** | **Measurement Criteria** |

| | | | | |
|---|---|---|---|---|
| 30 | • Scientific monitoring will address quantitative assessment of environmental impacts of a level 2 or 3 spill or any release event with the potential to contact sensitive environmental receptors. The SMP comprises ten targeted environmental monitoring programs.<br>• SMP supporting documentation: (1) Oil Spill Scientific Monitoring Operational Plan; (2) SMP Implementation Plan and (3) SMP Process and Methodologies Guideline<br>• The Oil Spill Scientific Monitoring Operational Plan details the process of SMP selection, input to the IAP to trigger operational logistic support services. Methodology documents for each of the ten SMPs are accessible detailing equipment, data collection techniques and the specifications required for the survey platform support.<br>• The SMP standby contractor holds a Woodside SMP implementation plan, which details activation processes, linkage with the Woodside SMP team and the general principles for the planning and mobilisation of SMPs to deliver the individual SMPs activated. Monthly resourcing report are issued by the SMP standby contractor (SMP resourcing report register. All SMP documents and their status are tracked via SMP document register. | 30.1 | **Implementation of SM01**<br>SM01 will be implemented to assess the presence, quantity and character of hydrocarbons in marine waters during the spill event in nearshore areas | Evidence SM01 has been triggered:<br>• Documentation as per requirements of the SMP Operational Plan<br>• Woodside's online Incident Management System Records.<br>• SMP component of the IAP<br>• SMP data records from field |
| | | 30.2 | **Implementation of SM02-SM10**<br>SM02-SM10 will be implemented in accordance with the objectives and activation triggers as per Table C-2 of Annex C. | Evidence SMPs have been triggered:<br>• Documentation as per requirements of the SMP Operational Plan<br>• Woodside's online Incident Management System Records.<br>• SMP component of the IAP<br>• SMP Data records from field |
| | | 30.3 | **Termination of SMP plans**<br>The Scientific Monitoring Program will be terminated in accordance with termination triggers for the SMP's detailed in Table C-2 of Annex C, and the Termination Criteria Decision-tree for Oil Spill Environmental Monitoring (Figure C-3 of Annex C): | Evidence of Termination Criteria triggered:<br>• Documentation and approval by relevant persons/ organisations to end SMPs for specific receptor types. |

## 5.9 Incident Management System

The Incident Management System is both a control measure and a measurement criterion. As a control measure the IMS function is to prompt, facilitate and record the completion of three key response planning processes detailed below. As a measurement criterion the IMS records the evidence of the timeliness of all response actions included in the environmental performance standards and the plans used of the PAP.

As the IMS does not directly remove hydrocarbons spilt into the marine environment there is no direct relationship to the response planning need.

### 5.9.1 Incident action planning

The CIMT will be required to collect and interpret information from the scene of the incident to determine support requirements to the site-based IMT, develop an incident action plan (IAP) and assist the IMT with the execution of that plan. The site-based IC may request the CIMT to complete notifications internally within Woodside, to relevant persons/organisations and government agencies as required. Depending on the type and scale of the incident either the CIMT DM or IC will be responsible for ensuring the development of the IAP. Incident Action Planning is an ongoing process that involves continual review to confirm appropriateness of techniques to control the incident for the situation at the time.

### 5.9.2 Operational NEBA process

In the event of a response Woodside will confirm that the response techniques adopted at the time of Environment Plan/Oil Pollution Emergency Plan (EP/OPEP) acceptance remain appropriate to reduce the consequences of the spill. This process verifies that there is a continuing net environmental benefit associated with continuing the response technique through the operational NEBA process. This process manages the environmental risks and impacts of response techniques during the spill response, an operational NEBA will be undertaken throughout the response, for each operational period.

The operational NEBA will consider the risks and benefits of conducting and response activity. For example, if vessels are required for access to nearshore or onshore areas, anchoring locations will be selected to minimise disturbance to benthic habitats. Vessel cleanliness would be commensurate with the receiving environment. The operational NEBA will consider the risks and benefits of conducting other response techniques.

The operational NEBA process is also used to terminate a response. Using data from operational and scientific monitoring activities the response to a hydrocarbon spill will be terminated in accordance with the termination process outlined in the Oil Pollution Emergency Arrangements (Australia). In effect the operational NEBA will determine whether there is net environmental benefit to continue response operations.

### 5.9.3 Consultation engagement process

Woodside will consult relevant persons/organisations during the spill response in accordance with internal standards. This process requires that Woodside will:

- Undertake all required notifications (including government notifications) for persons/organisations in the region (identified in the First Strike Plan). This includes notification to mariners to communicate navigational hazards introduced through response equipment and personnel.
- In the event of a response, identify and engage with relevant persons/organisations and continually assess and review.

### 5.9.4 Environmental performance based on need

**Table 5-15: Environmental Performance – Incident Management System**

| **Environmental Performance Outcome** | | To support the effectiveness of all other control measures and monitor/record the performance levels achieved. | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| 31 | Operational SIMA | 31.1 | Confirm that the response techniques adopted at the time of acceptance remain appropriate to reduce the consequences of the spill within 24 hours. | 1, 3A |
| | | 31.2 | Record the evidence and justification for any deviation from the planned response activities. | |
| | | 31.3 | Record the information and data from operational and scientific monitoring activities used to inform the SIMA. | |
| 32 | Stakeholder engagement | 32.1 | Prompt and record all notifications (including government notifications) for persons/organisations in the region that are made | |
| | | 32.2 | In the event of a response, identification of relevant persons/organisations will be re-assessed throughout the response period. | |
| | | 32.3 | Undertake communications in accordance with:<br>• Woodside Crisis Management Functional Support Team Guideline – Reputation<br>• External Communication and Continuous Disclosure Procedure<br>• External Stakeholder Engagement Procedure | |
| 33 | Personnel required to support any response | 33.1 | Action planning is an ongoing process that involves continual review to confirm the appropriateness of techniques to control the incident for the situation at the time. | 1, 3B |
| | | 33.2 | A duty roster of trained and competent people will be maintained for minimum manning requirements all year round. | 3C |
| | | 33.3 | Immediately activate the CIMT with personnel filling one or more of the following roles:<br>• CIMT Incident Commander<br>• CIMT Deputy Incident Commander<br>• Operations Section Chief<br>• Planning Section Chief<br>• Logistics Section Chief<br>• Documentation Unit Leader<br>• Safety Officer<br>• Environment Unit Leader<br>• Human Resources Officer<br>• Public Information Officer<br>• Situation Unit Leader<br>• Finance Section Chief<br>• Source Control Section Chief | 1, 2, 3B, 3C, 4 |
| | | 33.4 | Collect and interpret information from the scene of the incident to determine support requirements to the site-based CIMT, develop an Incident Action Plan (IAP) and assist with the execution of that plan. | |

| **Environmental Performance Outcome** | | To support the effectiveness of all other control measures and monitor/record the performance levels achieved. | | |
|---|---|---|---|---|
| **Control measure** | | **Performance Standard** | | **Measurement Criteria (Section 5.10)** |
| | | 33.5 | S&EM advisors will be integrated into CIMT to monitor performance of all functional roles. | |
| | | 33.6 | Continually communicate the status of the spill and support Woodside to determine the most appropriate response by delivering on the responsibilities of their role. | |
| | | 33.7 | Follow the OPEA, Operational Plans, FSPs, support plans and the IAPs developed. | 1, 2, 3A, 4 |
| | | 33.8 | Contribute to Woodside's response in accordance with the aims and objectives set by the Incident Commander. | 1, 2, 3B, 3C, 4 |

## 5.10 Measurement criteria for all response techniques

Woodside measures compliance with environmental performance outcomes and standards through four primary mechanisms. The performance tables above identify which of these four mechanisms monitors the readiness and records the effectiveness and performance of the control measures adopted.

### 1. The Incident Management System

The Incident Management System (IMS) supports the implementation of the Emergency and Crisis Management Procedure. The IMS provides a near real-time, single source of information for monitoring and recording an incident and measuring the performance of those control measures.

The Emergency and Crisis Management Procedure defines the management framework, including roles and responsibilities, to be applied to any size incident (including hydrocarbon spills). The organisational structure required to manage an incident is developed in a modular fashion and is based on the specific requirements of each incident. The structure can be scaled up or down.

The Incident Action Plan (IAP) process formally documents and communicated the:

- Incident objectives
- Status of assets
- Operational period objectives
- Response techniques (defined during response planning)
- The effectiveness of response techniques.

The information captured in the IMS (including information from personal logs and assigned tasks/close outs) confirms the response techniques implemented remain appropriate to reduce the consequences of the spill. The system also records all information and data that can be used to support the site-based IMT, development and the execution of the IAP.

### 2. The S&EM Competency Dashboard

The S&EM competency dashboard records the number of trained and competent responders that are available across Woodside, and some external providers, to participate in a response.

This number varies dependent on expiry of competency certificates, staff attrition, internal rotations, leave and other absences. As such the Dashboard is designed to identify the minimum manning requirements and to identify sufficient redundancy to cater for the variances listed above.

Figure 5-2 shows the minimum manning numbers for the different hydrocarbon spill response roles and the number of qualified persons against those roles.

Woodside's pool of trained responders is composed of but not limited to personnel from the following organisations:

- Woodside internal
- Australian Marine Oil Spill Centre (AMOSC) core group
- AMOSC
- Oil Spill Response Limited (OSRL)
- Marine Spill Response Corporation (MSRC)
- AMSA
- Woodside contracted workforce

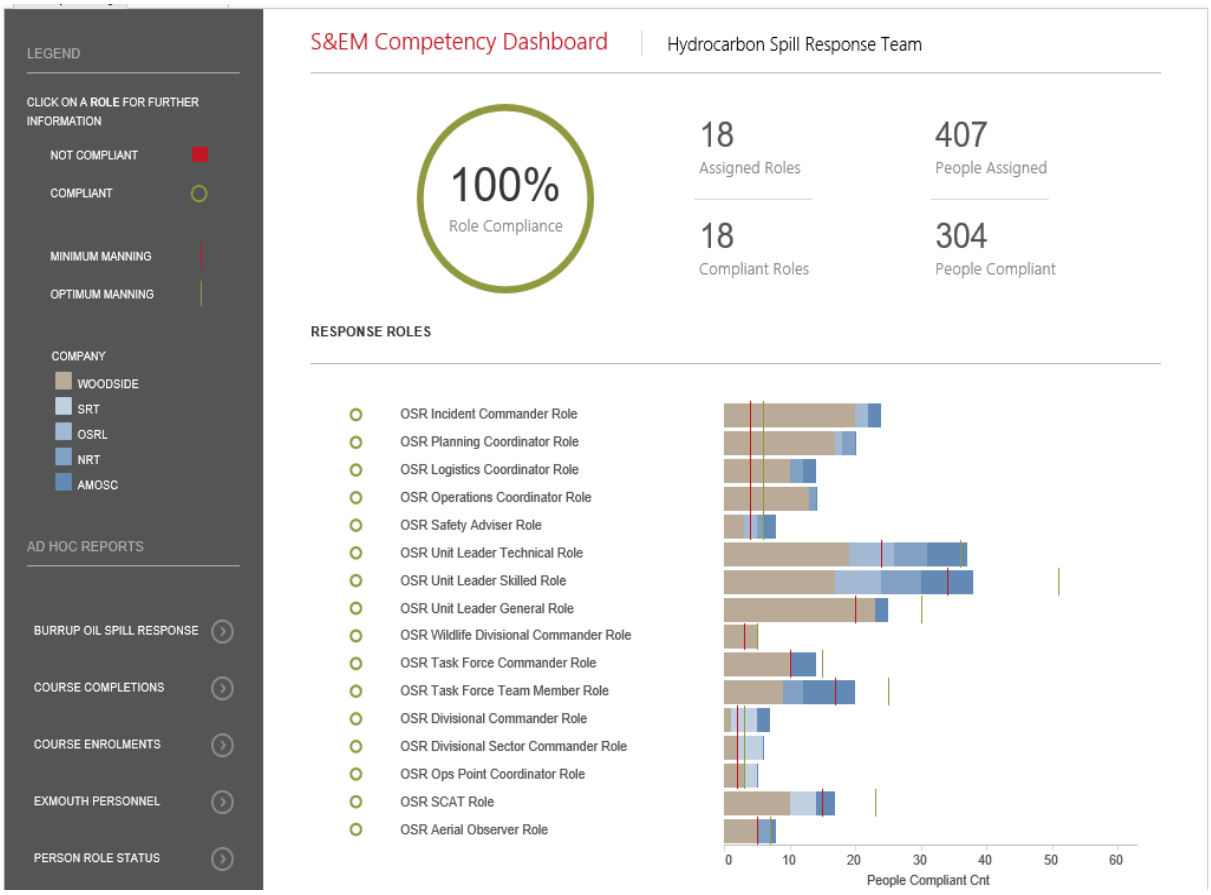


**Figure 5-2: Example screenshot of the HSP competency dashboard**

The Dashboard is one of Woodside's key means of monitoring its readiness to respond. It also and shows that Woodside can meet the requirements of the environmental performance standard that relate to filling certain response roles.

Figure 5-3 shows deeper dive into the Ops Point Coordinator role and the training modules required to show competence.

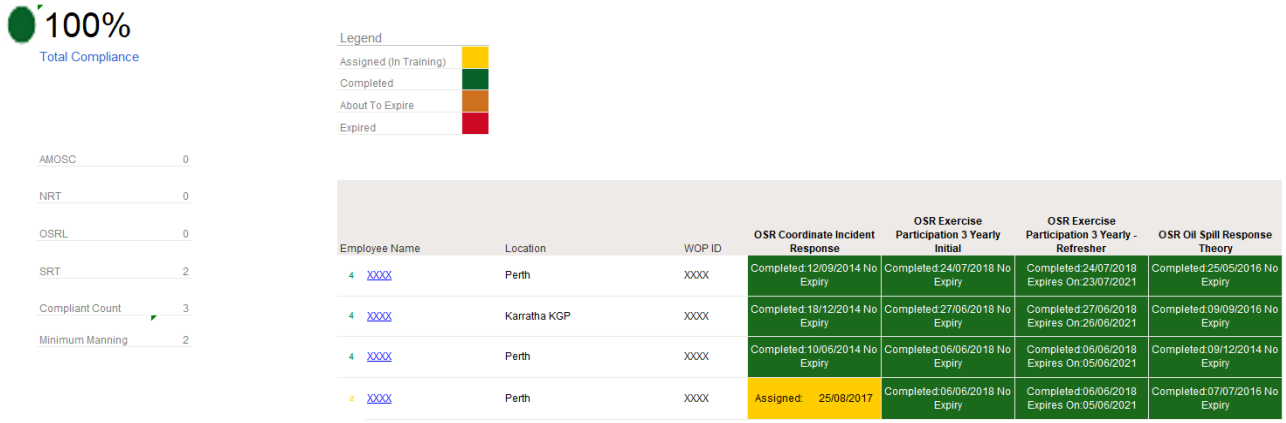


**Figure 5-3: Example screenshot for the Ops Point Coordinator role**

## 3. The Hydrocarbon Spill Preparedness ICE Assurance Process

The Hydrocarbon Spill Response Team has developed a Hydrocarbon Spill Preparedness and Response Internal Control Environment (ICE) process to align and feed into the Woodside Management System Assurance process for hydrocarbon spill. The process tracks compliance over four key control areas:

a) **Plans** – Confirms all plans (including Oil Pollution Emergency Arrangements, first strike plans, operational plans, support plans and tactical response plans) are current and in line with regulatory and internal requirements.

b) **Competency** – Confirms the competency dashboard is up to date and there are the minimum competency numbers across CIMT, CMT and hydrocarbon spill response roles. The hydrocarbon spill training plan and exercise schedule, including testing of arrangements is also tracked. The Testing of Arrangements (TOA) register tracks the testing of all hydrocarbon spill response arrangements, key contracts and agreements in place with internal and external parties to ensure compliance.

c) **Capability** – Tracks and monitors capability that could be required in a hydrocarbon incident, including integrated fleet[9] vessel schedule, dispersant availability, rig/vessels monitoring, equipment stockpiles, tracking buoy locations and the CIMT duty roster.

d) **Compliance and Assurance** – Confirms all regulator inspection outcomes are actioned and closed out, the global legislation register is up to date and that the key assurance components are tracked and managed. Assurance activities (including Audits) conducted on memberships with key Oil Spill Response Organisations (OSROs) including AMOSC and OSRL are also tracked and recorded in the ICE.

The ICE assurance process records how each commitment listed in the performance tables above is managed for ongoing compliance monitoring. The level of compliance can be reviewed in real time and is reported monthly through the S&EM Function.

The completion of the assurance checks (over and above the ICE process) is also applied via the Woodside Integrated Risk and Compliance System (WiRCs) and subject to the requirements of Woodside's Provide Assurance Procedure.

### 4. The Hydrocarbon Spill Preparedness and Response Procedure

This procedure sets out how to plan and prepare for a liquid hydrocarbon spill to the marine environment.

This procedure details the:

- Requirement for an Oil Pollution Emergency Plan (OPEP) to be developed, maintained, reviewed, and approved by appropriate regulators (where applicable) including:
  - Defining how spill scenarios are developed on an activity specific basis
  - Developing and maintaining all hydrocarbon spill related plans
  - Ensuring the ongoing maintenance of training and competency for personnel
  - Developing the testing of spill response arrangements
  - Maintaining access to identified equipment and personnel.
- Planning for hydrocarbon spill response preparedness
- Accountabilities for hydrocarbon spill response preparedness
- Spill training requirements
- Requirements for spill exercising / testing of spill response arrangements
- Spill equipment and services requirements.

The procedure also details the roles and responsibilities of the dedicated Woodside Hydrocarbon Spill Preparedness team. This team is responsible for:

- Assuring that Woodside hydrocarbon spill responders meet competency requirements.

[9] The Integrated fleet consists of vessels from multiple operators that have been contracted to Woodside to undertake a number of duties including hydrocarbon spill response

- Establishing the competency requirements, annual training schedule and a training register of trained personnel.
- Establishing and maintaining the total numbers of trained personnel required to provide an effective response to any hydrocarbon spill incident.
- Ensuring equipment and services contracts are maintained
- Establishing OPEPs
- Establishing OPEAs
- Priority response receptor determination
- ALARP determination
- Ensuring compliance and assurance is undertaken in accordance with external and internal requirements

# 6 ALARP EVALUATION

This Section should be read in conjunction with Section 5 which is the capability planned for this activity.

## 6.1 Operational Monitoring – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5.Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

### 6.1.1 Operational Monitoring – Control Measure Options Analysis

#### 6.1.1.1 Alternative Control Measures

| **Alternative Control Measures considered**<br>*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Aerostat (or similar inflatable observation platform) for localised aerial surveillance. | Lead time to Aerostat surveillance is disproportionate to the environmental benefit. The system also provides a very limited field of visibility around the vessel it is deployed from. | Long lead time to access (>10 days). Each system would require an operator to interpret data and direct vessels accordingly. Requires multiple systems for shoreline use. | Purchase cost per system approximately$300,000. | This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation. | **No** |

#### 6.1.1.2 Additional Control Measures

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Additional personnel trained to use systems. | Current arrangement provides an environmental benefit in the availability of trained personnel facilitating access to monitoring data used to inform all other response techniques. No improvement required. | Woodside considers no improvement can be made – all personnel in technical roles e.g. intelligence unit are trained and competent on the software systems. Personnel are trained and exercised regularly. Use of the software and systems forms part of regular work assignments and projects. | Cost for training in-house staff would be approximately$25,000. | This option is not adopted as the current capability meets the need. | **No** |
| Additional satellite tracking buoys to enable greater area coverage. | Increased capability does not provide an environmental benefit compared to the disproportionate cost in having an additional contract in place. | Tracking buoy on location at manned facility, additional needs are met from WEL owned stocks in King Bay Support Facility (KBSF) and Exmouth or can be provided by service provider. | Cost for an additional satellite tracking buoy would be $200 per day or $6,000 to purchase. | This option is not adopted as the current capability meets the need, but additional units are available if required. | **No** |
| Additional trained aerial observers. | Current capability meets need. WEL has access to a pool of trained, competent observers at strategic locations to allow timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL. | Current capability meets need. WEL has a pool of trained, competent observers at strategic locations to allow timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL Aviation standards and guidelines confirm all aircraft crews are competent for their roles. WEL maintains a pool of trained and competent aerial observers with various home base locations to be called upon at the time of an incident. Regular audits of oil spill response organisations maintain training and competency. | Cost for additional trained aerial observers would be $2,000 per person per day. | This option is not adopted as the current capability meets the need, but additional observers are available via response contractors if required. | **No** |

### 6.1.1.3 Improved Control Measures

| **Improved Control Measures considered**<br>*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Faster turnaround time from modelling contractor. | Improved control measure does not provide an environmental benefit compared to the disproportionate cost in having an additional contract in place. | External contractor on CIMT roster to be called as soon as required. However initial information needs to be gathered by CIMT team to request an accurate model. External contractor has person on call to respond from their own location. | Modelling service with a faster activation time would be achieved via membership of an alternative modelling service at an annual cost of $50,000 for 24hr access plus an initial $5,000 per modelling run. | This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation. | **No** |
| Nighttime aerial surveillance. | The risk of undertaking the aerial observations at night is disproportionate to the limited environmental benefit. The images would be of low quality and as such the variable is not adopted. | Flights will only occur when deemed safe by the pilot. The risk of night operations is disproportionate to the benefit gained, as images from sensors (IR, UV, etc). will be low quality.<br>Flight time limitations will be adhered to. | No improvement can be made without risk to personnel health and safety and breaching Woodside's golden rules. | This option is not adopted as the safety considerations outweigh any environmental benefit gained. | **No** |
| Faster mobilisation time (for water quality monitoring). | Due to the restriction on accessing the spill location on Day one there is no environmental benefit in having vessels available from day one. The cost of having dedicated equipment and personnel is disproportionate to the environmental benefit. The availability of vessels and personnel meets the response need.<br>Shortening the timeframes for vessel availability would require dedicated response vessels on standby in KBSF.<br>The cost and organisational complexity of employing two dedicated response vessels (approximately $15M/year per vessel) is considered disproportionate to the potential environmental benefit to be realised by adopting this delivery options. | Operations are not feasible on day 1 as the hydrocarbon will take time to surface, and Volatility has potential to cause health concerns within the first 24 hours of the response. | Cost for purchase of equipment approximately$200,000. Ongoing costs per annum for cost of hire and pre-positioning for life of asset/activity would be larger than the purchase cost.<br>Dedicated equipment and personnel, living locally and on short notice to mobilise. The cost would be approximately$1M per annum, which is disproportionate to the incremental benefit this would provide, assets are already available on day 1. 2 integrated fleet vessels are available from day 1, however these could be tasked with other operations. | This option is not adopted as the area could not be accessed earlier due to safety considerations. Additionally, the cost and complexity of implementation outweighs the benefits. | **No** |

## 6.1.2 Selected Control Measures

Following review of Alternative, Additional and Improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

## 6.2 Source Control – ALARP Assessment

Woodside has based its response planning on the worst-case credible scenarios (as described in **Section 2.2**). This includes the following selection of primary source control and well intervention techniques which would be conducted concurrently:

- direct ROV intervention on BOP
- debris clearance and/or removal
- relief well drilling.

### 6.2.1 ROV Intervention

Following confirmation of an emergency event, Woodside would mobilise suitable ROVs to assess the status of the well. The ROV available on the MODU can be deployed for this purpose within 48 hours. Additional work-class ROVs for well intervention are also available through the existing frame agreements and are available for deployment within 7-15 days (Table 6-1). It is not expected that any additional regulatory approvals would be required as inspection, maintenance and repair are included within the scope of activities for Woodside's construction campaign safety cases, as well as the scope of activities for contracted vessels.

As Woodside holds Frame Agreements for vessels along with contracts for ROV providers and pilots, inspection activities using ROVs are expected to commence within seven days.

A hydraulic accumulator contained as part of the SFRT can be mobilised and deployed with well intervention attempted within 11 days.

**Table 6-1: ROV timings**

| | Estimate ROV inspection duration for Minerva-4 (days) |
|---|---|
| Source and mobilise vessel with work class ROV | 2 days for locally available vessel<br>10 days for vessel outside the region |
| Liaise with Regulator regarding risks and impacts* | 4 days |
| Undertake ROV Inspection | 1 day |
| **TOTAL** | **7-15 days*** |

** Based on timings from the Report into the Montara Commission of Enquiry, submission and discussion of revised documentation for limited activities inside the Petroleum Safety Zone (water deluge operations) to manage personnel risks and impacts was up to 20 days.*

#### 6.2.1.1 ROV Intervention – Safety Case considerations

Woodside has assessed against the NOPSEMA safety case guidance (NOPSEMA N-09000-GN1661), confirming that vessels conducting subsea intervention operations are not classified as an "associated offshore place" but as a facility and therefore require the appropriate Safety Case arrangements to be in place. In the event of an emergency, Woodside has access to suitable vessels (ISVs) for well intervention through existing frame agreements. The frame agreements for ISV vessels require the vessels to maintain in-force safety case approval covering a range of subsea activities. This would cover the requirement for intervention operations such as subsea manifold installation, maintenance and repair, commissioning, cargo transfer (including bulk liquids) and ROV operations. With frame agreements in place, the credible Safety Case Scenario from those presented in **Figure 6-3** for implementing this response would be "no safety case revision required". Timeframes for well intervention are detailed in **Figure 6-2** and would be implemented concurrently to the actions required by the

"no Safety Case" revision scenario detailed in **Figure 6-3**, therefore, the Safety Case scenario will have no impact on the delivery of the strategy.

### 6.2.2 Debris clearance and/or removal

The Woodside Source Control Response Procedure details the mobilisation and resource requirements for implementing this strategy. Debris clearance may be required to facilitate access to the wellhead and, if feasible, as a prerequisite to deployment of the capping stack. The AMOSC SFRT would be mobilised from Western Australia. The mobilisation of the SFRT would take place in parallel with mobilisation of other intervention equipment to commence initial ROV surveys and debris clearance before the equipment's arrival. The SFRT comprises ROV-deployed cutters and tools that are used to remove damaged or redundant items from the wellhead and allow improved access to the well. The SFRT can be mobilised and deployed with well intervention attempted within 11 days.

#### 6.2.2.1 Debris clearance and/or removal – Safety Case considerations

Woodside has assessed against the NOPSEMA safety case guidance (NOPSEMA N-09000-GN1661) and can confirm that vessels conducting debris clearance and removal operations are not classified as an "associated offshore place" but as a facility and therefore require the appropriate Safety Case arrangements in place. In the event of an emergency, Woodside has access to suitable ISVs for these operations through existing frame agreements. The frame agreements for ISVs require the vessels to maintain in-force safety case approval covering a range of subsea activities. This would cover the requirement for debris clearance and removal operations such as subsea manifold installation, commissioning, cargo transfer (including bulk liquids) and ROV operations. With frame agreements in place, the credible Safety Case Scenario, from those presented in **Figure 6-3** for implementing this response would be "no safety case revision required". Timeframes for debris clearance and removal equipment deployment are detailed in Figure 6-2 and would be implemented concurrently to the actions required by the "No Safety Case" revision scenario detailed in **Figure 6-3**, therefore, the Safety Case scenario will have no impact on the delivery of the strategy.

### 6.2.3 Relief Well drilling

The options analysis detailed in this section considers options to source, contract and mobilise a MODU and obtain necessary regulatory approvals to meet timelines for relief well drilling. The screening for relief well drilling MODUs is based on the following and the process used for Minerva-4 decommissioning activities is illustrated in **Figure 6-1**:

- Primary – review internal Woodside drilling programs and MODU availability to source an appropriate MODU operating within Australia with an approved Safety Case.
- Alternate – source and contract a MODU through AEP MOU that is operating within Australia with an approved Safety Case.
- Contingency – Source and contract a MODU outside Australia with an approved Australian Safety Case.

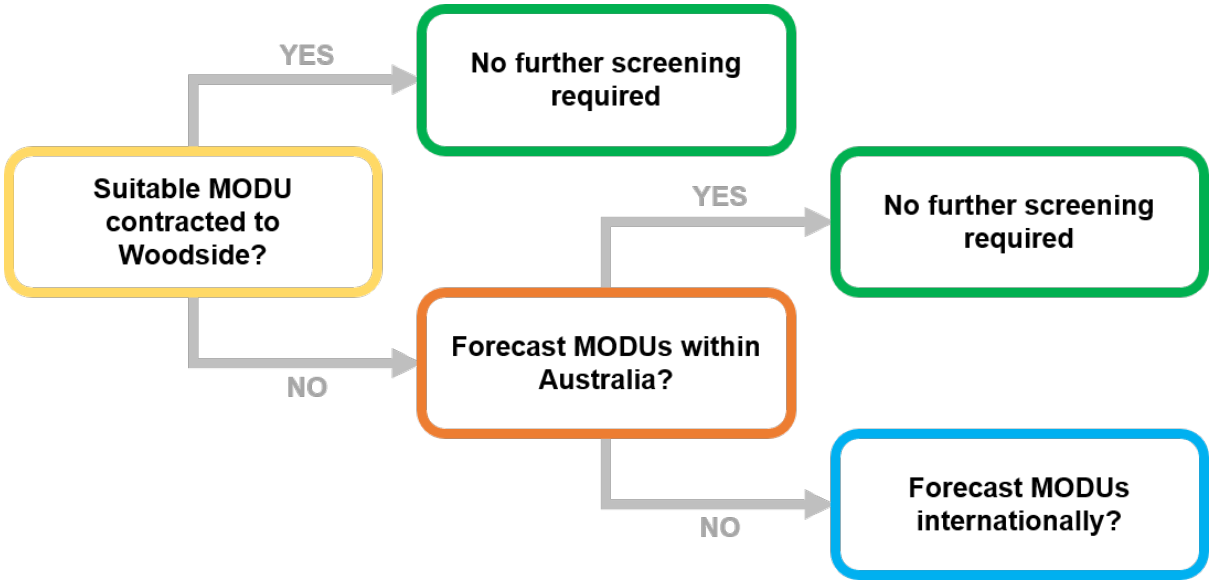


**Figure 6-1: Minerva-4 Plug and Abandonment activities process for sourcing relief well MODU**

Woodside has not assessed the timeframe for obtaining a relief well MODU through international supply for this project as the certainty of local supply has been confirmed. Screening of a relief well MODU from international waters is undertaken only if required, i.e. there is low confidence in local (Australian) availability. The screening of relief well MODUs is undertaken and presented at a well design stage peer assessment. The capability, location and Australian Safety Case status is assessed for each Woodside contracted MODU. If the Woodside contracted MODUs are unsuitable, screening is extended to all MODUs operating in Australian Waters. The suitability and location of pre-identified relief well MODUs is tested again prior to the operation. Though the AEP MoU will serve as the instrument to facilitate the transfer of drilling units and well site services between operators in the event of an emergency, Woodside will engage each of the identified titleholders in advance to maintain confidence in MODU suitability and availability.

Based on the detail provided, the Primary and Alternate approaches are expected to be achieved within 21 days for a locally available MODU and 43 days for a MODU outside the region.

The internal and external availability of moored MODUs, plus MODU activities of registered operators and MODUs with approved safety cases, are tracked by Woodside monthly to allow the best available option can be sourced and utilised in the event of the worst-case credible scenario.

If the above forecast indicates a gap in availability of a suitable MODU for relief well drilling within Australia, screening would be extended to MODUs with a valid safety case outside Australia. If an international MODU with an Australian safety case is not identified, an internal review will be undertaken, NOPSEMA notified and the issue tabled at the AEP Drilling Industry Safety Committee. A review of the significance of the change in risk will be undertaken in accordance with Woodside's environment management of change requirements and relevant regulatory triggers. The lookahead timeframe would allow two years' warning of any potential gap. Woodside will seek to execute relief well drilling in the fastest possible timeframe.

The detail of these arrangements demonstrates that the risks have been reduced to ALARP and Acceptable levels through the control measures and performance standards outlined in **Section 5.2**.

#### 6.2.3.1 Relief Well drilling timings

The duration of a blowout (from initiation to a successful kill) is assessed as 81 days for Minerva Plug and Abandonment PAP. Relief wells for other wells within the field are expected to be similar duration.

Details on the steps and time required to drill a relief well is shown in **Table 6-2**. Jack-up and moored MODUs are suitable for Minerva Plug and Abandonment activities PAP. A moored MODU has been used as the basis for the time estimate below.

To validate the effectiveness of the relief MODU supply arrangements through the AEP MoU, an exercise to test the 21-day mobilisation period forms part of Woodside's three-yearly Hydrocarbon Spill Arrangements Testing Schedule. Testing of these arrangements are facilitated by an external party and includes suspension of the assisting operator's activities, contracting the MODU, vessel safety case revision and transit to location.

**Table 6-2: Relief well drilling timings**

| Estimated Relief Well Duration | | Days (moored MODU) |
|---|---|---|
| 1 | Issue notifications, suspend operations and secure well on rig of opportunity. Prepare for transit. | 11.0 |
| *2* | *Preparation for regulatory documents for submission and assemble technical team* | *7.0 (concurrent with step 1)* |
| 3 | Tow relief well rig to location (assumes MODU is outside of local region) | 43.0 |
| *4* | *Concurrent regulatory approval works* | *30.0 (concurrent with Step 1 and 3)* |
| 5 | Drill relief well to intercept point (9-5/8" casing shoe) | 11.5 |
| 6 | Intercept the original well and perform well kill (assumes three failed intersection attempts, each followed by pull-back and side-track, with successful intersection on fourth attempt) | 15.5 |
| | **TOTAL** | **81** |

The following conditions and assumptions are applicable:

- A dynamically positioned MODU is not suitable for use at this location.
- A pre-lay mooring spread is required to moor the MODU over subsea infrastructure. The already-installed equipment would be assessed for suitability, and any additional installation would occur in parallel to MODU mobilisation.

Woodside has considered a broad range of alternate, additional, and improved options as outlined in **Section 6.2.4**.

Intersect and kill duration is estimated at 15.5 days. This is a moderately conservative estimate. During the intersect process, the relief well will be incrementally drilled and logged to accurately approach and locate the existing well bore. This will result in the highest probability of intersecting the well with the first drill hole and thus will reduce the overall time to kill the well.

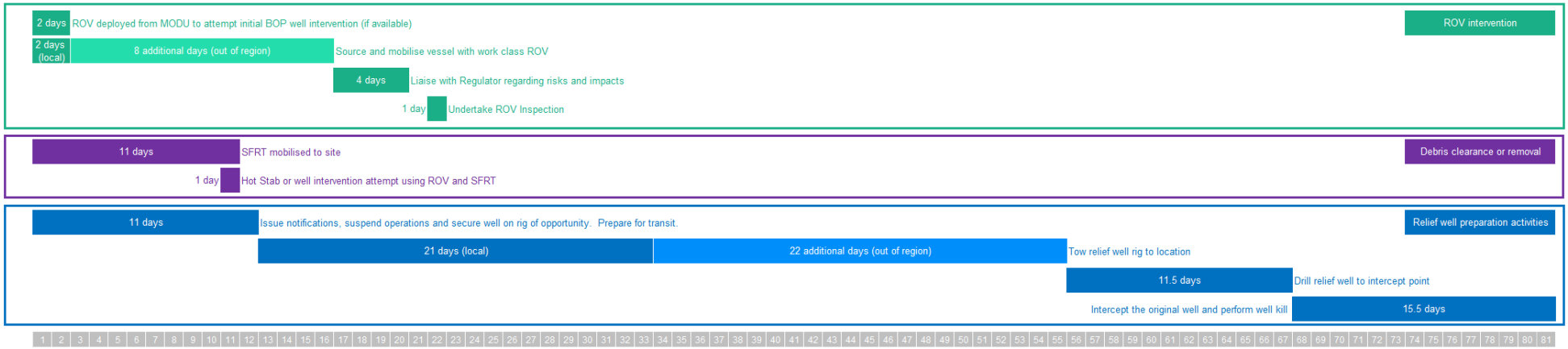


**Figure 6-2: Source control and well intervention response strategy deployment timeframes for Minerva-4 well**

#### 6.2.3.2 Relief well drilling – Safety Case considerations

Woodside recognises that it will not be the Operator or holder of the Safety Case for the MODU and/or vessels involved in relief well activities. If a revision to the Operator's Safety Case is required for relief well drilling, Woodside has identified measures to enable timely response and optimise preparedness as far as practicable that can be undertaken to expedite a straightforward Safety Case revision for a MODU/vessel to commence drilling a relief well. Performance standards associated with these measures have been included in **Section 5.2**.

These include:

- Access to Safety and Risk discipline personnel with specialist knowledge.
- Monitoring internal and external MODUs and vessel availability in the region and extended area through contracted arrangements monthly, with a two-year lookahead.
- Prioritisation of MODUs/vessels with current or historical contracting arrangements. Woodside maintains records of previous contracting arrangements and companies. All current contracts for vessels and MODUs are required to support Woodside in the event of an emergency.
- Leverage mutual aid arrangements such as the AEP MOU for vessel and MODU support.
- Woodside Planning and Logistics, and Safety Officers (on-Roster/Call 24/7) which can articulate need for, and deliver Woodside support, in key delivery tasks including sitting with potential outside operators.
- Ongoing strategic industry engagement and collaboration with NOPSEMA to work toward time reductions in regulatory approvals for emergency events.

Woodside has identified three safety case revision development and submission scenarios for a MODU and plotted these alongside the relief well preparation activities in **Figure 6-3**. The assumptions for each of the cases are detailed in subsequent **Table 6-3**.

The MODUs screened for contingency relief well drilling all operate under an Accepted base Safety Case. A relief well Safety Case Revision would leverage the previously accepted Safety Case Revision for Minerva activities, including the associated site-specific well hazards. As such, there is less new detail for the regulator to review and should present a short review timeframe with no impact expected to the commencement of relief well drilling activities.

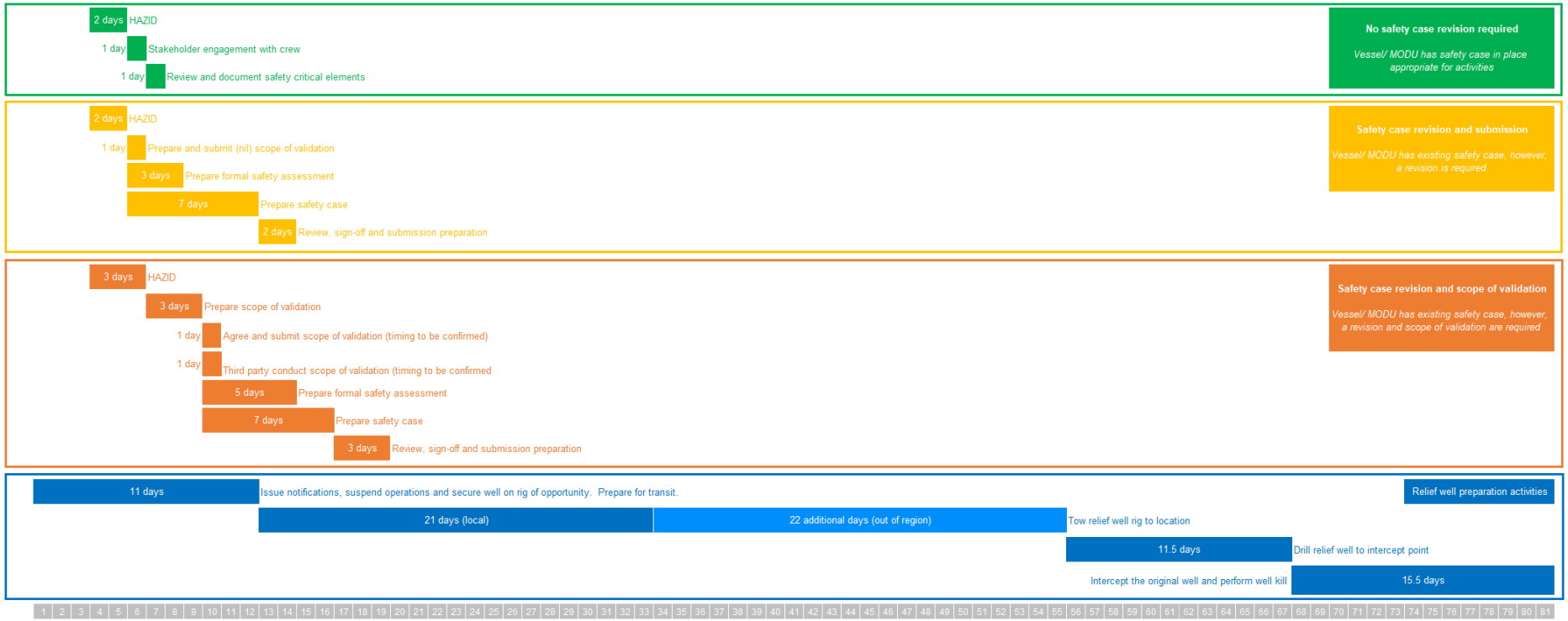


**Figure 6-3: Timeline showing safety case revision timings alongside other relief well preparation activity timings for Minerva-4 well**

**Table 6-3: Safety case revision conditions and assumptions**

| Case | No safety case revision required | Safety case revision and submission | Safety case revision and scope of validation |
|---|---|---|---|
| **Description** | Vessel/ MODU has a safety case in place appropriate for activities. | Vessel/ MODU has an existing safety case, however, a revision is required. | Vessel/ MODU has an existing safety case, however, a revision is required plus scope of validation. |
| **Conditions/ assumptions** | Assumes that existing vessel/ MODU safety case covers working under the same conditions, or the loss of containment is not severe enough to result in any risk on the sea surface. | Safety case timing assumes vessel/ MODU selected and crew and available for workshops and safety case studies. | Safety case timing assumes vessel/ MODU selected and crew and available for workshops and safety case studies. |
| | | Assumes nil scope of validation. This assumes that the vessel for source control allows for working in a hydrocarbon environment and control measures are already in place in the existing safety case. For MODU, it assumes that the relief well equipment is already part of the MODU facility and MODU safety case. | Validation will be required for new facilities only. The time needed for the validator to complete the review (from the last document received) and prepare validation statement is undetermined. This is not accounted for here as the safety case submission is not dependent on the validation statement, however the safety case acceptance is. |
| | | Assumes safety case preparation is undertaken 24/7. | Assumes safety case preparation is undertaken 24/7. |

### 6.2.4 Source Control – Control Measure Options Analysis

The assessment described in **Section 6.2.1, 6.2.2** and **6.2.3** outline the primary and alternate approach respectively that Woodside would implement for relief well drilling**.**

Woodside has outlined the options considered against the activation, mobilisation (improved options), deployment (alternate and additional options) process described in **Section 2.1.1** that provides an evaluation of:

- predicted cost associated with adopting the option
- predicted change/environmental benefit
- predicted effectiveness/feasibility of the option

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5.Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical.

- Alternative options, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control.
- Additional control measures are evaluated in terms of their ability to reduce an impact or risk when added to the existing suite of control measures.
- Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility

Options where there is not a clear justification for their inclusion or exclusion may be subject to a detailed assessment.

### 6.2.5 Activation/Mobilisation – Control Measure Options Analysis

This section details the assessment of Alternative, Additional or Improved control measures that were considered to ensure the selected level of performance in Section 5.2 reduces the risk to ALARP. The Alternative, Additional and Improved control measures that have been assessed and selected are highlighted in green and the relevant performance of the selected control is cross referenced. Items highlighted in red have been considered and rejected on the basis that they are not feasible or the costs are disproportionate compared to the environmental benefit.

#### 6.2.5.1 Alternative Control Measures

| **Alternative Control Measures considered**<br>*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Standby MODU shared for all Woodside activities | A standby MODU shared across all Woodside activities is likely to provide a moderate environmental benefit as it may reduce the 21-43 day sourcing, contracting and mobilisation time by up to 10 days (to 11-33 days). This would reduce the volume and duration of release and may reduce impacts on receptors and sensitivities. This may allow the well to be killed up to 10 days sooner (total of 71 days for worst-case well kill) and may result in a reduction of up to ~746.4 $m^3$ of Minerva-4 Condensate for the worst-case credible scenario. | This option is not considered feasible for all Woodside activities as there are a large range of well depths, complexities, geologies and geophysical properties across all Woodside's operations. The large geographic area of Woodside activities also means that the MODU is unlikely to be in the correct location at the right time when required. | Even with costs shared across Woodside operations, the costs (approximately A$1.1bn over the five years) of maintaining a shared MODU are considered disproportionate to the environmental benefit potentially achieved by reducing mobilisation times by up to 10 days. | The costs and complexity of having a MODU and maintaining this arrangement for the duration of the PAP are disproportionate to the environmental benefit gained above finding a MODU through the MOU agreement for all spill scenarios. | **No** |
| Standby MODU shared across AEP MOU Titleholders | A standby MODU shared across all titleholders who are signatories to the AEP MOU is likely to provide a minor environmental benefit as it may reduce the 21-43 day sourcing, contracting and mobilisation time by up to seven days (to 14-36 days). This would reduce the volume and duration of release and may reduce impacts on receptors and sensitivities. This may result in a reduction of up to ~522.5 $m^3$ of Minerva-4 Condensate for the worst-case credible scenario. | This option is not considered feasible for many titleholders due to the remote distances in Australia as well as a substantial range of well depths, types, complexities, geologies and geophysical properties across a range of titleholders | As the environmental benefit is only considered minor and the reduction in timing would only be for the mobilisation period (reduction from 21 days to 14 days) the costs are considered disproportionate to the minor benefit gained. | The costs and complexity of having a MODU and maintaining a shared arrangement for the duration of the Petroleum Activities Program are disproportionate to the environmental benefit gained above finding a MODU through the MOU agreement for all spill scenarios. | **No** |

#### 6.2.5.2 Additional Control Measures

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Implement and maintain minimum standards for Safety Case development | Woodside's contingency planning consideration would be to source a rig from outside Australia with an existing Safety Case. This would require development and approval of a safety case revision for the rig and activities prior to commencing well kill operations. | This option is considered feasible and would require Woodside to develop minimum standards for safe operations for relevant Safety Case input along with maintaining key resources to support review of Safety Cases. Woodside would not be the operator for relief well drilling and would therefore not develop or submit the Safety Case revision. Woodside's role as titleholder would be to provide minimum standard for safe operations that MODU operators would be required to meet and/or exceed. | Woodside has outlined control measures and performance standards regarding template Safety Case documentation and maintenance of resources and capability for expedited Safety Case review. | This option has been selected based on its feasibility, low cost and the potential environmental benefits that it would provide. | **Yes** |

### 6.2.5.3 Improved Control Measures

| **Improved Control Measures considered**<br>*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Monitor internal drilling programs for rig availability | Woodside may be conducting other campaigns that overlap with the Petroleum Activities Program, potentially providing availability of a relief well drilling rig within Woodside. The environmental benefit of monitoring other drilling programs internally is for Woodside to understand what other rigs may be rapidly available for relief well operations if required, potentially reducing the time to drill the relief well, resulting in less hydrocarbon to the environment. | Woodside monitors vessel and MODU availability through market intelligence services for location. Woodside will continually monitor other drilling and exploration activities within Australia and as available throughout the region to track rigs and explore rig availability during well intervention operations. | Associated cost of implementation is minimal to the environmental benefit gained. Woodside has outlined control measures and performance standards. | This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment. | **Yes** |
| Monitor external activity for rig availability | The environmental benefit achieved by monitoring drilling programs and rig movements across industry provides the potential for increased availability of suitable rigs for relief well drilling. Additional discussions with other titleholders may be undertaken to potentially gain faster access to a rig and reduce the time taken to kill the well and therefore volume of hydrocarbons released. | Woodside will source a relief well drilling rig in accordance with the AEP MOU on rig sharing in the unlikely event this is required. Commercial and operational provisions do not allow WEL to discuss current and potential drilling programs in detail with other titleholders. | Associated cost of implementation is moderate to the environmental benefit gained. Woodside will continually engage with other titleholders and operators regarding activities within Australia and as available throughout the region to track rigs and explore rig availability during well intervention operations. | This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment. | **Yes** |
| Monitor status of Registered Operators/Approved Safety cases for rigs | Woodside can monitor the status of Registered Operators for rigs operating within Australia (and therefore safety case status) monthly. This allows for a prioritised selection of rigs in the event of a response with priority given to those with an existing safety case. | The environmental benefit of monitoring rigs is for Woodside to understand what other rigs may be rapidly available for relief well operations if required, potentially reducing the time to drill the relief well, resulting in less hydrocarbon to the environment. | The cost is minimal. | This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment. | **Yes** |

### 6.2.6 Deployment Options Analysis

#### 6.2.6.1 Alternative Control Measures

| **Alternative Control Measures considered**<br>*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| No reasonably practical alternative control measures identified | | | | | |

#### 6.2.6.2 Additional Control Measures

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Offset capping alternative to conventional capping stack deployment | While the use of an offset capping system could reduce the quantity of hydrocarbon entering the marine environment, the feasibility issues surrounding an offset capping deployment in the water depths at Minerva Plug and Abandonment activities well (~60 m), together with mobilisation lead times for both a cap and required vessels/support equipment, would minimise any environmental benefit gained. | Technical feasibility:<br>• The base case considerations for OIE requires a coordinated response by 4 to 7 vessels working simultaneously outside of the 500m exclusion zone. In the event of a worst-case shallow water gas discharge, the 10% LEL modelled radius extends beyond the area of activity required for the OIE deployment thereby introducing health and safety risk to any vessels required for the initial deployment of the carrier and subsequent operations with ROV during capping operations. Though manageable for single vessels, it is prohibitive for operations requiring SIMOPs with numerous vessels working at 180 degrees from one another.<br>• Water depth is also a key consideration as buoyancy modules have not been proven for use in ~60 m water depth or with the expected worst-case gas blowout rates.<br>Other factors:<br>• Due to the OIE's size and scale, fabrication of equipment, e.g. mooring anchors, outside of the contractor's scope of supply is likely to require engagement of international suppliers, further increasing complexity and uncertainty in associated time frames.<br>• Screening indicates that mobilising some components of the OIE, based in Italy, can only be done so by sea and is likely to erode any time savings realised through killing the well via a relief well.<br>The March 2019 OSRL exercise In Europe tested deployment of the OIE and highlighted that it will require a 600+MT crane vessel for deployment to provide useable hook height for the crane to conduct the lift of the carrier. Vessels with such capability and a current | Due to risks, uncertainty and complexity of this option, and the inability to realise any environmental gains, any cost would be disproportionate to the benefits gained. | Woodside has confidence in availability of suitable relief well MODUs across the required drilling time frame thus the OIE would provide no advantage.<br>Implementation of OIE has been assessed as a complex and unfeasible SIMOPs operation, precluded by a combination of the site-specific metocean and worst-case discharge conditions at the Minerva-4 well location.<br>Implementation of a novel technology such as OIE culminates in low certainty of success while at the same time increasing associated health and safety risks.<br>As such the primary source control response and ALARP position remains drilling a relief well. | **No** |

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| | | Australian vessel safety case are not locally or readily available. | | | |
| Dual vessel capping stack deployment | While the use of dual vessel to deploy the capping system could reduce the quantity of hydrocarbon entering the marine environment, this is an unproven technology. Additionally, the feasibility issues surrounding a dual vessel capping deployment in the water depths at Minerva Plug and Abandonment activities well (~60 m), together with mobilisation lead times for both a cap and required vessels and support equipment, would minimise any environmental benefit. | A dual vessel deployment is somewhat feasible provided a large enough deck barge can be located. Deck barges of 120 m are not, however, very common and will present a logistical challenge to identify and relocate to the region. Further, the longer length barges may need mooring assist to remain centred over the well. The capping stack would be handed off from a crane vessel to the anchor handler vessel (AHV) work wire outside of the exclusion zone. The AHV would then manoeuvre the barge into the plume to get the capping stack over the well. In this method, the barge would be in the plume, but the AHV and all personnel would be able to maintain a safe position outside of the gas zone. The capping stack would actually be lowered on the AHV work wire so a crane would not be required on the barge. | Due to there being minimal environmental benefits gained by the prolonged lead times needed to execute this technique, plus a potential increase in safety issues, any cost would be disproportionate to the benefits gained. | Given there is minimal environmental benefit and an increase in safety issues surrounding SIMOPS and deployment in shallow waters, this option would not provide an environmental or safety benefit. | **No** |
| Subsea Containment System alternative to capping stack deployment | While the use of a subsea containment system could reduce the quantity of hydrocarbon entering the marine environment, this is an unproven technology. Additionally, the system is unlikely to be feasibly deployed and activated for at least 90 days following a blowout due to equipment requirements and logistics. No environmental benefit is therefore predicted given the release duration is 81 days before drilling of a relief well under the adopted control measure. | The timing for mobilisation, deployment and activation of the subsea containment system is likely to be longer (>90 days), than the expected 81-day relief well drilling operations based on the location, size and scale of the equipment required, including seabed piles that can only be transported by vessel. | Woodside has investigated the logistics of reducing this timeframe by pre-positioning equipment but the costs of purchasing dedicated equipment by Woodside for this Petroleum Activities Program is not considered reasonably practical and are considered disproportionate to the environmental benefit gained. | This option would not provide an environmental benefit. | **No** |
| Pre-drilling top-holes | This option represents additional environmental impacts associated with discharge of additional drill cuttings and fluids along with benthic habitat disturbance. It is also not expected to result in a significant decrease in relief well timings | This option is not considered feasible due to the uncertainties related to the location and trajectory of the intervention well, which may vary according to the actual conditions at the time the loss of containment event occurs. Additionally, there is only expected to be a minor reduction in timing for this option of 1-2 days based on the drilling schedule. Duration to drill and kill may be reduced by 1-2 days, but top-hole may have to be relocated, due to location being unsafe or unsuitable and further works will be required each year to maintain the top holes. | Utilising an existing MODU and pre-drilling top-hole for relief well commencement would significantly increase costs associated the Petroleum Activities Program. Estimated cost over the program's life is approximatelyA$1.6 M per day over the PAP based on 2-4 days of top-hole drilling (plus standby time) for each top-hole drilled. | This option would not provide an environmental benefit due to the additional environmental impacts coupled with a lack of improved relief well timings. | **No** |
| Purchase and maintain mooring system | Purchasing and maintaining a mooring system could provide a moderate environmental benefit as it may reduce equipment sourcing time. However, due to the continued need for specialists to install the equipment plus sourcing a suitable vessel, the timeframe reduction would be minimal. | Woodside is not a specialist in installing and maintaining moorings so would require specialists to come in to install the moorings and would also require specialist vessels to be sourced to undertake the work. | The cost of purchasing, storing and maintaining pre-lay mooring systems with anchors, chains, buoys and ancillary equipment is considered grossly disproportionate to the environmental benefit gained. | This option would not provide an environmental benefit as timeframe reductions would be minimal. | **No** |
| Contract in place with Wild Well | Woodside has an agreement in place with Wild Well Control Inc and Oceaneering to provide trained personnel in the event of an incident. | Having contracts in place to access trained, competent personnel in the event of an | Minimal cost implications – Woodside has standing contract in place to provide assistance across all activities. | This control measure is adopted as the costs and complexity are not considered | **Yes** |

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Control and Oceaneering | This will make competent personnel available in the shortest possible timeframe. | incident would reduce mobilization times. This option is considered reasonably practicable. | | disproportionate to any environmental benefit that might be realised. | |

### 6.2.6.3 Improved Control Measures

| **Improved Control Measures considered**<br>*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Maintaining relief well drilling supplies | There is not predicted to be any reduction in relief well timing or spill duration from Woodside maintaining stocks of drilling supplies (mud, casing, cement, etc.) | It would be feasible to source some relief well drilling supplies such as casing, but the actual composition of the cement and mud required will need to be specific to the well. This option is also not deemed necessary as the lead time for sourcing and mobilising these supplies is included in the 21 days for sourcing and mobilising a rig. | The capital cost of Woodside purchasing relevant drilling supplies is expected to be approximately $600K with additional costs for storage and ongoing costs for replenishment. These costs are considered disproportionate to the environmental benefit gained. | This option would not provide an environmental benefit. | **No** |

### 6.2.7 Selected Control Measures

Following review of Alternative, Additional and Improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - Implement and maintain minimum standards for Safety Case development
  - Contract in place with Wild Well Control and Oceaneering to supply trained, competent personnel
- Improved
  - Monitor internal drilling programs for MODU availability
  - Monitor external activity for MODU availability
  - Monitor status of Registered Operators / Approved Safety cases for MODUs

## 6.3 Source Control via Vessel SOPEP – ALARP Assessment

Alternative, Additional and Improved options have been assessed against the base capability described in Section 5. Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

### 6.3.1 Source Control via Vessel SOPEP – Control Measure Options Analysis

#### 6.3.1.1 Alternative Control Measures

| **Alternative Control Measures considered**<br>*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| No reasonably practical alternative control measures identified | | | | | |

#### 6.3.1.2 Additional Control Measures

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| No reasonably practical additional control measures identified | | | | | |

#### 6.3.1.3 Improved Control Measures

| **Improved Control Measures considered**<br>*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| No reasonably practical improved control measures identified | | | | | |

### 6.3.2 Selected control measures

Following review of Alternative, Additional and Improved control measures, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

## 6.4 Shoreline Protection and Deflection – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5.Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

### 6.4.1 Existing Capability – Shoreline Protection and Deflection

Woodside's exiting level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

### 6.4.2 Response Planning: Minerva Plug and Abandonment – Shoreline Protection and Deflection

Planning for shoreline protection is based upon identification of Response Protection Areas (RPAs) from deterministic modelling and the logistics associated with deploying protection at these locations. The response planning scenarios indicate that this would require effective mobilisation to priority shorelines and maintenance of protection until operational monitoring confirms that the locations were no longer at risk. Woodside has identified the RPAs from modelling results provided from specific scenarios. The full list of RPAs predicted to be contacted by oil above response thresholds are detailed in Table 3-1.

The control measures selected provide capability to mobilise shoreline protection equipment by Day 2 (if required). Deterministic modelling scenarios indicate that first shoreline impact at Warrnambool Plain within 0.2 days for CS-02 and 14.9 days for CS-01. The existing capability can mobilise and deploy protection at RPAs within 24-48 hours, guided by the ongoing operational monitoring.

Tactical response plans exist for many of the RPAs identified. The plans identify values and sensitivities that would be protected at location. Modelling does not predict that all priority protection shorelines will be at risk of contact at the same time. Therefore, to allow for the best use of available shoreline protection and deflection resources, operational monitoring (OM01 and OM02) will inform the response, targeting RPAs where contact is predicted above response threshold levels.

**Table 6-4** below outlines the capability required (number of RPAs predicted to be impacted) against the capability available (number of shoreline protection and deflection operations that can be mobilised and deployed). As can be seen from the table below. Woodside's capability exceeds the response planning need identified for shoreline protection and deflection operations at identified RPAs by day 2.

**Table 6-4: Response Planning – Shoreline Protection and Deflection**

| Minerva Plug and Abandonment – CS-01 and CS-02 | | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Week 2 | Week 3 | Week 4 | Month 2 | Month 3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **A** | **Capability Required** | | | | | | | | | | | | |
| **A1** | **Number of RPAs contacted (> 100 g/m$^2$) – CS-01** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **1** | **0** | **1** | **1** | **0** |
| **A2** | **Number of RPAs contacted (> 100 g/m$^2$) – CS-02** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **B** | **Capability Available (operations per day)** | | | | | | | | | | | | |
| **B1** | **SPD operations available – per day (lower)** | **0** | **1** | **1** | **2** | **2** | **4** | **6** | **70** | **70** | **70** | **330** | **330** |
| **B2** | **SPD operations available – per day (upper)** | **1** | **2** | **3** | **4** | **6** | **8** | **10** | **84** | **84** | **84** | **336** | **336** |
| **C** | **Capability Gap (operations per day)** | | | | | | | | | | | | |
| **C1** | **SPD operations gap – per day (lower)** | **3** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |
| **C2** | **SPD operations gap – per day (upper)** | **2** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** | **0** |

*A1 and A2 – the number of Response Protection Areas contacted by surface hydrocarbons above 100 g/m$^2$*
*B1 and B2 – the upper and lower number of shoreline protection and deflection operations available (based on response planning assumptions in Section 5.4),*
*C1 and C2 – the gap between the upper and lower number of shoreline protection and deflection operations required in A1, A2 and A3 compared to the operations available in B1 and B2*

**Table 6-5: Indicative Tactical response plan, aims and methods for identified RPAs**

| Tactical Response Plan | Response tasks and methods |
|---|---|
| Warrnambool Plain | **First Task:**<br>Pre-clean of shoreline.<br>**Methods:**<br>Manual removal of debris to above the high tide area. |
| | **Second Task:**<br>Physically close the mouth of the Hopkins River.<br>**Methods:**<br>Access the beach from Hopkins River Lookout. Utilise heavy plant equipment (Primary) or shore seal boom (Alternative). |
| | **Third Task:**<br>Conduct assessment of impacted shoreline inside and outside the Hopkins River mouth.<br>**Methods:**<br>Task SCAT team to conduct assessment of the area. |
| Aire River | **First Task:**<br>Pre-clean of shoreline.<br>**Methods:**<br>Manual removal of debris to above the high tide area. |
| | **Second Task:**<br>Physically close the mouth of the Aire River.<br>**Methods:**<br>Access the beach from Old Coach Rd and use heavy plant equipment (Primary) or shore seal boom/sandbags (Alternative). |
| | **Third Task:**<br>Conduct assessment of impacted shoreline inside and outside the Aire River estuary.<br>**Methods:**<br>Task SCAT team to conduct assessment of the area. |
| Gellibrand River | **First Task:**<br>Pre-clean of shoreline.<br>**Methods:**<br>Manual removal of debris to above the high tide area. |

| Tactical Response Plan | Response tasks and methods |
|---|---|
| | **Second Task:**<br>Physically close the mouth of the Gellibrand River.<br>**Methods:**<br>Access the beach from Old Coach Rd and use heavy plant equipment (Primary) or shore seal boom/sandbags (Alternative). |
| | **Third Task:**<br>Conduct assessment of impacted shoreline inside and outside the Gellibrand River estuary.<br>**Methods:**<br>Task SCAT team to conduct assessment of the area. |
| Curdies Inlet | **First Task:**<br>Check and confirm whether the mouth of Curdies Inlet is open to the ocean: http://www.estuarywatch.org.au/site/ccma/729<br>Pre-clean of shoreline.<br>**Methods:**<br>Manual removal of debris to above the high tide area. |
| | **Second Task:**<br>Physically close the mouth of the Curdies Inlet.<br>**Methods:**<br>Access the beach from Irvine Rd (west of inlet) or Great Ocean Road (east of inlet), depending on the status of the inlet mouth.<br>Use heavy plant equipment (Primary) or shore seal boom/sandbags (Alternative). |
| | **Third Task:**<br>Conduct assessment of impacted shoreline inside and outside Curdies Inlet (Peterborough Coastal Reserve).<br>**Methods:**<br>Task SCAT team to conduct assessment of the area. |

Pre-emptive mobilisation of equipment and personnel would commence as soon as practicable prior to oil contact. Additional resources would be mobilised depending on the scale of the event to increase the length or number of shorelines being protected.

A shoreline protection and deflection response would be launched only when operational monitoring operations and modelling identify spill heading towards RPA(s).

### 6.4.3 Shoreline Protection and Deflection – Control Measure Options Analysis

#### 6.4.3.1 Alternative Control Measures

| **Alternative Control Measures considered**<br>*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Pre-position equipment at Response Protection Areas (RPAs) | Additional environmental benefit of having equipment prepositioned is considered minor. Equipment is currently available to protect RPAs and additional shorelines, within estimated minimum times until shoreline contact at RPAs, enabling mobilisation of the selected delivery options. | The incremental environmental benefit associated with these delivery options is considered minor and unlikely to reduce the environmental consequence of a significant hydrocarbon release beyond the adopted delivery options. Considering the highly unlikely nature of a significant hydrocarbon release and the costs and organisational complexity associated with prepositioning and maintenance of equipment, the sacrifice is considered disproportionate to the limited environmental benefit that might be realised.<br><br>Furthermore, these options would conflict with the mutual aid philosophy being adopted under the selected delivery options.<br><br>The selected delivery options for shoreline protection and deflection meet the relevant objectives of this control measure and do not require prepositioned or additional equipment in Exmouth. | Total cost to preposition protection/ deflection packages at each site of potential impact would be approximately A$6,100 per package per day. | This option is not adopted as the existing capability meets the need. | **No** |

#### 6.4.3.2 Additional Control Measures

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Supplemented stockpiles of equipment in Exmouth to protect additional shorelines | Additional equipment would increase the number of receptor areas that could be protected from hydrocarbon contact. However, current availability of personnel and equipment is capable of protecting up to 30 km of shoreline, commensurate with the scale and progressive nature of shoreline impact. Additional stocks would be made available from international sources if long term up scaling were necessary.<br><br>A reduction in environmental consequence from a ‘B’ rating (serious long-term impacts) is unlikely to be realised as a result of having more equipment available locally. | The incremental environmental benefit associated with these delivery options is considered minor and unlikely to reduce the environmental consequence of a significant hydrocarbon release beyond the adopted delivery options. Considering the highly unlikely nature of a significant hydrocarbon release and the costs and organisational complexity associated with prepositioning and maintenance of equipment, the sacrifice is considered disproportionate to the limited environmental benefit that might be realised.<br><br>Furthermore, these options would conflict with the mutual aid philosophy being adopted under the selected delivery options.<br><br>The selected delivery options for shoreline protection and deflection meet the relevant objectives of this control measure and do not require prepositioned or additional equipment in Exmouth. | Total cost for purchase supplemental protection and deflection equipment would be approximately A$455,000 per package. | This option is not adopted as the existing capability meets the need. | **No** |

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Additional trained personnel | The level of training and competency of the response personnel allows the shoreline protection and deflection operation is delivered with minimum secondary impact to the environment. Training additional personnel does not provide an increased environmental benefit. | Additional personnel required to sustain an extended response can be sourced through the Woodside *People and Global Capability Surge Labour Requirement Plan*. Additional personnel sourced from contracted OSRO's (OSRL/AMOSC) to manage other responders.<br>Response personnel are trained and exercised regularly in shoreline response techniques and methods. All personnel involved in a response will receive a full operational/safety brief prior to commencing operations. | Additional Specialist Personnel would cost A$2,000 per person per day. | This option is not adopted as the existing capability meets the need. | **No** |

### 6.4.3.3 Improved Control Measures

| **Improved Control Measures considered**<br>*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Faster response/mobilisation time | Modelling predicts floating or shoreline impacts at threshold on day 1 (CS-02). Initial deployment of protection and deflection operations will be available for mobilisation within 24-48 hrs of activation. | Response teams, trained personnel, contracted oil spill response service providers, government agencies and the associated mitigation equipment required to enact an initial protection and deflection response will be available for mobilisation within 24-48 hrs of activation.<br>Additional equipment from existing stockpiles and oil spill response service providers can be on scene within 24-48 hrs. | The cost of establishing a local stockpile of new mitigation equipment (including protection and deflection boom) closer to the expected hydrocarbon stranding areas is not commensurate with the need. | This option is not adopted as the existing capability meets the need. | **No** |

### 6.4.4 Selected Control Measures

Following review of Alternative, Additional and Improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

## 6.5 Shoreline Clean-up – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

### 6.5.1 Existing Capability – Shoreline Clean-up

Woodside's exiting level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

### 6.5.2 Response planning: Minerva Plug and Abandonment – Shoreline Clean-up

Woodside has assessed existing capability against the WCCS and has identified that the range of techniques provide an ongoing approach to shoreline clean-up at identified RPAs. Woodside's capability can cover all required shoreline clean-up operations for the PAP from day 3.

Modelling predicts shoreline contact at Warrnambool from day 0.2 (CS-02) and day 14.9 (CS-01). The largest volumes ashore are at Warrnambool with approximately 187 tonnes predicted on day 0.2 (CS-02) and approximately 6 tonnes predicted on day 14.9 (CS-01). These volumes assume no treatment of floating surface oil by containment and recovery or surface dispersant application, and no shoreline protection prior to contact and so actual volumes are very likely to be lower than the assumed volumes. The full list of RPAs predicted to be contacted by oil is detailed in **Table 3-1** and relevant Tactical Response Plans available for identified RPAs are included in **Table 6-5**.

These figures have been combined into a single response planning need scenario that provides a worst-case scenario for planning purposes as outlined below. Given all other shoreline contact scenarios identified from deterministic modelling are longer time frames and/or lesser volumes, demonstration of capability against this need will enable Woodside to meet requirements for any other outcome. Woodside is satisfied that the current capability is managing risks and impacts to ALARP.

Due to the time of contact predicted shoreline clean-up and deterministic modelling predicting ongoing stranding after this peak, this response may not be as time critical compared to other response techniques and the scale will depend on the success of other techniques preventing oiling occurring. Further, the potential scale and remoteness of a response coupled with the uncertainty of which locations will be affected precludes the stockpiling or prepositioning of equipment specific to shorelines.

Woodside has identified several options which could be mobilised to achieve defined response objectives. Evaluation considers the benefit in terms of the time to respond and the scale of response made possible by each option. The evaluation of possible control measures is summarised in **Section 6.5.3**.

**Table 6-6: Response Planning – Shoreline Clean-up**

| | Shoreline Clean-up (Phase 2) | Day 1 | Day 2 | Day 3 | Day 4 | Day 5 | Day 6 | Day 7 | Week 2 | Week 3 | Week 4 | Month 2 | Month 3 | Month 4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Oil on shoreline (from deterministic modelling) tonnes | | | | | | | | | | | | | |
| | Shoreline accumulation (above 100 g/m$^2$) - tonnes | 220 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 1 | 1 | 0 | 0 |
| | Oil remaining following response operations - tonnes | 220 | 220 | 44 | 31 | 22 | 15 | 11 | 0 | 0 | 3 | 0 | 0 | 0 |
| A | Capability Required (number of operations) | | | | | | | | | | | | | |
| A1 | SCU operations required (lower) | 22 | 11 | 2 | 2 | 1 | 1 | 1 | 0 | 1 | 0 | 0 | 0 | 0 |
| A2 | SCU operations required (upper) | 44 | 22 | 4 | 3 | 2 | 2 | 1 | 0 | 1 | 1 | 1 | 0 | 0 |
| B | Capability Available (number of operations) | | | | | | | | | | | | | |
| B1 | SCU operations available - Stage 2 - Manual (lower) | 0 | 1 | 3 | 5 | 8 | 12 | 15 | 105 | 105 | 105 | 560 | 560 | 560 |
| B2 | SCU operations available - Stage 2 - Manual (upper) | 0 | 2 | 5 | 8 | 10 | 15 | 20 | 140 | 140 | 140 | 560 | 560 | 560 |
| C | Capability Gap | | | | | | | | | | | | | |
| C1 | SCU operations gap (lower) | 22 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| C2 | SCU operations gap (upper) | 44 | 20 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

*A1 and A2 – the number of Shoreline Clean-up operations required based on the hydrocarbon volumes ashore above 100 g/m$^2$*
*B1 and B2 – the upper and lower number of shoreline clean-up operations available (based on response planning assumptions in Section 5.5),*
*C1 and C2 – the gap between the upper and lower number of shoreline clean-up operations required in A1 and A2 compared to the operations available in B1 and B2*

### 6.5.3 Shoreline Clean-up – Control measure options analysis

#### 6.5.3.1 Alternative Control Measures

| **Alternative Control Measures considered**<br>*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| No reasonably practical alternative control measures identified | | | | | |

#### 6.5.3.2 Additional Control Measures

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Additional trained personnel available | The level of training and competency of the response personnel allows the shoreline clean-up operation to be delivered with minimum secondary impact to the environment. Training additional personnel does not provide an increased environmental benefit. | Additional personnel required to sustain an extended response can be sourced through the Woodside *People and Global Capability Surge Labour Requirement Plan*. Additional personnel sourced from contracted OSROs (OSRL/AMOSC) to manage other responders.<br><br>Response personnel are trained and exercised regularly in shoreline response techniques and methods. All personnel involved in a response will receive a full operational/safety brief prior to commencing operations. | Additional Specialist Personnel would cost A$2,000 per person per day. | This option is not adopted as the existing capability meets the need. | **No** |
| Additional trained personnel deployed | Maintaining a span of control of 200 competent personnel is deemed manageable and appropriate for this activity. Additional personnel conducting clean-up activities may be able to complete the clean-up in a shorter timeframe, but modelling predicts ongoing stranding of hydrocarbons over a period of weeks. Managing a smaller, targeted response is expected to achieve an environmental benefit through ensuring the shoreline clean-up response is suitable and scalable for the shoreline substrate and sensitivity type.<br><br>This will reduce the risk of increased impact from the shoreline clean-up through the presence of unnecessary personnel and equipment. | The figure of 200 personnel is broken down to include on 1-2 x trained supervisors managing 8-10 personnel/labour hire responders. This allows for multiple operational teams to operate along the extended shoreline at different locations. Typically, an additional 30-50% of the tactical workforce is required to support ongoing operations including on-scene control, logistics, safety/medical/welfare and transport.<br><br>Personnel on site will include members with the appropriate specialties to efficiently clean-up the shoreline.<br><br>Additional personnel are available through existing contracts with oil spill response organisations, labour hire organisations and environmental panel contractors | Additional specialist personnel would cost A$2,000 per person per day. | This option is not adopted as the existing capability meets the need. | **No** |

#### 6.5.3.3 Improved Control Measures

| **Improved Control Measures considered**<br>*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Faster response/mobilisation time | Modelling predicts floating or shoreline impacts at threshold on day 1 (CS-02). Initial deployment of protection and deflection operations will be available for mobilisation within 24-48 hrs of activation. | Response teams, trained personnel, contracted oil spill response service providers, government agencies and the associated mitigation equipment required to enact an initial protection and deflection response will be available for mobilisation within 24-48 hrs of activation.<br>Additional equipment from existing stockpiles and oil spill response service providers can be on scene within 24-48 hrs. | The cost of establishing a local stockpile of new shoreline clean-up equipment closer to the expected hydrocarbon stranding areas is not commensurate with the need. | This option is not adopted as the existing capability meets the need. | **No** |

### 6.5.4 Selected Control Measures

Following review of Alternative, Additional and Improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

## 6.6 Wildlife Response – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

### 6.6.1 Existing Capability – Wildlife Response

Woodside's existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

### 6.6.2 Wildlife Response – Control Measure Options Analysis

#### 6.6.2.1 Alternative Control Measures

| **Alternative Control Measures considered**<br>*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Direct contracts with service providers | This option duplicates the capability accessed through AMOSC and OSRL and would compete for the same resources. Does not provide a significant increase in environmental benefit. | These delivery options provide increased effectiveness through more direct communication and control of specialists. However, no significant net benefit is anticipated. | Duplication of capability – already subscribed to through contracts with AMOSC and OSRL | This option is not adopted as the existing capability meets the need. | **No** |

#### 6.6.2.2 Additional Control Measures

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Additional wildlife treatment systems | The selected delivery options provide access to call-off contracts with selected specialist providers. The agreements allow these resources to be mobilised to meet the required response objectives, commensurate with the progressive nature of environmental impact and the time available to monitor hydrocarbon plume trajectories.<br><br>Provides response equipment and personnel within 24-48 hours. The additional cost in having a dedicated oiled wildlife response (equipment and personnel) in place is disproportionate to environmental benefit.<br><br>These selected delivery options provide capacity to carry out an oiled wildlife response if contact is predicted; and to scale up the response if required to treat widespread contamination.<br><br>Current capability meets the needs required and there is no additional environmental benefit in adopting the improvements. | Shoreline hydrocarbon contact above wildlife response threshold concentrations (>100 g/m$^2$) is expected from day 1 (CS-02). Given the low likelihood of such an event occurring and that the current capability can be mobilised within 24-48 hours, the cost of implementing measures to reduce the mobilisation time is considered disproportionate to the benefit. Additionally, the offshore location of the release site allows monitoring and surveillance operations to inform RPAs at risk of contact and the potential scale of the response.<br><br>Oiled wildlife response capacity would be addressed for open Commonwealth waters through the AMOSC arrangements, as informed by operational monitoring.<br><br>The cost and organisational complexity of this approach is moderate, and the overall delivery effectiveness is high. | Additional wildlife response resources could total A$1,700 per operational site per day. | This option is not adopted as the existing capability meets the need. | **No** |
| Additional trained wildlife responders | Numbers of oiled wildlife are expected to be low offshore. | Current numbers meet the needs required and additional personnel are available through existing contracts with oil spill response | Additional wildlife response personnel cost A$2,000 per person per day | This option is not adopted as the existing capability meets the need. | **No** |

| **Additional Control Measures considered**<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| | The potential environmental benefit of training additional personnel is expected to be low. | organisations and environmental panel contractors.<br>Additional equipment and facilities would be required to support ongoing response, depending on the scale of the event and the impact to wildlife and maybe sourced via existing contracts with OSROs. Materials for holding facilities, portable pools, enclosures and rehabilitation areas would be sourced as required. | | | |

### 6.6.2.3 Improved Control Measures

| **Improved Control Measures considered**<br>*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| Faster mobilisation time for wildlife response | Response time is limited by specialist personnel mobilisation time. Current timing is sufficient for expected shoreline contact.<br>This control measure provides increased effectiveness through faster mobilisation of specialists. However, no significant net environmental benefit is expected due to shoreline stranding times. | Pre-positioning vessels or equipment would reduce mobilisation time for oiled wildlife response activities. However, given the effectiveness of an oiled wildlife response is expected to be low, an earlier response would provide a marginal increase in environmental benefit. | Wildlife response packages to preposition at vulnerable sites identified through the deterministic modelling cost A$700 per package per day.<br>The cost of having dedicated equipment and personnel available to respond faster is considered disproportionate to the environmental benefit. | This option is not adopted as the existing capability meets the need. | **No** |

## 6.6.3 Selected control measures

Following review of Alternative, Additional and Improved control measures, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

## 6.7 Waste Management – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

### 6.7.1 Existing Capability – Waste Management

Woodside's exiting level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

### 6.7.2 Waste Management – Control Measure Options Analysis

#### 6.7.2.1 Alternative Control Measures

**Alternative Control Measures considered**
*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control*

| Option considered | Environmental consideration | Feasibility | Approximate Cost | Assessment conclusions | Implemented |
|---|---|---|---|---|---|
| No reasonably practical alternative control measures identified | | | | | |

#### 6.7.2.2 Additional Control Measures

**Additional Control Measures considered**
*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures*

| Option considered | Environmental consideration | Feasibility | Approximate Cost | Assessment conclusions | Implemented |
|---|---|---|---|---|---|
| Increased waste storage capability | The procurement of waste storage equipment options on the day of the event will allow immediate response and storage of collected waste. The environmental benefit of immediate waste storage is to reduce ecological consequence by safely securing waste, allowing continuous response operations to occur. | Access to Woodside's waste service provider's storage options provides the resources required to store and transport sufficient waste to meet the need. Access to waste contractor's existing facilities enables waste to be stockpiled and gradually processed within the regional waste handling facilities. Additional temporary storage equipment is available through existing contract and arrangements with AMOSC/OSRL. Existing arrangements meet identified need for the PAP. | Cost for increased waste disposal capability would be approximatelyA$1,300 per $m^3$.<br>Cost for increased onshore temporary waste storage capability would be approximatelyA$40 per unit per day. | This option is not adopted as the existing capability meets the need. | **No** |

#### 6.7.2.3 Improved Control Measures

**Improved Control Measures considered**
*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility*

| Option considered | Environmental consideration | Feasibility | Approximate Cost | Assessment conclusions | Implemented |
|---|---|---|---|---|---|
| Faster response time | The access to Woodside's waste contractor's storage options provides the resources to store and transport waste, permitting the wastes to be stockpiled and gradually processed within the regional waste handling facilities.<br>Bulk transport to the waste contractor's licensed waste management facilities would be undertaken via controlled-waste-licensed vehicles and in accordance with State waste regulations. | Woodside has access to stockpiles of temporary waste storage equipment and equipment in the region through existing contracts and arrangements. | The incremental benefit of having a dedicated local Woodside-owned stockpile of waste equipment and transport is considered minor and cost is considered disproportionate to the benefit gained given predicted shoreline contact times. | This option is not adopted as the existing capability meets the need. | **No** |

| **Improved Control Measures considered**<br>*Improved control measures are evaluated for improvements they could bring to the effectiveness of adopted control measures in terms of functionality, availability, reliability, survivability, independence and compatibility* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| | The environmental benefit from successful waste storage will reduce pressure on the treatment and disposal facilities reducing ecological consequences by safely securing waste. In addition, waste storage and transport will allow continuous response operations to occur.<br><br>This delivery option would increase known available storage, eliminating the risk of additional resources not being available at the time of the event. However, the environmental benefit of Woodside procuring additional waste storage is considered minor as the risk of additional storage not being available at the time of the event is considered low and existing arrangements provide adequate storage to support the response. | | | | |

### 6.7.3 Selected control measures

Following review of Alternative, Additional and Improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

## 6.8 Scientific Monitoring – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5. Those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis that they are not feasible, the costs are disproportionate to the environmental benefit, and/or the option is not reasonably practical. Control measures where there is not a clear justification for their inclusion or exclusion may be subject to a detailed ALARP assessment.

### 6.8.1 Existing Capability – Scientific Monitoring

Woodside's existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

### 6.8.2 Scientific Monitoring – Control Measure Options Analysis

#### 6.8.2.1 Alternative Control Measures

**Alternative Control Measures considered**
*Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control*

| Option considered | Environmental consideration | Feasibility | Approximate Cost | Assessment conclusions | Implemented |
|---|---|---|---|---|---|
| Analytical laboratory facilities closer to the likely spill affected area | The environmental consideration of having access to suitable laboratory locally to carry out the hydrocarbon analysis would provide faster turnaround in reporting of results only by a matter of days (as per the time to transport samples to laboratories). | SM01 water quality monitoring requires water samples to be transported to NATA-rated laboratories in Perth or over to the East coast. Consider the benefit of laboratory access and transportation times to deliver water samples and complete lab analysis. There is a time lag from collection of water samples to being in receipt of results and confirming hydrocarbon contact to sensitive receptors). | Laboratory facilities and staff available at locations closer to the spill affected area can reduce reporting times only to a moderate degree (days) with associated high costs of maintaining capability do not improve the environmental benefit. | This control measure is not adopted as the costs and complexity are considered disproportionate to any environmental benefit that might be realised. | **No** |
| Dedicated contracted SMP vessel (exclusive to Woodside) | Would provide faster mobilisation time of scientific monitoring resources, however, the environmental benefit associated with faster mobilisation time would be minor compared to selected options. | Chartering and equipping additional vessels on standby for scientific monitoring has been considered. The option is reasonably practicable, but the sacrifice (charter costs and organisational complexity) is significant, particularly when compared with the anticipated availability of vessels and resources within in the required timeframes. The selected delivery provides capability to meet the scientific monitoring objectives, including collection of pre-emptive data where baseline knowledge gaps are identified for receptor locations where spill predictions of time to contact are >10 days. The effectiveness of this alternative control (weather dependency, availability and survivability) is rated as very low | The cost and organisational complexity of employing a dedicated response vessel is considered disproportionate to the potential environmental benefit by adopting these delivery options. | This control measure is not adopted as the costs and complexity are considered disproportionate to any environmental benefit that might be realised. | **No** |

#### 6.8.2.2 Additional control measures

**Additional Control Measures considered**
*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures*

| Option considered | Environmental consideration | Feasibility | Approximate Cost | Assessment conclusions | Implemented |
|---|---|---|---|---|---|
| Determine baseline data needs and provide implementation plan in the event | Address resourcing needs to collect post spill (pre-contact) baseline data as spill expands in the event of a loss of well control from the PAP activities. | As part of Woodside's Scientific Monitoring Program, the following are considered and incorporated into the spill response approach and the SMP Standby Service contract.<br>• Woodside rely on existing environmental baseline for receptors which have | No cost associated with baseline for SM01. | This control measure is adopted as the costs and complexity are not disproportionate to any environmental benefit that might be realised. | **Yes** |

| Additional Control Measures considered<br>*Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| of an unplanned hydrocarbon release | | predicted hydrocarbon contact (above environment threshold) <10 days and acquiring pre-emptive data in the event of a loss of well control from the PAP activities based on receptors predicted to have hydrocarbon contact >10 days.<br>• Provide appropriate baseline for key receptors for all geographic locations that are potentially impacted <10 days of spill event.<br>• Address resourcing needs to collect pre-emptive baseline as spill expands in the event of a LOWC or spill of MDO from the PAP activities.<br>• For SM01 pre-emptive baseline is not required as marine water quality is assumed to be pristine. | | | |

### 6.8.2.3 Improved Control Measures considered

| Improved Control Measures considered<br>*Improved, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control* | | | | | |
|---|---|---|---|---|---|
| **Option considered** | **Environmental consideration** | **Feasibility** | **Approximate Cost** | **Assessment conclusions** | **Implemented** |
| No reasonably practical improved control measures identified | | | | | |

## 6.8.3 Selected Control Measures

Following review of Alternative, Additional and Improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - Determine baseline data needs and provide implementation plan in the event of an unplanned hydrocarbon release
- Improved
  - None selected

### 6.8.4 Operational Plan

Key actions from the Scientific Monitoring Program Operational Plan for implementing the response are outlined in **Table 6-7**.

**Table 6-7: Scientific monitoring program operational plan actions**

| Responsibility | Action |
|---|---|
| **Activation** | |
| CIMT Planning<br>(CIMT Planning – Environment Unit) | Mobilises SMP Lead/Manager and SMP Coordinator to the CIMT Planning function. |
| CIMT Planning<br>(CIMT Planning – Environment Unit)<br>(SMP Lead/Manager and SMP Coordinator) | Constantly assesses all outputs from OM01, OM02 and OM03 (**Annex B**) to determine receptor locations and receptors at risk. Confirm sensitive receptors likely to be exposed to hydrocarbons, timeframes to specific receptor locations and which SMPs are triggered.<br>Review baseline data for receptors at risk. |
| CIMT Planning<br>(CIMT Planning – Environment Unit)<br>(SMP Lead/Manager and SMP Coordinator) | SMP co-ordinator stands up SMP Standby contractor.<br>Stands up subject matter experts, if required. |
| CIMT Planning (CIMT Planning – Environment Unit)<br>(SMP Lead/Manager, SMP Coordinator, SMP Standby contractor) | Establish if, and where, pre-contact baseline data acquisition is required.<br>Determines practicable baseline acquisition program based on predicted timescales to contact and anticipated SMP mobilisation times.<br>Determines scope for preliminary post-contact surveys during the Response Phase.<br>Determines which SMP activities are required at each location based on the identified receptor sensitivities. |
| CIMT Planning (CIMT Planning – Environment Unit)<br>(SMP Lead/Manager, SMP Coordinator, SMP Standby contractor) | If response phase data acquisition is required, stand up the contractor SMP teams for data acquisition and instruct them to standby awaiting further details for mobilisation from the CIMT. |
| CIMT Planning (CIMT Planning – Environment Unit)<br>(SMP Lead/Manager, SMP Coordinator, SMP Standby contractor) | SMP standby contractor, to prepare the Field Implementation Plan.<br>Prepare and obtain sign-off of the Response Phase SMP work plan and Field Implementation Plan.<br>Update the IAP. |
| CIMT Planning (CIMT Planning – Environment Unit)<br>(SMP Lead/Manager, SMP Coordinator, SMP Standby contractor) | Liaise with CIMT Logistics, and determine the status and availability of aircraft, vessels and road transportation available to transport survey personnel and equipment to point of departure.<br>Engage with SMP standby contractor, SMP Manager and CIMT Logistics to establish mobilisation plan, secure logistics resources and establish ongoing logistical support operations, including: |

| Responsibility | Action |
|---|---|
| **Activation** | |
| | • Vessels, vehicles and other logistics resources<br>• Vessel fit-out specifications (as<br>• Detailed in the Scientific Monitoring Program Operational Plan<br>• Equipment storage and pick-up locations<br>• Personnel pick-up/airport departure locations<br>• Ports of departure<br>• Land based operational centres and forward operations bases, accommodation and food requirements. |
| CIMT Planning (CIMT Planning – Environment Unit)<br><br>(SMP Lead/Manager, SMP Coordinator, SMP Standby contractor) | Confirm communications procedures between Woodside SMP team, SMP standby contractor, SMP Team Leads and Operations Point Coordinator. |
| **Mobilisation** | |
| CIMT Logistics | Engage vessels and vehicles and arrange fitting out as specified by the mobilisation Plan Confirm vessel departure windows and communicate with the Service Provider's SMP Manager.<br><br>Agree SMP mobilisation timeline and induction procedures with the Division and Sector Command Point(s). |
| CIMT Logistics | Coordinate with SMP standby contractor to mobilise teams and equipment according to the logistics plan and Sector induction procedures. |
| SMP Survey Team Leads | SMP Survey Team Leader(s) coordinate on-ground/on-vessel mobilisations and support services with the Sector Command point(s). |

### 6.8.5 ALARP and Acceptability Summary

| ALARP and Acceptability Summary | | |
|---|---|---|
| **Scientific Monitoring** | | |
| **ALARP Summary** | X | All known reasonably practicable control measures have been adopted |
| | X | No additional, alternative and improved control measures would provide further benefit |
| | | No reasonably practical additional, alternative, and/or improved control measure exists |
| | The resulting scientific monitoring capability has been assessed against the credible spill scenarios. The range of techniques provide an ongoing approach to monitoring operations to assess and evaluate the scale and extent of impacts.<br><br>All known reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be Moderate and the overall delivery effectiveness considered Medium. The SMP's main objectives can be met, with the addition of one alternative control measures to provide further benefit. | |
| **Acceptability Summary** | • The control measures selected for implementation manage the potential impacts and risks to ALARP.<br>• In the event of a hydrocarbon spill for the PAP, the control measures selected, meet or exceed the requirements of Woodside Management System and industry best-practice.<br>• Scientific Monitoring control and activities are compliant with relevant environmental legislation and regulations, including the EPBC Act.<br>• Throughout the PAP, relevant Australian standards and codes of practice will be followed to evaluate the impacts from a loss of well control.<br>• Consultation undertaken for the PAP did not receive feedback regarding concerns for Scientific Monitoring activities in response to a hydrocarbon spill.<br>• The level of impact and risk to the environment has been considered with regards to the principles of ESD, and risks and impacts from a range of identified scenarios were assessed in detail. The control measures described consider the conservation of biological and ecological diversity, through both the selection of control measures and the management of their performance. The control measures have been developed to account for credible case scenarios, and uncertainty has not been used as a reason for postponing control measures. | |
| On the basis from the impact assessment above and in Section 7 of the EP Woodside considers the adopted controls discussed manage the impacts and risks associated with implementing scientific monitoring activities to a level that is ALARP and acceptable. | | |

# 7 ENVIRONMENTAL RISK ASSESSMENT OF SELECTED RESPONSE TECHNIQUES

The implementation of response techniques may modify the impacts and risks identified in the EP and response activities can introduce additional impacts and risks from response operations themselves. Therefore, it is necessary to complete an assessment to ensure these impacts and risks have been considered and specific measures are put in place to continually review and manage these further impacts and risks to ALARP and Acceptable levels. A simplified assessment process has been used to complete this task which covers the identification, analysis, evaluation and treatment of impacts and risks introduced by responding to the event.

## 7.1 Identification of impacts and risks from implementing response techniques

Each of the control measures can modify the impacts and risks identified in the EP. These impacts and risks have been previously assessed within the scope of the EP. Refer to the EP for details regarding how these risks are being managed. They are not discussed further in this document.

- Atmospheric emissions
- Routine and non-routine discharges
- Physical presence, proximity to other vessels (shipping and fisheries)
- Routine acoustic emissions vessels
- Lighting for night work/navigational safety
- Invasive marine species
- Collision with marine fauna
- Disturbance to Seabed

Additional impacts and risks associated with the control measures not included within the scope of the EP:

- Drill cuttings and drilling fluids environmental impact assessment for relief well drilling
- Vessel operations and anchoring
- Presence of personnel on the shoreline
- Human presence (manual cleaning)
- Vegetation cutting
- Additional stress or injury caused to wildlife
- Secondary contamination from the management of waste

## 7.2 Analysis of impacts and risks from implementing response techniques

The table below compares the adopted control measures for this activity against the environmental values that can be affected when they are implemented.

**Table 7-1: Analysis of risks and impacts**

| | Environmental Value | | | | | | |
|---|---|---|---|---|---|---|---|
| | Soil and Groundwater | Marine Sediment Quality | Water Quality | Air Quality | Ecosystems/ Habitat | Species | Socio-Economic |
| Operational monitoring | | ✓ | ✓ | | ✓ | ✓ | |
| Source control | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Shoreline protection and deflection | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Shoreline clean-up | ✓ | ✓ | ✓ | | ✓ | ✓ | ✓ |
| Oiled wildlife | | | | | ✓ | ✓ | |
| Scientific monitoring | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Waste management | ✓ | | | ✓ | ✓ | ✓ | ✓ |

## 7.3 Evaluation of impacts and risks from implementing response techniques

**Drill cuttings and drilling fluids environmental impact assessment for relief well drilling**

The identified potential impacts associated with the discharge of drill cuttings and fluids during a relief well drilling activity include a localised reduction in water and seabed sediment quality, and potential localised changes to benthic biota (habitats and communities).

Direct and indirect ecological impact pathways are identified for drill cuttings and drilling fluids as follows:

- Temporary increase in total suspended solids (TSS) in the water column;
- Attenuation of light penetration as an indirect consequence of the elevation of TSS and the rate of sedimentation;
- Sediment deposition to the seabed leading to the alteration of the physio-chemical composition of sediments, and burial and potential smothering effects to sessile benthic biota; and
- Potential contamination and toxicity effects to benthic and in-water biota from drilling fluids.

Potential impacts from the discharge of cuttings range from the complete burial of benthic biota in the immediate vicinity of the well site due to sediment deposition, smothering effects from raised sedimentation concentrations as a result of elevated Total Suspended Solids (TSS), changes to the physico-chemical properties of the seabed sediments (particle size distribution and potential for reduction in oxygen levels within the surface sediments due to organic matter degradation by aerobic bacteria) and subsequent changes to the composition of infauna communities to minor sediment loading above background and no associated ecological effects. Predicted impacts are generally confined to within a few hundred metres of the discharge point (International Association of Oil and Gas Producers 2016) (ie within the EMBA for a hydrocarbon spill event).

The discharge of drill cuttings and unrecoverable fluids from relief well drilling is expected to increase turbidity and TSS levels in the water column, leading to an increased sedimentation rate above ambient levels associated with the settlement of suspended sediment particles near the seabed or below sea surface, depending on location of discharge. Cuttings with

retained (unrecoverable) drilling fluids are discharged below the water line at the MODU location, resulting in drill cuttings and drilling fluids rapidly diluting, as they disperse and settle through the water column. The dispersion and fate of the cuttings is determined by particle size and density of the retained (unrecoverable) drilling fluids. Therefore, the sediment particles will primarily settle in proximity to the well locations with potential for localised spread downstream (depending on the speed of currents throughout the water column and seabed) (IOGP 2016). The finer particles will remain in suspension and will be transported further before settling on the seabed.

These conclusions were supported by discharge modelling which was undertaken by Woodside in support of the Greater Enfield Development Environment Plan. Modelling results indicating that the TSS plume of suspended cuttings will typically disperse to the south-west while oscillating with the tide and diminish rapidly with increasing distance from the well locations. Maximum TSS concentrations predicted for 100 m; 250 m and 1 km distances from the wellsite were 7, 5 and 1 mg/l, respectively. Furthermore, water column concentrations below 10 mg/l remain within 235 m of the discharge location for each modelled well. For all well discharge locations (outside of direct discharge sites), TSS concentration did not exceed 10 mg/l. Nelson et al. (2016) identified <10 mg/L as a no effect or sub-lethal minimal effect concentration.

The low sensitivity of the deep-water benthic communities/habitats within and in the vicinity of relief well locations, combined with the relatively low toxicity of WBM and NWBMs, no bulk discharges of NWBM and the highly localised nature and scale of predicted physical impacts to seabed biota indicate that any localised impact would likely be of a slight magnitude (especially when considering the broader consequence of the LOC event a relief well drilling activity would be responding too).

**Vessel operations and anchoring**

Typical booms used in shoreline protection operations are designed to float, meaning that fauna capable of diving, such as cetaceans, marine turtles and sea snakes can readily avoid contact with the boom. Impacts to species that inhabit the water column such as sharks, rays and fish are not expected. Additionally, some fauna, such as cetaceans, are likely to detect and avoid the spill area, and are not expected to be present in the proximity of containment and recovery operations.

During the implementation of response techniques, where water depths allow, it is possible that response vessels will be required to anchor (e.g. during shoreline protection and surveys). The use of vessel anchoring will be minimal and likely to occur when the impacted shoreline is inaccessible via road. Anchoring in the nearshore environment of sensitive receptor locations will have the potential to impact coral reef, seagrass beds and other benthic communities in these areas. Recovery of benthic communities from anchor damage depends on the size of anchor and frequency of anchoring. Impacts would be highly localised (restricted to the footprint of the vessel anchor and chain) and temporary, with full recovery expected.

**Presence of personnel on the shoreline**

Presence of personnel on the shoreline during shoreline operations could potentially result in disturbance to wildlife and habitats. During the implementation of response techniques, it is possible that personnel may have minimal, localised impacts on habitats, wildlife and coastlines. The impacts associated with human presence on shorelines during shoreline surveys may include:

- Damage to vegetation/habitat to gain access to areas of shoreline oiling;
- Damage or disturbance to wildlife during shoreline surveys;
- Removal of surface layers of intertidal sediments (potential habitat depletion); and
- Excessive removal of substrate causing erosion and instability of localised areas of the shoreline.

**Human presence**

Human presence for manual clean-up operations may lead to the compaction of sediments and damage to the existing environment especially in sensitive locations such as mangroves and turtle nesting beaches. However, any impacts are expected to be localised with full recovery expected.

**Waste generation**

Implementing the selected response techniques will result in the generation of the following waste streams that will require management and disposal:

- Liquids (recovered oil/water mixture), collected during shoreline clean-up and oiled wildlife operations
- Semi-solids/solids (oily solids), collected during shoreline clean-up and oiled wildlife operations
- Debris (e.g. seaweed, sand, woods, plastics), collected during shoreline clean-up and oiled wildlife operations

If not managed and disposed of correctly, wastes generated during the response have the potential for secondary contamination similar to that described above, impacts to wildlife through contact with or ingestion of waste materials and contamination risks if not disposed of correctly onshore.

Cutting back vegetation could allow additional oil to penetrate the substrate and may also lead to localised habitat loss. However, any loss is expected to be localised in nature and lead to an overall net environmental benefit associated with the response by reducing exposure of wildlife to oiling.

**Additional stress or injury caused to wildlife**

Additional stress or injury to wildlife could be caused through the following phases of a response:

- Capturing wildlife
- Transporting wildlife
- Stabilisation of wildlife
- Cleaning and rinsing of oiled wildlife
- Rehabilitation (e.g. diet, cage size, housing density)
- Release of treated wildlife

Inefficient capture techniques have the potential to cause undue stress, exhaustion or injury to wildlife, additionally pre-emptive capture could cause undue stress and impacts to wildlife when there are uncertainties in the forecast trajectory of the spill. During the transportation and stabilisation phases there is the potential for additional thermoregulation stress on captured wildlife. Additionally, during the cleaning process, it is important personnel undertaking the tasks are familiar with the relevant techniques to manage and mitigate further injury and the removal of water proofing feathers. Finally, during the release phase it's important that wildlife is not released back into a contaminated environment.

## 7.4 Treatment of impacts and risks from implementing response techniques

In respect of the impacts and risks assessed the following treatment measures have been adopted. It must be recognised that this environmental assessment is seeking to identify how to maintain the level of impact and risks at levels that are ALARP and of an acceptable level rather than exploring further impact and risk reduction. It is for this reason that the treatment measures identified in this assessment will be captured in Operational Plans, Tactical Response Plans, and/or First Strike Plans.

**Vessel operations and access in the nearshore environment**

- If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified (PS 14.1, PS 17.1).
- Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines (PS 14.2, PS 17.2).

**Presence of personnel on the shoreline**

- Oversight by trained personnel who are aware of the risks (PS 17.5).
- Trained unit leader's brief personnel of the risks prior to operations (PS 17.6).

**Human Presence**

- Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations (PS 7.3)
- Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves. (PS 17.3).

**Waste generation**

- All shoreline clean-up sites will be zoned and marked before clean-up operations commence to prevent secondary contamination and minimise the mixing of clean and oiled sediment and shoreline substrates (PS 15.4).
- Removal of vegetation will be limited to moderately or heavily oiled vegetation (PS 17.4)
- Teams will segregate liquid and solid wastes at the earliest opportunity (PS 23.1)

**Additional stress or injury caused to wildlife**

- Oiled wildlife operations (including hazing) would be implemented with advice and assistance from DEECA (PS 21.1).

# 8 ALARP CONCLUSION

An analysis of Alternative, Additional and Improved control measures has been undertaken to determine their reasonableness and practicability. The tables in Section 6 document the considerations made in this evaluation. Where the costs of an Alternative, Additional, or Improved control measure have been determined to be disproportionate to the environmental benefit gained from its adoption it has been rejected. Where this is not considered to be the case the control measure has been adopted.

The risks from a hydrocarbon spill have been reduced to ALARP because:

- Woodside has a significant hydrocarbon spill response capability to respond to the WCCS through the control measures identified.
- New and modified impacts and risks associated with implementing response techniques have been considered and will not increase the risks associated with the activity.
- A consideration of alternative, additional, and improved control measures identified any other control measures that delivered proportionate environmental benefit compared to the cost of adoption for this activity ensuring that:
    - All known, reasonably practicable control measures have been adopted.
    - No additional, reasonably practicable alternative and/or improved control measures would provide further environmental benefit.
    - No reasonably practical additional, alternative, and/or improved control measure exists.
- A structured process for considering alternative, additional, and improved control measures was completed for each control measure.
- The evaluation was undertaken based on the outputs of the WCCS so that the capability in place is sufficient for all other scenario from this activity.
- The likelihood of the WCCS spill has been ignored in evaluating what was reasonably practicable.

# 9 ACCEPTABILITY CONCLUSION

Following the ALARP evaluation process, Woodside deems the hydrocarbon spill risks and impacts have been reduced to an acceptable level by meeting the following criteria:

- Techniques are consistent with Woodside's processes and relevant internal requirements including policies, culture, processes, standards, structures and systems.
- Levels of risk/impact are deemed acceptable by relevant persons/organisations are aligned with the uniqueness of, and/or the level of protection assigned to the environment, its sensitivity to pressures introduced by the activity, and the proximity of activities to sensitive receptors, and have been aligned with Part 3 of the EPBC Act.
- Selected control measures meet requirements of legislation and conventions to which Australia is a signatory (e.g. MARPOL, the World Heritage Convention, the Ramsar Convention, and the Biodiversity Convention etc.). In addition to these, other non-legislative requirements met include:
    - Australian IUCN reserve management principles for Commonwealth marine protected areas and bioregional marine plans.
    - National Water Quality Management Strategy and supporting guidelines for marine water quality).
    - Conditions of approval set under other legislation.
    - National and international requirements for managing pollution from ships.
    - National biosecurity requirements.
- Industry standards, best practices and widely adopted standards and other published materials have been used and referenced when defining acceptable levels. Where these are inconsistent with mandatory/legislative regulations, explanation has been provided for the proposed deviation. Any deviation produces the same or a better level of environmental performance (or outcome).

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# 11 GLOSSARY AND ABBREVIATIONS

## 11.1 Glossary

| Term | Description / Definition |
|---|---|
| ALARP | Demonstration through reasoned and supported arguments that there are no other practicable options that could reasonably be adopted to reduce risks further. |
| Availability | The availability of a control measure is the percentage of time that it can perform its function (operating time plus standby time) divided by the total period (whether in service or not). In other words, it is the probability that the control has not failed or is undergoing a maintenance or repair function when it needs to be used. |
| Control | The means by which risk from events is eliminated or minimised. |
| Control effectiveness | A measure of how well the control measures perform their required function. |
| Control measure (risk control measure) | The features that eliminate, prevent, reduce or mitigate the risk to environment associated with PAP. |
| Credible spill scenario | A spill considered by Woodside as representative of maximum volume and characteristics of a spill that could occur as part of the PAP. |
| Dependency | The degree of reliance on other systems for the control measure to be able to perform its intended function. |
| Environment that may be affected | The summary of quantitative modelling where the marine environment could be exposed to hydrocarbons levels exceeding hydrocarbon threshold concentrations. |
| Incident | An event where a release of energy resulted in or had (with) the potential to cause injury, ill health, damage to the environment, damage to equipment or assets or company reputation. |
| Performance outcome | A statement of the overall goal or outcome to be achieved by a control measure |
| Performance standard | The parameters against which [risk] controls are assessed to ensure they reduce risk to ALARP.<br>A statement of the key requirements (indicators) that the control measure must achieve to perform as intended in relation to its functionality, availability, reliability, survivability and dependencies. |
| Preparedness | Measures taken before an incident to improve the effectiveness of a response |
| Reasonably practicable | ... a computation ... made by the owner, in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) [showing whether or not] that there is a gross disproportion between them ... made by the owner at a point of time anterior to the accident.<br>(Judgment: Edwards v National Coal Board [1949]) |
| Receptors at risk | Physical, biological and social resources identified as at risk from hydrocarbon contact using oil spill modelling predictions. |
| Receptor areas | Geographically referenced areas such as bays, islands, coastlines and/or protected area (WHA, Commonwealth or State marine reserve or park) containing one or more receptor type |

| Term | Description / Definition |
|---|---|
| Receptor Sensitivities | This is a classification scheme to categorise receptor sensitivity to an oil spill. The Environmental Sensitivity Index (ESI) is a numerical classification of the relative sensitivity of a particular environment (particularly different shoreline types) to an oil spill. Refer to the Woodside Oil Pollution Emergency Arrangements (Australia) for more details. |
| Regulator | NOPSEMA are the Environment Regulator under the Environment Regulations. |
| Reliability | The probability that at any point in time a control measure will operate correctly for a further specified length of time. |
| Response technique | The key priorities and objectives to be achieved by the response plan<br>Measures taken in response to an event to reduce or prevent adverse consequences. |
| Survivability | Whether or not a control measure is able to survive a potentially damaging event is relevant for all control measures that are required to function after an incident has occurred. |
| Threshold | Hydrocarbon threshold concentrations applied to the risk assessment to evaluate hydrocarbon spills. These are defined as: surface hydrocarbon concentration – ≥10 g/m$^2$, dissolved – ≥100 ppb and entrained hydrocarbon concentrations – ≥500 ppb. |
| Zone of Application | The zone in which Woodside may elect to apply dispersant. The zone is determined based on a range of considerations, such as hydrocarbon characteristics, weathering and metocean conditions. The zone is a key consideration in the Net Environmental Benefit Analysis for dispersant use. |

## 11.2 Abbreviations

| Abbreviation | Meaning |
|---|---|
| ADIOS | Automated Data Inquiry for Oil Spills |
| AEP | Australian Energy Producers |
| ALARP | As low as reasonably practicable |
| AMOSC | Australian Marine Oil Spill Centre |
| AMP | Australian Marine Park |
| AMSA | Australian Maritime Safety Authority |
| AUV | Autonomous Underwater Vehicle |
| BAOAC | Bonn Agreement Oil Appearance Code |
| BOP | Blowout Preventer |
| cST | Centistokes |
| CIMT | Corporate Incident Management Team |
| DEECA | Department of Energy, Environment and Climate Action |
| DELWP | Department of Environment, Land Water and Planning (now DEECA) |
| DJPR | Department of Jobs, Precincts and the Regions (now DJSIR) |
| DJSIR | Department of Jobs, Skills, Industry and Regions (formerly DJPR) |
| DM | Duty Manager |
| EMBA | Environment that May Be Affected |
| EMSA | European Maritime Safety Agency |
| EP | Environment Plan |
| Environment Regulations | Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 |
| ESI | Environmental Sensitivity Index |
| ESD | Emergency Shut Down |
| ESP | Environmental Services Panel |
| FPSO | Floating Production Storage Offloading |
| FSP | First Strike Plan |
| GIS | Geographic Information System |
| GPS | Global Positioning System |
| HSP | Hydrocarbon Spill Preparedness |
| IAP | Incident Action Plan |
| IBRA | Interim Biogeographic Regionalisation for Australia |
| IC | Incident Commander |
| IMT | Incident Management Team |
| IPIECA | International Petroleum Industry Environment Conservation Association |
| ITOPF | International Tanker Owners Pollution Federation |
| IUCN | International Union for Conservation of Nature |

| Abbreviation | Meaning |
|---|---|
| KBSF | King Bay Supply Facility |
| KSAT | Kongsberg Satellite |
| MODU | Mobile Offshore Drilling Unit |
| MoU | Memorandum of Understanding |
| NEBA | Net Environmental Benefit Analysis |
| NOAA | National Oceanic and Atmospheric Administration |
| NRT | National Response Team |
| OILMAP | Oil Spill Model and Response System |
| OPEA | Oil Pollution Emergency Arrangements |
| OPEP | Oil Pollution Emergency Plan |
| OPGGSA | Offshore Petroleum and Greenhouse Gas Storage Act |
| OSRL | Oil Spill Response Limited |
| OSTM | Oil Spill Trajectory Modelling |
| OWR | Oiled Wildlife Response |
| OWRP | Oiled Wildlife Response Plan |
| PAP | Petroleum Activities Program |
| PEARLS | People, Environment, Asset, Reputation, Livelihood and Services |
| PBA | Pre-emptive Baseline Areas |
| PPA | Priority Protection Area |
| PPB | Parts per billion |
| PPM | Parts per million |
| ROV | Remotely Operated Vehicle(s) |
| RPA | Response Protection Area |
| SCAT | Shoreline Contamination Assessment Techniques |
| SIMAP | Integrated Oil Spill Impact Model System |
| SSDI | Subsea Dispersant Injection |
| SFRT | Subsea First Response Toolkit |
| SMP | Scientific monitoring program |
| SOP | Standard Operating Procedure |
| TRP | Tactical Response Plan |
| UAS | Unmanned Aerial Systems |
| UAV | Unmanned Aerial Vehicles |
| WHA | World Heritage Area |
| Woodside | Woodside Energy Limited |
| WCC | Woodside Communication Centre |
| WWCI | Wild Well Control Inc |
| WCCS | Worst Case Credible Scenario |

| Abbreviation | Meaning |
|---|---|
| ZoA | Zone of Application |

# ANNEX A: NET ENVIRONMENTAL BENEFIT ANALYSIS DETAILED OUTCOMES

A NEBA has been conducted to assess the net environmental benefit of different response techniques to selected receptors in the event of an oil spill from the PAP for CS-01 and CS-02. The complete list of potential receptor locations within the EMBA within the PAP is included in Section 8 of the EP.

The locations utilised for the NEBA were limited to the identified RPAs of the PAP identified from modelling (see Section 3 for outline of selection). These include receptors which have potential for the following:

- Surface contact (>50 g/m$^2$)
- Shoreline accumulation (>100 g/m$^2$) at any time
- Entrained contact (>100 ppb) within 14 days

The detailed NEBA assessment outcomes are shown below.

**Table A-1: NEBA assessment technique recommendations for Minerva-4 Condensate (CS-01)**

| Receptor | Operational Monitoring | Containment and recovery | Dispersant application: sub-sea | Dispersant application: > 20 m water depth and > 10 km from shore/reefs | Shoreline protection | Shoreline clean-up (manual) | Shoreline clean-up (mechanical) | Shoreline clean-up (chemical) | Oiled wildlife response | In situ burning | Mechanical dispersion | Well control and intervention |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warrnambool Plain | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |
| Otway Ranges | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |
| Otway Plain | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |
| Twelve Apostles* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |
| Apollo* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |
| Otway* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |
| Central Victoria* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |

** Entrained contact only*

**Overall assessment**

| Sensitive receptor (sites identified in EP) | Operational Monitoring | Containment and recovery | Dispersant application: sub-sea | Dispersant application: > 20 m water depth and > 10 km from shore/reefs | Shoreline protection | Shoreline clean-up (manual) | Shoreline clean-up (mechanical) | Shoreline clean-up (chemical) | Oiled wildlife response | In situ burning | Mechanical dispersion | Well control and intervention |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Is this response Practicable? | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |
| NEBA identifies response potentially of net environmental benefit? | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |

**Table A-2: NEBA assessment technique recommendations for MDO (CS-02)**

| Receptor | Operational Monitoring | Containment and recovery | Dispersant application: sub-sea | Dispersant application: > 20 m water depth and > 10 km from shore/reefs | Shoreline protection | Shoreline clean-up (manual) | Shoreline clean-up (mechanical) | Shoreline clean-up (chemical) | Oiled wildlife response | In situ burning | Mechanical dispersion | Source control via vessel SOPEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Warrnambool Plain | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |
| Otway Ranges | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |
| Otway Plain | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |
| The Arches* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |
| Twelve Apostles* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |
| Apollo* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |
| Otway* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |
| Central Victoria* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |
| Central Bass Strait* | Yes | No | No | No | No | No | No | No | No | No | No | Yes |

** Entrained contact only*

**Overall assessment**

| Sensitive receptor (sites identified in EP) | Operational Monitoring | Containment and recovery | Dispersant application: sub-sea | Dispersant application: > 20 m water depth and > 10 km from shore/reefs | Shoreline protection | Shoreline clean-up (manual) | Shoreline clean-up (mechanical) | Shoreline clean-up (chemical) | Oiled wildlife response | In situ burning | Mechanical dispersion | Source control via vessel SOPEP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Is this response Practicable? | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |
| NEBA identifies response potentially of net environmental benefit? | Yes | No | No | No | Yes | Yes | Yes | No | Yes | No | No | Yes |

### NEBA Impact Ranking Classification Guidance

To reduce variability between assessments, the following ranking descriptions have been devised to guide the workshop process:

| | | | Degree of impact[10] | Potential duration of impact | Equivalent Woodside Corporate Risk Matrix Consequence Level |
|---|---|---|---|---|---|
| **Positive** | **3P** | **Major** | Likely to prevent:<br>• behavioural impact to biological receptors<br>• behavioural impact to socio-economic receptors e.g. changes to day-today business operations, public opinion/behaviours (e.g. avoidance of amenities such as beaches) or regulatory designations. | Decrease in duration of impact by > 5 years | N/A |
| | **2P** | **Moderate** | Likely to prevent:<br>• significant impact to a single phase of reproductive cycle of biological receptors<br>• detectable financial impact, either directly (e.g. loss of income) or indirectly (e.g. via public perception), for socio-economic receptors. | Decrease in duration of impact by 1–5 years | N/A |
| | **1P** | **Minor** | Likely to prevent impacts on:<br>• significant proportion of population or breeding stages of biological receptors<br>• socio-economic receptors such as:<br>  ○ significant impact to the sensitivity of protective designation; or<br>  ○ significant and long-term impact to business/industry. | Decrease in duration of impact by several seasons (< 1 year) | N/A |
| | **0** | **Non-mitigated spill impact** | **No detectable difference to unmitigated spill scenario.** | | |
| **Negative** | **1N** | **Minor** | Likely to result in:<br>• behavioural impact to biological receptors<br>• behavioural impact to socio-economic receptors e.g. changes to day-to-day business operations, public opinion/behaviours (e.g. avoidance of amenities such as beaches), or regulatory designations. | Increase in duration of impact by several seasons (< 1 year) | Increase in risk by one sub-category, without changing category (e.g. Minor (E) to Minor (D)) |
| | **2N** | **Moderate** | Likely to result in:<br>• significant impact to a single phase of reproductive cycle for biological receptors; or<br>• detectable financial impact, either directly (e.g. loss of income) or indirectly (e.g. via public perception), for socio-economic receptors. This level of negative impact is recoverable and unlikely to result in closure of business/industry in the region. | Increase in duration of impact by 1–5 years | Increase in risk by one category (e.g. Minor (D) to Moderate (C or B)) |
| | **3N** | **Major** | Likely to result in impacts on:<br>• significant proportion of population or breeding stages of biological receptors<br>• socio-economic receptors resulting in either:<br>  ○ significant impact to the sensitivity of protective designation; or<br>  ○ significant and long-term impact to business/industry. | Increase in duration of impact by > 5 years or unrecoverable | Increase in risk by two categories (e.g. Minor (E) to Major (A)) |

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[10] NOTE: the maximum likely impact should be considered; for example, if a spill were to directly impact the behaviour that results in an impact to reproduction and/or the breeding population (such as fish failing to aggregate to spawn), then the score should be a 2 or 3 rather than a 1. Similarly, if a change in behaviour resulted in an increased risk of mortality of a population, then it should be scored as a 2 or 3

# ANNEX B: OPERATIONAL MONITORING ACTIVATION AND TERMINATION CRITERIA

**Table B-1: Operational monitoring objectives, triggers and termination criteria**

| Operational Monitoring Operational Plan | Objectives | Activation triggers | Termination criteria |
|---|---|---|---|
| **Operational Monitoring Operational Plan – 01 (OM01)**<br><br>Predictive Modelling of Hydrocarbons to Assess Resources at Risk | OM01 focuses on the conditions that have prevailed since a spill commenced, as well as those that are forecasted in the short term (1–3 days ahead) and longer term. OM01 utilises computer-based forecasting methods to predict hydrocarbon spill movement and guide the management and execution of spill response operations to maximise the protection of environmental resources at risk.<br><br>The objectives of OM01 are to:<br>• Provide forecasting of the movement and weathering of spilled hydrocarbons<br>• Identify resources that are potentially at risk of contamination<br>• Provide simulations showing the outcome of alternative response options (booming patterns etc.) to inform on-going Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options to reduce risks to ALARP | OM01 will be triggered immediately following a level 2/3 hydrocarbon spill. | The criteria for the termination of OM01 are:<br>• The hydrocarbon discharge has ceased and no further surface oil is visible<br>• Response activities have ceased<br>• Hydrocarbon spill modelling (as verified by OM02 surveillance observations) predicts no additional natural resources will be impacted |

| Operational Monitoring Operational Plan | Objectives | Activation triggers | Termination criteria |
|---|---|---|---|
| **Operational Monitoring Operational Plan – 02 (OM02)**<br>Surveillance and reconnaissance to detect hydrocarbons and resources at risk | • OM02 aims to provide regular, on-going hydrocarbon spill surveillance throughout a broad region, in the event of a spill.<br>• The objectives of OM02 are:<br>• Verify spill modelling results and recalibrate spill trajectory models (OM01).<br>• Understand the behaviour, weathering and fate of surface hydrocarbons.<br>• Identify environmental receptors and locations at risk or contaminated by hydrocarbons.<br>• Inform ongoing Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options to reduce risks to ALARP.<br>• To aid in the subsequent assessment of the short- to long-term impacts and/or recovery of natural resources (assessed in SMPs) by ensuring that the visible cause and effect relationships between the hydrocarbon spill and its impacts to natural resources have been observed and recorded during the operational phase. | OM02 will be triggered immediately following a level 2/3 hydrocarbon spill. | The termination triggers for the OM02 are:<br>• 72 hours has elapsed since the last confirmed observation of surface hydrocarbons.<br>• Latest hydrocarbon spill modelling results (OM01) do not predict surface exposures at visible levels. |
| **Operational Monitoring Operational Plan – 03 (OM03)**<br>Monitoring of hydrocarbon presence, properties, behaviour and weathering in water | OM03 will measure surface, entrained and dissolved hydrocarbons in the water column to inform decision-making for spill response activities.<br>The specific objectives of OM03 are as follows:<br>• Detect and monitor for the presence, quantity, properties, behaviour and weathering of surface, entrained and dissolved hydrocarbons.<br>• Verify predictions made by OM01 and observations made by OM02 about the presence and extent of hydrocarbon contamination.<br>Data collected in OM03 will also be used for the purpose of longer-term water quality monitoring during SM01. | OM03 will be triggered immediately following a level 2/3 hydrocarbon spill. | The criteria for the termination of OM03 are as follows:<br>• The hydrocarbon release has ceased.<br>• Response activities have ceased.<br>• Concentrations of hydrocarbons in the water are below available ANZECC/ ARMCANZ (2018) trigger values for 99% species protection. |

| Operational Monitoring Operational Plan | Objectives | Activation triggers | Termination criteria |
|---|---|---|---|
| **Operational Monitoring Operational Plan – 04 (OM04)**<br><br>Pre-emptive assessment of sensitive receptors at risk | OM04 aims to undertake a rapid assessment of the presence, extent and current status of shoreline sensitive receptors prior to contact from the hydrocarbon spill, by providing categorical or semi-quantitative information on the characteristics of resources at risk.<br><br>The primary objective of OM04 is to confirm understanding of the status and characteristics of environmental resources predicted by OM01 and OM02 to be at risk, to further assist in making decisions on the selection of appropriate response actions and prioritisation of resources.<br><br>Indirectly, qualitative/semi-quantitative pre-contact information collected by OM04 on the status of environmental resources may also aid in the verification of environmental baseline data and provide context for the assessment of environmental impacts, as determined through subsequent SMPs.<br><br>OM04 would be undertaken in liaison with the relevant regulatory or control agency (if a Level 2/3 incident). | Triggers for commencing OM04 include:<br><br>• Contact of a sensitive habitat or shoreline is predicted by OM01, OM02 and/or OM03.<br>• The pre-emptive assessment methods can be implemented before contact from hydrocarbons (once a receptor has been contacted by hydrocarbons it will be assessed under OM05). | The criteria for the termination of OM04 at any given location are:<br><br>• Locations predicted to be contacted by hydrocarbons have been contacted.<br>• The location has not been contacted by hydrocarbons and is no longer predicted to be contacted by hydrocarbons (resources should be reallocated as appropriate). |

| Operational Monitoring Operational Plan | Objectives | Activation triggers | Termination criteria |
|---|---|---|---|
| **Operational monitoring operational plan – 05 (OM05)**<br><br>Monitoring of contaminated resources | OM05 aims to implement surveys to assess the condition of wildlife and habitats contacted by hydrocarbons at sensitive habitat and shoreline locations.<br><br>The primary objectives of OM05 are:<br><br>• Record evidence of oiled wildlife (mortalities, sub-lethal impacts, number, extent, location) and habitats (mortalities, sub-lethal impacts, type, extent of cover, area, hydrocarbon character, thickness, mass and content) throughout the response and clean-up at locations contacted by hydrocarbons to inform and prioritise clean-up efforts and resources, while minimising the potential impacts of these activities.<br><br>Indirectly, the information collected by OM05 may also support the assessment of environmental impacts, as determined through subsequent SMPs.<br><br>OM05 would be undertaken in liaison with the relevant regulatory or control agency (if a Level 2/3 incident). | OM05 will be triggered when a sensitive habitat or shoreline is predicted to be contacted by hydrocarbons by OM01, OM02 and/or OM03. | The criteria for the termination of OM05 at any given location are:<br><br>• No additional response or clean-up of wildlife or habitats is predicted.<br>• Spill response and clean-up activities have ceased.<br><br>OM05 survey sites established at sensitive habitat and shoreline locations will continue to be monitored during SM02.<br><br>The formal transition from OM05 to SM02 will begin on cessation of spill response and clean-up activities. |

# ANNEX C: OIL SPILL SCIENTIFIC MONITORING PROGRAM

## Oil Spill Environmental Monitoring

The following provides some further detail on Woodside's oil spill scientific monitoring program and includes the following:

- The organisation, roles and responsibilities of the Woodside oil spill scientific monitoring team and external resourcing.
- A summary table of the ten scientific monitoring programs as per the specific focus receptor, objectives, activation triggers and termination criteria.
- Details on the oil spill environmental monitoring activation and termination decision-making processes.
- Baseline knowledge and environmental studies knowledge access via geo-spatial metadata databases.
- An outline of the reporting requirements for oil spill scientific monitoring programs.

## Oil Spill Scientific Monitoring – Delivery Team Roles and Responsibilities

*Woodside Oil Spill Scientific Monitoring Delivery Team*

The Woodside science team are responsible for the delivery of the oil spill scientific monitoring. The roles and responsibilities of the Woodside scientific monitoring delivery team are presented in Table C-1 and the organisational structure and Corporate Incident Management Team (CIMT) linkage provided in Figure C-1.

*Woodside Oil Spill Scientific monitoring program – External Resourcing*

In the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors, scientific monitoring personnel and scientific equipment to implement the appropriate SMPs will be provided by SMP Standby contractor who hold a standby contract for SMP via the Woodside Environmental Services Panel (ESP). If additional resources are required other consultancy capacity within the Woodside ESP will be utilised (as needed and may extend to specialist contractors such as research agencies engaged in long-term marine monitoring programs). In consultation with the SMP Standby Contractor and/or specialist contractors, the selection, field sampling and approach of the SMPs will be determined by the nature and scale of the spill.

**Table C-1: Woodside and Environmental Service Provider – Oil Spill Scientific Monitoring Program Delivery Team Key Roles and Responsibilities**

| Role | Location | Responsibility |
|---|---|---|
| **Woodside Roles** | | |
| SMP Lead/Manager | Onshore | • Approves the SMPs activated based on operational monitoring data provided by the Planning Function<br>• Provides advice to the CIMT in relation to scientific monitoring<br>• Provides technical advice regarding the implementation of scientific monitoring<br>• Approves detailed sampling plans prepared for SMPs<br>• Directs liaison between statutory authorities, advisors and government agencies in relation to SMPs. |
| SMP Co-Ordinator | Onshore | • Activates the SMPs based on operational monitoring data provided by the Planning Function<br>• Sits in the Planning function of the CIMT.<br>• Liaises with other CIMT functions to deliver required logistics, resources and operational support from Woodside to support the Environmental Service Provider in delivering on the SMPs. Acts as the conduit for advice from the SMP Lead/Manager to the Environmental Service Provider<br>• Manages the Environmental Service Provider's implementation of the SMPs<br>• Liaises with the Environmental Service Provider on delivery of the SMPs<br>• Arranges all contractual matters, on behalf of Woodside, associated with the Environmental Service Provider's delivery of the SMPs. |
| **Environmental Service Provider Roles** | | |
| SMP Standby Contractor – SMP Duty Manager/Project Manager (SMP Liaison Officer) | Onshore | • Coordinates the delivery of the SMPs<br>• Provides costings, schedule and progress updates for delivery of SMPs<br>• Determines the structure of the Environmental Service Provider's team to necessitate delivery of the SMPs<br>• Verifies that HSE Plans, detailed sampling plans and other relevant deliverables are developed and implemented for delivery of the SMPs<br>• Directs field teams to deliver SMPs<br>• Arranges all contractual matters, on behalf of Environmental Service Provider, associated with the delivery of the SMPs to Woodside<br>• Manages sub-consultant delivery to Woodside<br>• Provides required personnel and equipment to deliver the SMPs. |
| SMP Field Teams | Offshore – Monitoring Locations | • Delivers the SMPs in the field consistent with the detailed sampling plans and HSE requirements, within time and budget.<br>• Early communication of time, budget, HSE risks associated with delivery of the SMPs to the Environmental Service Provider – Project Manager<br>• Provides start up, progress and termination updates to the Environmental Service Provider – Project Manager (will be led in-field by a party chief). |

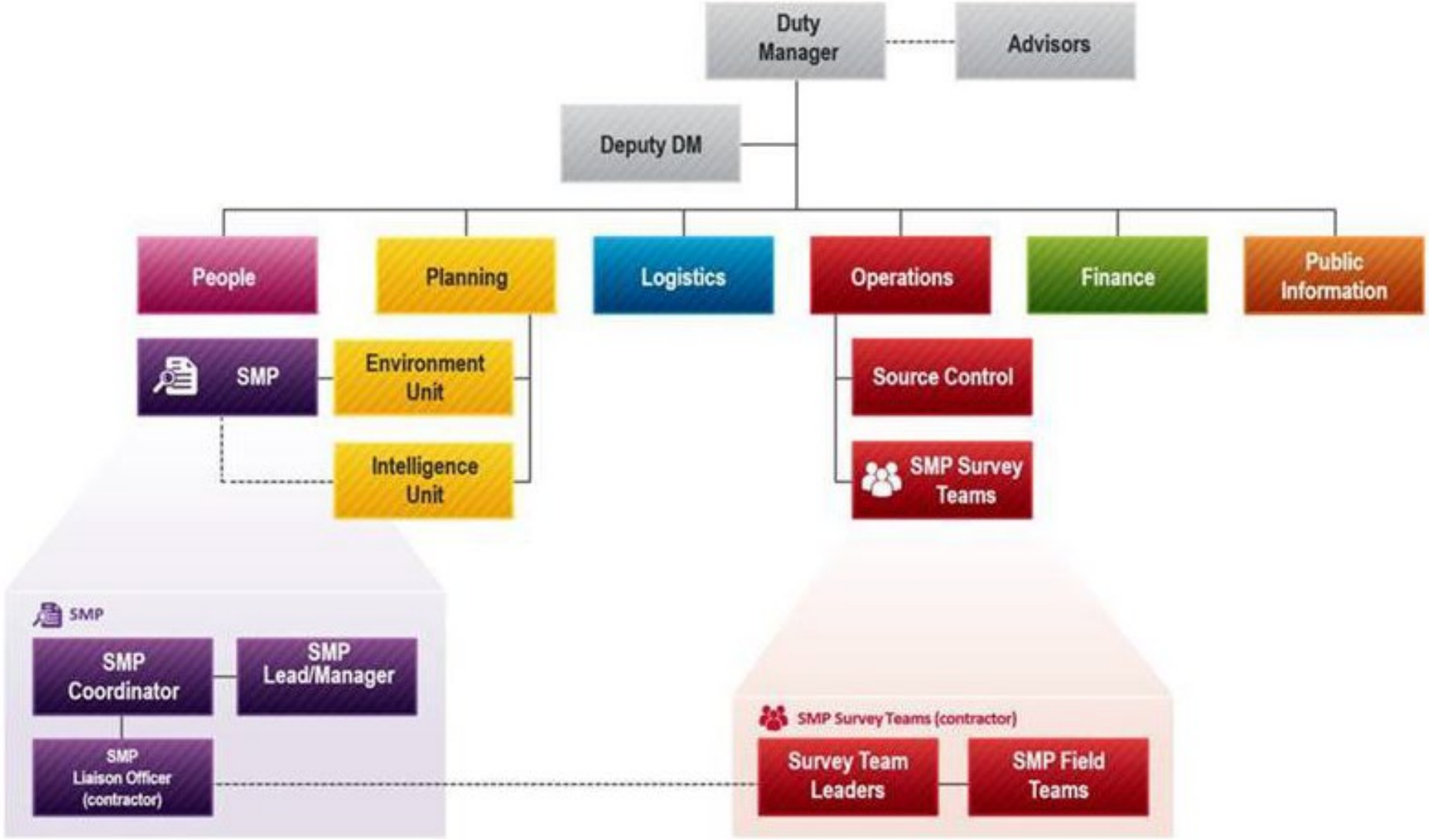


**Figure C-1: Woodside Oil Spill Scientific Monitoring Program Delivery Team and Linkage to Corporate Incident Management Team (CIMT) organisational structure**

**Table C-2: Oil Spill Environmental Monitoring: Scientific Monitoring Program – Objectives, Activation Triggers and Termination Criteria**

| Scientific monitoring Program (SMP) | Objectives | Activation Triggers | Termination Criteria |
|---|---|---|---|
| **Scientific monitoring program 1 (SM01)**<br><br>**Assessment of hydrocarbons in marine waters** | SM01 will detect and monitor the presence, extent, persistence and properties of hydrocarbons in marine waters following the spill and the response.<br><br>The specific objectives of SM01 are as follows:<br>• Assess and document the extent, severity and persistence of hydrocarbon contamination with reference to observations made during surveillance activities and / or in-water measurements made during operational monitoring; and<br>• Provide information that may be used to interpret potential cause and effect drivers for environmental impacts recorded for sensitive receptors monitored under other SMPs. | SM01 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors | SM01 will be terminated when:<br>• Operational monitoring data relating to observations and / or measurements of hydrocarbons on and in water have been compiled, analysed and reported; and<br>• The report provides details of the extent, severity and persistence of hydrocarbons which can be used for analysis of impacts recorded for sensitive receptors monitored under other SMPs.<br><br>SMP monitoring of sensitive receptor sites:<br>• Concentrations of hydrocarbons in water samples are below NOPSEMA guidance note (201911) concentrations of 1 g/m2 for floating, 10 ppb for entrained and dissolved; and<br>• Details of the extent, severity and persistence of hydrocarbons from concentrations recorded in water have been documented at sensitive receptor sites monitored under other SMPs. |
| **Scientific monitoring program 2 (SM02)**<br><br>**Assessment of the presence, quantity and character of hydrocarbons in marine sediments** | SM02 will detect and monitor the presence, extent, persistence and properties of hydrocarbons in marine sediments following the spill and the response.<br><br>The specific objectives of SM02 are as follows:<br>• Determine the extent, severity and persistence of hydrocarbons in marine sediments across selected sites where hydrocarbons were observed or recorded during operational monitoring; and<br>• Provide information that may be used to interpret potential cause and effect drivers for environmental impacts recorded for sensitive receptors monitored under other SMPs. | SM02 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows:<br>• Response activities have ceased; and<br>• Operational monitoring results made during the response phase indicate that shoreline, intertidal or sub-tidal sediments have been exposed to surface, entrained or dissolved hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation). | SM02 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of:<br>• Concentrations of hydrocarbons in sediment samples are below ANZECC/ ARMCANZ (201312) sediment quality guideline values (SQGVs) for biological disturbance; and<br>• Details of the extent, severity and persistence of hydrocarbons from concentrations recorded in sediments have been documented. |
| **Scientific monitoring program 3 (SM03)**<br><br>**Assessment of impacts and recovery of subtidal and intertidal benthos** | The objectives of SM03 are:<br>• Characterize the status of intertidal and subtidal benthic habitats and quantify any impacts to functional groups, abundance and density that may be a result of the spill; and<br>• Determine the impact of the hydrocarbon spill and subsequent recovery (including impacts associated with the implementation of response options).<br><br>Categories of intertidal and subtidal habitats that may be monitored include:<br>• Coral reefs<br>• Seagrass<br>• Macro-algae<br>• Filter-feeders | SM03 will be activated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows:<br>• As part of a pre-emptive assessment of PBAs of receptor locations identified by time to hydrocarbon contact >10 days, to target receptors and sites where it is possible to acquire pre-hydrocarbon contact baseline; and<br>• Operational monitoring identified shoreline potential contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) for subtidal and intertidal benthic habitat. | SM03 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of:<br>• Overall impacts to benthic habitats from hydrocarbon exposure have been quantified.<br>• Recovery of impacted benthic habitats has been evaluated.<br>• Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill. |

[11] NOPSEMA (2019) Bulletin #1 – Oil spill modelling – April 2019, https://www.nopsema.gov.au/assets/Bulletins/A652993.pdf
[12] Simpson SL, Batley GB and Chariton AA (2013). Revision of the ANZECC/ARMCANZ Sediment Quality Guidelines. CSIRO and Water Science Report 08/07. Land and Water, pp. 132.

| Scientific monitoring Program (SMP) | Objectives | Activation Triggers | Termination Criteria |
|---|---|---|---|
| | SM03 will be supported by sediment contamination records (SM02) and characteristics of the spill derived from OMPs. | | |
| **Scientific monitoring program 4 (SM04)**<br>**Assessment of impacts and recovery of mangroves/ saltmarsh** | The objectives of SM04 are:<br>• Characterize the status of mangroves (and associated salt marsh habitat) at shorelines exposed/contacted by spilled hydrocarbons;<br>• Quantify any impacts to species (abundance and density) and mangrove/saltmarsh community structure; and<br>• Determine and monitor the impact of the hydrocarbon spill and potential subsequent recovery (including impacts associated with the implementation of response options).<br>SM03 will be supported by sediment sampling undertaken in SM02 and characteristics of the spill derived from OMPs. | SM04 will be activated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows:<br>• As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; and<br>• Operational monitoring identified shoreline potential contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) for mangrove/saltmarsh habitat. | SM04 will be terminated once pre-spill condition is reached and agreed upon as per the SMP termination criteria process and include consideration of:<br>• Impacts to mangrove and saltmarsh habitat from hydrocarbon exposure have been quantified.<br>• Recovery of impacted mangrove/saltmarsh habitat has been evaluated.<br>• Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill. |
| **Scientific monitoring program 5 (SM05)**<br>**Assessment of impacts and recovery of seabird and shorebird populations** | The Objectives of SM05 are to:<br>• Collate and quantify impacts to avian wildlife from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population level; and<br>• Undertake monitoring to quantify and assess impacts of hydrocarbon exposure to seabirds and shorebird populations at targeted breeding colonies / staging sites / important coastal wetlands where hydrocarbon contact was recorded. | SM05 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented as follows:<br>• As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days;<br>• Operational monitoring predicts shoreline contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at important bird colonies / staging sites / important coastal wetland locations; or<br>• Records of dead, oiled or injured bird species made during the hydrocarbon spill or response. | SM05 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:<br>• Impacts to seabird and shorebird populations from hydrocarbon exposure have been quantified.<br>• Recovery of impacted seabird and shorebird populations has been evaluated.<br>• Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill. |
| **Scientific monitoring program 6 (SM06)**<br>**Assessment of impacts and recovery of nesting marine turtle populations** | The objectives of SM06 are to:<br>• To quantify impacts of hydrocarbon exposure or contact on marine turtle nesting populations (including impacts associated with the implementation of response options);<br>• Collate and quantify impacts to adult and hatchling marine turtles from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population levels (including impacts associated with the implementation of response options); .and<br>• Undertake monitoring to quantify and assess impacts of hydrocarbon exposure to nesting marine turtle populations at known rookeries (including impacts associated with the implementation of response options). | SM06 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring has:<br>• As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days;<br>• Predicted shoreline contact of hydrocarbons (at or above 0.5 g/m² surface, 5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at known marine turtle rookery locations; or<br>• Records of dead, oiled or injured marine turtle species made during the hydrocarbon spill or response. | SM06 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:<br>• Impacts to nesting marine turtle populations from hydrocarbon exposure have been quantified.<br>• Recovery of impacted nesting marine turtle populations has been evaluated.<br>• Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill. |
| **Scientific monitoring program 7 (SM07)** | The objectives of SM07 are to: | SM07 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental | SM07 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The |

| Scientific monitoring Program (SMP) | Objectives | Activation Triggers | Termination Criteria |
|---|---|---|---|
| **Assessment of impacts to pinniped colonies including haul-out site populations** | • Quantify impacts on pinniped colonies and haul-out sites as a result of hydrocarbon exposure/contact.<br>• Collate and quantify impacts to pinniped populations from results recorded during OM02 and OM05 (such as mortalities, oiling, rescue and release counts) and undertake a desk-based assessment to infer potential impacts at species population levels. | receptors and implemented if operational monitoring has:<br>• As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days;<br>• Identified shoreline contact of hydrocarbons ((at or above 0.5 g/m² surface, ≥5 ppb for entrained/dissolved hydrocarbons and ≥1 g/m² for shoreline accumulation) at known pinniped colony or haul-out site(s) (i.e. most northern site is the Houtman Abrolhos Islands); or<br>• Records of dead, oiled or injured pinniped species made during the hydrocarbon spill or response. | SMP termination criteria process will be followed and include consideration of:<br>• Impacts to pinniped populations from hydrocarbon exposure have been quantified.<br>• Recovery of pinniped populations has been evaluated.<br>• Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill. |
| **Scientific monitoring program 8 (SM08)**<br>**Desk-Based assessment of impacts to other non-avian marine megafauna** | The objective of SM08 is to provide a desk-based assessment which collates the results of OM02 and OM05 where observations relate to the mortality, stranding or oiling of mobile marine megafauna species not addressed in SM06 or SM07, including:<br>• Cetaceans;<br>• Dugongs;<br>• Whale sharks and other shark and ray populations;<br>• Sea snakes; and<br>• Crocodiles.<br>The desk-based assessment will include population analysis to infer potential impacts to marine megafauna species populations. | SM08 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring reports records of dead, oiled or injured non-avian marine megafauna during the spill/ response phase. | SM08 will be terminated when the results of the post-spill monitoring have quantified impacts to non-avian megafauna.<br>• Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill. |
| **Scientific monitoring program 9 (SM09)**<br>**Assessment of impacts and recovery of marine fish associated with SM03 habitats** | The objectives of SM09 are:<br>• Characterise the status of resident fish populations associated with habitats monitored in SM03 exposed/contacted by spilled hydrocarbons;<br>• Quantify any impacts to species (abundance, richness and density) and resident fish population structure (representative functional trophic groups); and<br>• Determine and monitor the impact of the hydrocarbon spill and potential subsequent recovery (including impacts associated with the implementation of response options). | SM09 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented with SM03. | SM09 will be undertaken and terminated concurrent with monitoring undertaken for SM03, as per the SMP termination criteria process<br>• Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill. |
| **Scientific monitoring program 10 (SM10)**<br>**Assessment of physiological impacts important fish and shellfish species (fish health and seafood quality/safety) and recovery** | SM10 aims to assess any physiological impacts to important commercial fish and shellfish species (assessment of fish health) and if applicable, seafood quality/safety. Monitoring will be designed to sample key commercial fish and shellfish species and analyse tissues to identify fish health indicators and biomarkers, for example:<br>• Liver Detoxification Enzymes (ethoxyresorufin-O-deethylase (EROD) activity)<br>• PAH Biliary Metabolites<br>• Oxidative DNA Damage<br>• Serum SDH<br>• Other physiological parameters, such as condition factor (CF), liver somatic index (LSI), gonado-somatic index (GSI) and gonad histology, total weight, length, condition, parasites, egg development, testes development, abnormalities. | SM10 will be initiated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors and implemented if operational monitoring (OM01, OM02 and OM05) indicates the following:<br>• The hydrocarbon spill will or has intersected with active commercial fisheries or aquaculture activities.<br>• Commercially targeted finfish and/or shellfish mortality has been observed/recorded.<br>• Commercial fishing or aquaculture areas have been exposed to hydrocarbons (≥0.5 g/m² surface and ≥5 ppb for entrained/dissolved hydrocarbons); and | SM10 will be terminated once it is agreed that the receptor has returned to pre-spill condition. The SMP termination criteria process will be followed and include consideration of:<br>• Physiological impacts to important commercial fish and shellfish species from hydrocarbon exposure have been quantified.<br>• Recovery of important commercial fish and shellfish species from hydrocarbon exposure has been evaluated.<br>• Impacts to seafood quality/safety (if applicable) have been assessed and information provided to the relevant persons/ organisations and regulators for the management of any impacted fisheries. |

| Scientific monitoring Program (SMP) | Objectives | Activation Triggers | Termination Criteria |
|---|---|---|---|
| | • Seafood tainting may be included (where appropriate) using applicable sensory tests to objectively assess targeted finfish and shellfish species for hydrocarbon contamination.<br><br>Results will be used to make inferences on the health of commercial fisheries and the potential magnitude of impacts to fishing industries. | • Taste, odour or appearance of seafood presenting a potential human health risk is observed. | • Agreement with relevant persons/ organisations and regulators based on the nature and scale of the hydrocarbon spill impacts and/or that observed impacts can no longer be attributed to the spill. |

## Activation Triggers and Termination Criteria

*Scientific monitoring program Activation*

The Woodside oil spill scientific monitoring team will be stood up immediately with the occurrence of a (actual or suspected) Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors via the first strike plan for the petroleum activity programme. The presence of any level of hydrocarbons in the marine environment triggers the activation of the oil spill scientific monitoring program (SMP). This is to consider the full range of eventualities relating to the environmental, socio-economic and health consequences of the spill in the planning and execution of the SMP. The activation process also takes into consideration the management objectives, species recovery plans, conservation advices and conservations plans for any World Heritage Area (WHA), CMRs, State Marine Parks, other protected area designations (e.g., State nature reserves) and Matters of National Environmental Significance (including listed species under part 3 of the EPBC Act) potentially exposed to hydrocarbons. With the first 24-48 hours of a spill event, such information will be sourced and evaluated as part of the SMP planning process guided by Appendix D (identified receptors vulnerable to hydrocarbon contact), the information presented in the Existing Environment section of the EP as well as other information sources such as the Woodside Baseline Environmental Studies Database.

The starting point for decision-making on what SMPs are activated and spatial extent of monitoring activities will be based on the predictive modelling results (OM01) in the first 24-48 hours until more information is made available from other operational monitoring activities such as aerial surveillance and shoreline surveys. Pre-emptive Baseline Areas (WHA, CMRs and State Marine Parks encompassing key ecological and socio-economic values) are a key focus of the SMP activation decision-making process, particularly, in the early spill event/response phase. As the operational monitoring progresses and further situational awareness information becomes available, it will be possible to understand the nature and scale of the spill. The SMP activation and implementation decision-making will be revisited daily to account for the updates on spill information. One of the priority focus areas in the early phase of the incident will be to identify and execute pre-emptive SMP assessments at key receptor locations, as required. The SMP activation and implementation decision tree is presented in Figure C-2.

*Scientific monitoring Program Termination*

The basis of the termination process for the active SMPs (SMPs 1-10) will include quantification of impacts, evaluation of recovery for the receptor at risk and consultation with relevant authorities, persons and organisations. Termination of each SMP will not be considered until the results (as presented in annual SMP reports for the duration of each program) indicate that the target receptor has returned to pre-spill condition.

Once the SMP results indicate impacted receptor(s) have returned to pre-spill condition (as identified by Woodside) a termination decision-making process will be triggered and steps will be undertaken as follows:

- Woodside will engage expert opinion on whether the receptor has returned to pre-spill condition (based on monitoring data). Subject Matter Expert (SMEs) will be engaged (via the Woodside SME scientific monitoring terms of reference to review program outcomes, provide expert advice and recommendations for the duration of each SMP.
- Where expert opinion agrees that the receptor has returned to pre-spill condition, findings will then be presented to the relevant authorities, persons and organisations (as defined by the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulation 11A). Identification, planning and engagement with relevant persons/ organisations will be managed by Woodside's Reputation Functional Support Team (FST) and follow the Stakeholder Management FST. These guidelines outline the FST roles and responsibilities, competencies, communications and planning processes. An assessment of the merits of any objection to termination will be documented in the SMP final report.

- Woodside will decide on termination of SMP based on expert opinion and merits of any relevant persons/organisations objections. The final report following termination will include monitoring results, expert opinion and consultation including merits of any objections.
- Termination of SMPs will also consider applicable management objectives, species recovery plans, conservation advices and conservations plans for any World Heritage Area (WHA), CMRs, State Marine Parks, other protected area designations (e.g., State nature reserves) and Matters of National Environmental Significance (including listed species under part 3 of the EPBC Act).

The SMP termination decision-making process will be applied to each active SMP and an iterative process of decision steps continued until each SMP has been terminated (refer to decision-tree diagram for SMP termination criteria, Figure C-3).

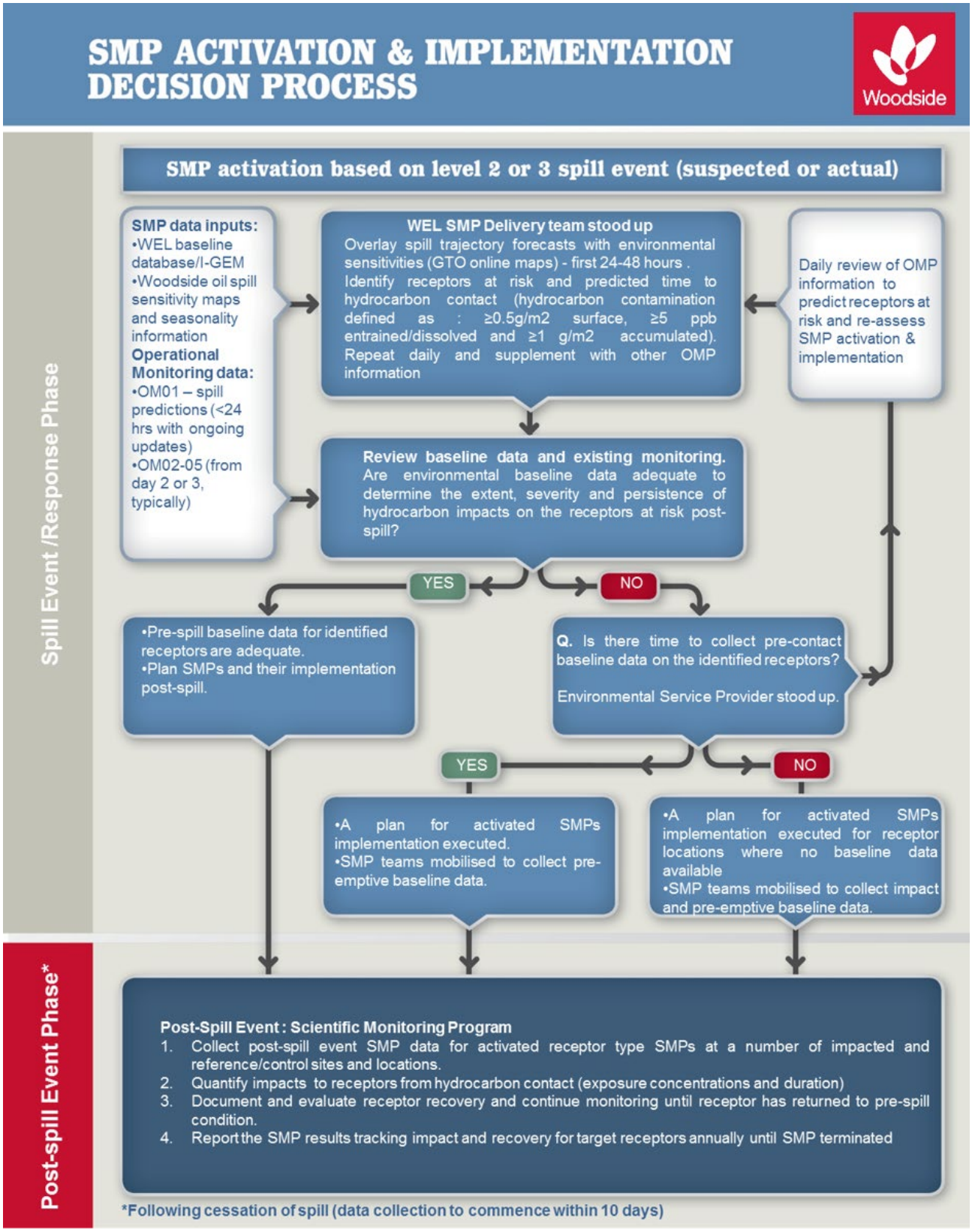


**Figure C-2: Activation and Implementation Decision-tree for Oil Spill Environmental Monitoring**

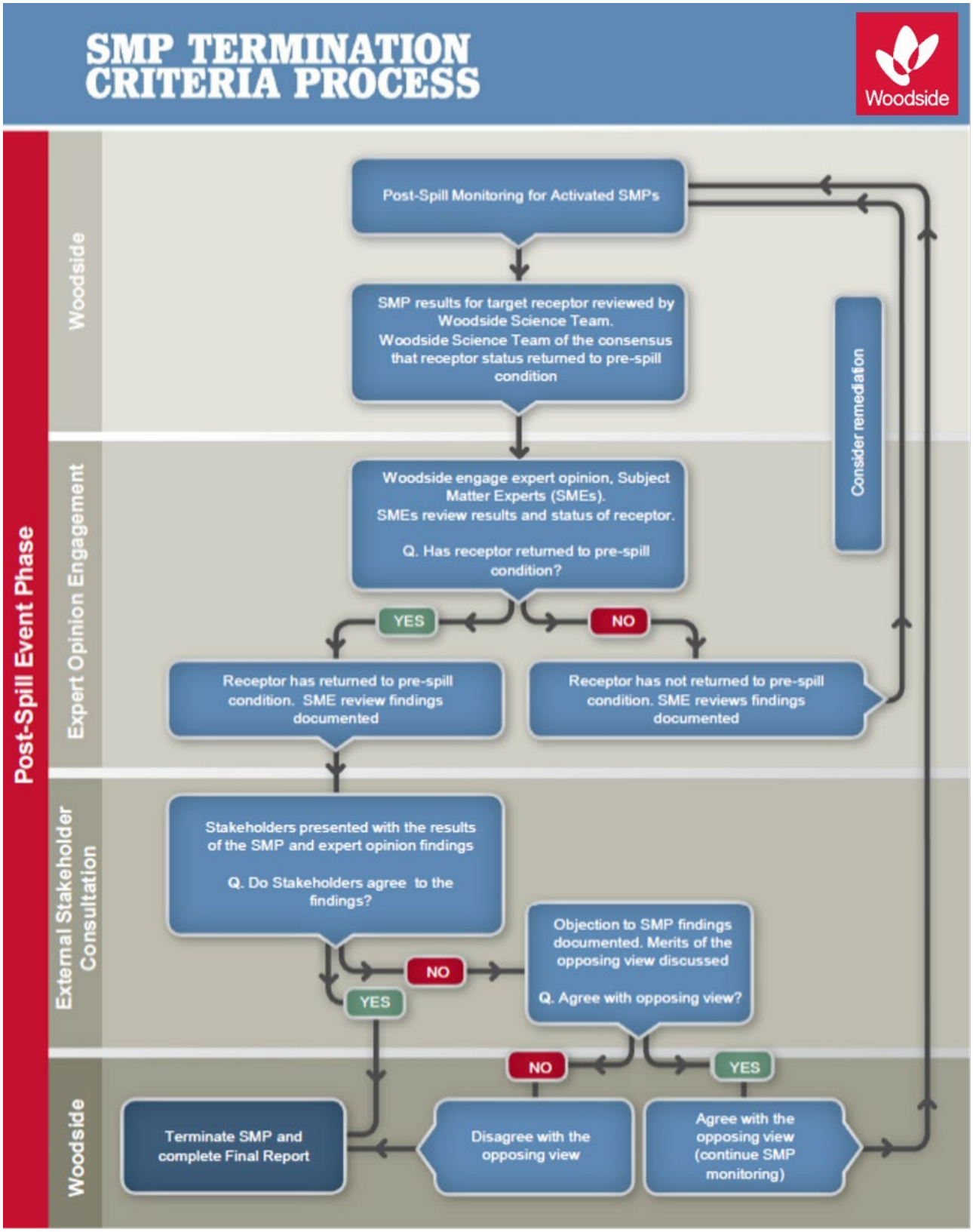


**Figure C-3: Termination Criteria Decision-tree for Oil Spill Environmental Monitoring**

### Receptors at Risk and Baseline Knowledge

To assess the baseline studies available and suitability for oil spill scientific monitoring, Woodside maintains knowledge of environmental baseline studies through the upkeep and use of its Environmental Knowledge Management System.

Woodside's Environmental Knowledge Management System is a centralised platform for scientific information on the existing environment, marine biodiversity, Woodside environmental studies, key environmental impact topics, key literature and web-based resources. The system comprises numerous data directories and an environmental baseline database, as well as folders within the 'Corporate Environment' server space. The environmental baseline database was set up to support Woodside's SMP preparedness and as a SMP resource in the event of an unplanned hydrocarbon spill. The environmental baseline database is subject to updates including annual reviews completed as part of SMP standby contract. This database is accessed pre-PAP to identify Pre-emptive Baseline Areas (PBAs) where hydrocarbon contact is predicted to occur <10 days.

In addition to Woodside's Environmental Knowledge Management System, many relevant baseline datasets are held by other organisations (e.g. other oil and gas operators, government agencies, state and federal research institutions and non-governmental organisations). To understand the present status of environmental baseline studies, a spatial environmental metadata database for Victoria can be accessed via CoastKit[13]. This is an online portal for information about marine-based environmental surveys in Victoria administered by DEECA.

In the event of an unplanned hydrocarbon release, Woodside intends to interrogate the information on baseline studies status as held by the various databases (e.g. Woodside Environmental Knowledge Management System, CoastKit and other sources of existing baseline data) to identify Pre-emptive Baseline Areas (PBAs), i.e., receptors at risk where hydrocarbon contact is predicted to be >10 days, and baseline data can be collected before hydrocarbon contact.

### Reporting

For the scientific monitoring program relevant regulators will be provided with:

- Annual reports summarising the SMPs deployed and active, data collection activities and available findings; and
- Final reports for each SMP summarising the quantitative assessment of environmental impacts and recovery of the receptor once returned to pre-spill condition and termination of the monitoring program.

The reporting requirements of the scientific monitoring program will be specific to the individual SMPs deployed and terms of responsibilities, report templates, schedule, quality assurance/quality control (QA/QC) and peer-review will be agreed with the contractors engaged to conduct the SMPs. Compliance and auditing mechanisms will be incorporated into the reporting terms.

[13] https://mapshare.vic.gov.au/coastkit/

# ANNEX D: MONITORING PROGRAM AND BASELINE STUDIES FOR THE PETROLEUM ACTIVITIES PROGRAM

**Table D-1: Oil Spill Environmental Monitoring – scientific monitoring program scope for the Petroleum Activities Program based on Spill EMBAs. Bioregions from Bridgewater to Point Dander State Marine Park**

| Receptor Areas - Potential Impact and Reference Scientific Monitoring Sites (marked X) | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bioregion | | IBRA | | | | | | | | | | | | | | | | | |
| | | Bridgewater | | | Glenelg Plain | Warrnambool Plain | | | | | | Otway Ranges | Otway Plain | | | | | | |
| Receptors to be monitored | Applicable SMP | Bonney Coast Upwelling KEF | Glenelg Estuary and Discovery Bay Wetlands RAMSAR | Discovery Bay State MP (IUCN II) | Bonney Coast Upwelling KEF | Yambuk Wetlands / Coastal Reserve | Bonney Coast Upwelling KEF | Merri State MP (IUCN III) and Lower Merri River Wetlands | The Arches State MP (IUCN III) | Twelve Apostles State MP (IUCN II) | Princetown Wetlands | Marengo Reefs State MP (IUCN III) | Cape Otway | Lake Connewarre State Wildlife Reserve | Aire River and Lower Aire River Wetlands | Swan Bay and Swan Island Wetland | Point Addis State MP (IUCN II) | Eagle Rock State MP (IUCN III) | Point Danger State MP (IUCN III) |
| Habitats/ Community | | | | | | | | | | | | | | | | | | | |
| Water Quality | SM01 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Marine Sediment Quality | SM02 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Subtidal and Intertidal benthic habitat[14] (Assemblages of species associated with open-coast saltwedge estuary EPBC Act TEC)[15] | SM03 | X* | X* | X* | X | X* | X* | X* | X* | X* | X* | X* | X | X* | X* | X* | X* | X* | X* |
| Deeper water filter feeders | SM03 | | | | | | | | | | | X | | | | | | | |
| Seagrass and macroalgae (Giant Kelp Beds EPBC Act TEC)[16] | SM03 | X** | X** | X** | X** | X** | X** | X** | X | X | X** | X** | X** | X** | X** | X** | X** | X** | X** |
| Mangroves | SM04 | | | | | | | | | | | | | | | | | | |
| Subtropical and Temperate Coastal Saltmarsh (EPBC Act TEC) | SM04 | X | X | X | X | X | X | X | | X | X | X | X | X | X | X | X | X | X |
| Species | | | | | | | | | | | | | | | | | | | |
| Seabirds and migratory shorebirds | SM05 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Pinnipeds | SM07 | X | | | | | | X | | | | X | | | | | | | |
| Fish assemblages | SM09 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Socio-economic | | | | | | | | | | | | | | | | | | | |
| Fisheries | SM10 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

| | |
|---|---|
| | Receptor areas identified as Pre-emptive Baseline Areas (based on criteria of surface contact and/or entrained hydrocarbon contact ≤10 days (Offshore Australian Marine Parks contacted by hydrocarbons in this timeframe also noted) |
| | Receptor areas identified as Pre-Emptive Baseline Areas in the response phase >10 days (based on criteria of surface contact and/or entrained hydrocarbon contact >10 days) |
| | Receptor areas that may be identified as impact or reference sites in the event of major hydrocarbon release and would be identified as part of the SMP planning process |

[14] SM03 Benthic Habitat types: sandy beaches and rocky shorelines (intertidal), soft sediment and rocky habitat/reefs (subtidal) are widespread and not mapped to receptor locations. Refer to the Minerva Existing Environment and the South-east Marine Region Plan (DoE 2015)
[15] Assemblages of species associated with open-coast salt wedge estuaries of western and central Victoria ecological community (EPBC Act TEC) relevant sites marked *
[16] Giant Kelp Beds EPBC Act TEC relevant sites marked **

**Table D-2: Oil Spill Environmental Monitoring – scientific monitoring program scope for the Petroleum Activities Program based on Spill EMBAs. Bioregions from Barwon Bluff State Marine Park to West Tasmanian Canyon KEF**

| Bioregion | | Receptor Areas - Potential Impact and Reference Scientific Monitoring Sites (marked X) | | | | | | | | | | | | | | | | | MNES | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | IBRA | | | | | | | | | | | | | | | | | | | | |
| | | Victorian Volcanic Plain | Port Phillip Bay | | | Gippsland Plain | | | | | | | Strzelecki Ranges | Wilsons Promontory (VIC) | King | | | Flinders | Australian Marine Park | | | KEF |
| Receptors to be monitored | Applicable SMP | Barwon Bluff State MP (IUCN III) | Port Phillip Heads State MP (IUCN II) | Port Phillip Bay | Port Phillip Bay (Western Shoreline) and Bellarine RAMSAR | Point Napean Defence National Heritage Park | Western Port RAMSAR | Bunurong State MP (IUCN II) | Mushroom Reef State MP (IUCN III) | Churchill Island State MP (IUCN II) | Corner Inlet RAMSAR | Ninety Mile Beach MP (IUCN II) | Strzelecki Ranges | Wilsons Promontory (VIC) State MP (IUCN II) | King Island | North-West Tasmania | Boags Marine Park | Flinders Island | Apollo AMP (IUCN VI) | Beagle AMP (IUCN VI) Including offshore Islands | Zeehan AMP (IUCN VI) | West Tasmania Canyon KEF |
| Habitats/ Community | | | | | | | | | | | | | | | | | | | | | | |
| Water Quality | SM01 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Marine Sediment Quality | SM02 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Subtidal and Intertidal benthic habitat[17] (Assemblages of species associated with open-coast salt wedge estuary EPBC Act TEC)[18] | SM03 | X* | X* | | | | | X * | X | | X | X | | X | | | | | | | X | X |
| Deeper water filter feeders | SM03 | | | | | | | | X | | | | | X | | | | | X | | X | |
| Seagrass and macroalgae (Giant Kelp Beds EPBC Act TEC)[19] | SM03 | X** | X** | X** | X** | X** | X** | X** | X** | X** | X** | | X** | X** | | X | | | X | X | X | X |
| Mangroves | SM04 | | | | | | X | | | X | X | | | | | | | | | | | |
| Subtropical and Temperate Coastal Saltmarsh (EPBC Act TEC) | SM04 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | | X | | | | |
| Species | | | | | | | | | | | | | | | | | | | | | | |
| Seabirds and migratory shorebirds | SM05 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Pinnipeds | SM07 | | | | | | | | | | | | | X | | | | | | X | | |
| Fish assemblages | SM09 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |
| Socio-economic | | | | | | | | | | | | | | | | | | | | | | |
| Fisheries | SM10 | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

| | |
|---|---|
| | Receptor areas identified as Pre-emptive Baseline Areas (based on criteria of surface contact and/or entrained hydrocarbon contact ≤10 days (Offshore Australian Marine Parks contacted by hydrocarbons in this timeframe also noted) |
| | Receptor areas identified as Pre-Emptive Baseline Areas in the response phase >10 days (based on criteria of surface contact and/or entrained hydrocarbon contact >10 days) |
| | Receptor areas that may be identified as impact or reference sites in the event of major hydrocarbon release and would be identified as part of the SMP planning process |

[17] SM03 Benthic Habitat types: sandy beaches and rocky shorelines (intertidal), soft sediment and rocky habitat/reefs (subtidal) are widespread and not mapped to receptor locations. Refer to the Minerva Existing Environment and the South-east Marine Region Plan (DoE 2015)
[18] Assemblages of species associated with open-coast salt wedge estuaries of western and central Victoria ecological community (EPBC Act TEC) relevant sites marked *
[19] Giant Kelp Beds EPBC Act TEC relevant sites marked **

**Table D-3: Baseline Studies for the SMPs applicable to identified Pre-emptive Baseline Areas for the Petroleum Activities Program**

| Major Baseline | Proposed Scientific monitoring operational plan and Methodology | Existing Baseline Monitoring | Description and Spatial Extent | References and data |
|---|---|---|---|---|
| **Benthic Habitats: Shorelines and intertidal habitats** | **SM03**<br>Quantitative assessment using image capture using towed video. Post analysis into broad groups based on taxonomy and morphology | Baseline habitat mapping and improved monitoring of reef habitats in Victoria's marine national parks and sanctuaries | Coastal Victoria | Young et al., 2022 |
| | | Signs of Healthy Parks (SHP) program. | Intertidal Reef Monitoring Program:<br>• Intertidal Reef Biota of Central Victoria's Marine Protected Areas<br>• Intertidal Reef Biota of Northern Port Phillip Bay Marine Sanctuaries<br>• Reef biota in Central Victoria and Port Phillip Bay Marine Sanctuaries<br><br>Applies to the following protected areas within the EMBA, including<br>• Point Addis Marine National Park<br>• Point Danger Marine Sanctuary<br>• Barwon Heads Marine Sanctuary<br>• Mushroom Reef Marine Sanctuary | Pritchard et al., 2011 |
| | | | Shallow Water Habitat Mapping at Victorian Marine National Parks and Marine Sanctuaries:<br>• Eastern Victoria<br>• Western Victoria | Ball and Blake, 2007 |
| | | | Mapping the Benthos in Victoria's Marine National Parks:<br>• Discovery Bay Marine National Park<br>• Point Addis Marine National Park<br>• Twelve Apostles Marine National Park | Holmes et al., 2007 |
| | | Rocky Shores of Marine National Parks and Sanctuaries on the Surf Coast Shire – Values, uses and impacts | Coastal Victoria | Porter and Wescott, 2010 |
| | | Identification of threats to natural values in Victoria's Marine | Coastal Victoria | Carey et al., 2007 |
| | | National Parks and Marine Sanctuaries | Coastal Victoria | Parks Victoria, 2023 |
| | | Monitoring the macroinvertebrates and soft sediments in the Marine National Parks in Western Port | Coastal Victoria | Butler and Bird, 2010 |
| | | Yaringa and French Island MNP Habitat Mapping | Coastal Victoria | French et al., 2014 |
| | | Reef life survey | Coastal Victoria | Reef Life Survey, 2023 |
| **Benthic Habitat: Seagrass and macroalgae** | **SM03**<br>Quantitative assessment using image capture using towed video. Post analysis into broad groups based on taxonomy and morphology | Biogeography of Australian Seagrasses: NSW, Victoria, Tasmania and Temperate Queensland | Coastal Victoria | Macreadie et al., 2018 |
| | | Mud Islands Seagrass and Coastline Mapping 2011-12 | Coastal Victoria | Ball, 2013 |
| **Mangroves and saltmarsh** | **SM04**<br>Aerial photography and satellite imagery will be used in conjunction with field surveys to map the range and distribution of mangrove communities. | Mangrove and saltmarsh distribution mapping and land cover change assessment for south-eastern Australia from 1991 to 2015 | Coastal Victoria | Navarro et al., 2021 |
| **Seabirds and shorebirds** | **SM05**<br>Visual counts of breeding seabirds, nest counts, intertidal bird counts at high tide | Australian National Directory of Important Migratory Shorebird Habitat | Coastal Victoria | Birdlife Australia, 2020 |
| | | Species diversity and composition of benthic infaunal communities found in Marine National Parks along the outer Victorian coast | | Heislers and Parry, 2007. |
| | | Little Penguin | | Wallis et al., 2017 |
| | | Middle island Little Penguin Monitoring program | | Warmambool Council 2022 |
| | | Report on the 2020 Biennial hooded Plover Count | | Adams and Maguire, 2020 |
| | | Birds as Environmental Indicators | | Chambers, 2008 |
| **Pinnipeds** | **SM07**<br>Visual counts of breeding colonies / haul-out populations using shoreline (beach or vessel) or aerial surveys | New Zealand Fur Seal | Victoria | McIntosh et al., 2022 |
| **Benthic communities and fish assemblages** | **SM09**<br>Baited Remote Underwater Video Stations (BRUVS), Diver Operated Video (DOV) | Signs of Healthy Parks (SHP) program. | Subtidal Reef Monitoring Program:<br>• Popes Eye Component of the Port Phillip Heads MNP<br>• Reef Biota at Bunurong Marine National Park and Surrounding Coast<br>• Reef Biota at Eagle Rock Marine Sanctuary<br>• Reef Biota at Marengo Reefs Marine Sanctuary<br>• Reef Biota at Marine Protected Areas in the Twofold Shelf region<br>• Reef Biota at Merri Marine Sanctuary<br>• Reef Biota at Phillip Island<br>• Reef Biota at Point Addis Marine National Park<br>• Reef Biota at Port Phillip Bay Marine Sanctuaries<br>• Reef Biota at Port Phillip Heads Marine National Park | Edmunds, 2017 |

| Major Baseline | Proposed Scientific monitoring operational plan and Methodology | Existing Baseline Monitoring | Description and Spatial Extent | References and data |
|---|---|---|---|---|
| | | | • Reef Biota on the Western Victorian Coast<br>• Reef Biota within the Twofold Shelf Bioregion<br>• Reef Surveys at Twelve Apostles Marine National Park and The Arches Marine Sanctuary<br>• Western Victorian Coast | |
| | | Baseline habitat mapping and improved monitoring of reef habitats in Victoria's marine national parks and sanctuaries | Coastal Victoria | Young et al., 2022 |
| | | Reef Life survey | Coastal Victoria | Reef Life Survey, 2023 |
| | | Reefwatch | Victoria | Victorian National Parks Association, 2023 |
| **Commercial fisheries** | **SM10**<br>DoF Trap LTM dataset | Seafood Industry Victoria (SIV) | Commercial Fishers | Seafood Industry Victoria, 2023 |
| | | South East Trawl Fishing Industry Association (SETFIA) | Commercial Fishers | South East Trawl Fishing Industry Association, 2023 |
| | | Victorian Fisheries Authority | State | Victorian Fisheries Authority, 2023 |
| | | Australian Fisheries Management Authority (AFMA) | Commonwealth | Australian Fisheries Management Authority [AFMA], 2023 |

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# Minerva Plug and Abandonment – Oil Pollution First Strike Plan

Corporate HSE

Hydrocarbon Spill Preparedness

March 2024
Revision 0

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# CONTROL AGENCIES AND INCIDENT CONTROLLERS

| Source | Location | Level | Jurisdictional authority | Control Agency | Incident Controller |
|---|---|---|---|---|---|
| **Spill from facility including subsea infrastructure**<br>Note: pipe laying and accommodation vessels are considered a "facility" under Australian regulations | Commonwealth waters | 1 | NOPSEMA | Woodside | Person In Charge (PIC) with support from Onshore Team Leader (OTL) |
| | | 2/3 | | Woodside | Corporate Incident Management Team (CIMT) Incident Commander (IC) |
| | State waters | 1 | Victoria Department of Transport and Planning (Vic DTP) | Woodside | PIC with support from OTL |
| | | 2/3 | | Vic DTP | Vic DTP State Controller Maritime Emergencies (SCME) (with response assistance from Woodside) |
| **Spill from vessel**<br>Note: SOPEP should be implemented in conjunction with this document | Commonwealth waters | 1 | Australian Marine Safety Authority (AMSA) | Vessel | Vessel Master |
| | | 2/3 | | AMSA | AMSA (with response assistance from Woodside) |
| | State waters | 1 | Vic DTP | Port Authority | Port Management Body/Local Port Manager |
| | | 2/3 | | Vic DTP | Vic DTP SCME |
| | Port waters | 1 | Port Authority | Port Authority | Port Management Body/Local Port Manager |
| | | 2/3 | | Port Authority/ Vic DTP | Port Management Body/Local Port Manager/Vic DTP SCME |
| **Spill impacting wildlife** | State waters | 1 | Department of Energy, Environment and Climate Action (DEECA) | DEECA | Duty Officer |
| | | 2/3 | | | |

# SPILLS IN STATE WATERS

As detailed in the table above, in the event of a hydrocarbon spill where Woodside Energy (Victoria) Pty Ltd ('Woodside') is the responsible party and the spill may impact State waters and shorelines, Woodside (or the Vessel Master) will commence the initial response actions and notify the Victoria Department of Transport and Planning (Vic DTP).

Woodside will continue to provide initial response actions for State waters, until such time that Vic DTP establishes an Incident Control Centre (ICC) and assumes control of the spill response. Initially Woodside will be required to make available an Emergency Management Liaison Officer (EMLO) to work in the Vic DTP IMT to facilitate effective communication between Vic DTP and Woodside.

The Vic DTP/Port Authority's role as the Controlling Agency in State waters/within port limits does not negate the requirement for Woodside to have appropriate plans and resources in place to adequately respond to a marine hydrocarbon spill incident in State waters/within port limits or to commence the initial response actions to a spill prior to Vic DTP establishing incident control in line with the Victorian *Joint Industry and State Oil Pollution Responses Guidance Note* (V2, 2020). Woodside will provide resources in line with its Incident and Crisis Management (I&CM) organisational structure and the Oil Pollution First Strike Plan (FSP).

A Vic DTP officer will be appointed the role of the State Controller Maritime Emergencies (SCME), otherwise known as the State Controller under the State Emergency Management Plan (SEMP), who has overall responsibility for ensuring there is an adequate response in State waters. The SCME will be responsible for authorising the activation of National Plan resources (including the National Response Team (NRT), trajectory modelling, and specialist equipment) via AMSA.

The Emergency Management Commissioner (EMC) is responsible for ensuring effective control arrangements are in place for maritime emergencies. To facilitate effective coordination between the two Controlling Agencies and their respective IMTs, a Joint Strategic Coordination Committee (JSCC) will be established. The JSCC will be jointly chaired by the State Controller Maritime Emergencies (SCME) and the Woodside nominated senior representative, and will comprise of individuals deemed necessary by the chairs to ensure an effective coordinated response across both jurisdictions. The coordination structure for the JSCC is shown in APPENDIX D – Coordination Structure for a Concurrent Hydrocarbon Spill in Both Commonwealth and State Waters/Shorelines. Detailed cross-jurisdiction arrangements are available in the *Victorian State Maritime Emergencies (non-search and rescue) (MENSAR) Subplan Edition 2* which acts as the *Victorian Marine Pollution Contingency Plan* in accordance with the National Plan and the Marine (Drug, Alcohol and Pollution Control) Act 1988.

The Woodside Corporate Incident Management Team (CIMT), based in Woodside's head office, is the onshore coordination point for an offshore emergency. The CIMT is staffed by an appropriately skilled team available on call 24-hours per day. Woodside's Incident Management Structure for a hydrocarbon spill can be seen in APPENDIX E – Woodside Incident Management Structure.

# RESPONSE PROCESS OVERVIEW

| | | |
|---|---|---|
| | **For guidance on credible scenarios and hydrocarbon characteristics, refer to APPENDIX A** | |
| **ALL INCIDENTS** | Notify the Woodside Communication Centre (WCC) on:<br>[1] | |
| | Incident Controller or delegate to make relevant notifications in Table 1-1 of this Oil Pollution First Strike Plan. | |
| **LEVEL 1** | **FACILITY INCIDENT** | **VESSEL INCIDENT** |
| | Coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan.<br>Remember to download each Operational Plan. | Notify AMSA/Port Authority and coordinate pre-identified tactics in Table 2-1 of this Oil Pollution First Strike Plan<br>Remember to download each Operational Plan. |
| | If the spill escalates such that the site cannot manage the incident, inform the WCC on:<br>[1] and escalate to a level 2/3 incident. | |
| **LEVEL 2/3** | **FACILITY INCIDENT** | **VESSEL INCIDENT** |
| | Handover control to CIMT and notify Vic DTP/Port Authority. | Handover control to AMSA/Port Authority and stand up CIMT to assist. |
| | Commence quick revalidation of the recommended strategies Table 2-1 taking into consideration seasonal sensitivities and current situational awareness.<br>Commence validated strategies. | If requested by AMSA/Port Authority:<br>Commence quick revalidation of the recommended strategies Table 2-1 taking into consideration seasonal sensitivities and current situational awareness.<br>Commence validated strategies. |
| | Create an Incident Action Plan (IAP) for all ongoing operational periods.<br>The content of the IAP should reflect the selected response strategies based on current situational awareness.<br>For the pre-operational Net Environmental Benefit Analysis (NEBA) see the OSPRMA Appendix A | If requested by AMSA/Port Authority:<br>Create an IAP for all ongoing operational periods.<br>The content of the IAP should reflect the selected response strategies based on current situational awareness.<br>For the pre-operational NEBA see the OSPRMA Appendix A |

# 1. NOTIFICATIONS

The Incident Controller or delegate must ensure the below notifications (Table 1-1) are completed within the designated timeframes.

**For spills from a vessel, relevant notifications must be undertaken by a WEL representative.**

**Table 1-1: Notifications**

**In the event of an incident between campaign vessels, also activate relevant vessel Emergency Response Plans and/or Bridging Documents**

| Timing | By | To | Name | Contact | Instruction | Form | Complete? (✓) |
|---|---|---|---|---|---|---|---|
| **NOTIFICATIONS FOR ALL LEVELS OF SPILL** | | | | | | | |
| Immediately | Offshore Installation Manager (OIM) or Vessel Master | Woodside Communication Centre (WCC) | Duty Manager | [1] | Verbally notify WCC of event and estimated volume and hydrocarbon type. | Verbal | |
| As soon as practicable | CIMT IC or Delegate | Woodside | Environment Unit Leader | As per roster | Verbally notify Environment Unit Leader of event and seek advice on relevant performance standards from EP | Verbal | |
| Within 2 hours | Woodside Site Rep (WSR), Corporate Incident Management Team Incident Commander (CIMT IC) or Delegate | National Offshore Petroleum Safety Environmental Management Authority (NOPSEMA[1]) | Incident notification office | [2] | Verbally notify NOPSEMA for spills >80L.<br>Record notification using Initial Verbal Notification Form or equivalent and send to NOPSEMA as soon as practicable (cc to NOPTA). | Link | |
| Within 3 days | WSR, CIMT IC or Delegate | | | | Provide a written NOPSEMA Incident Report Form as soon as practicable (no later than 3 days after notification) (cc to NOPTA)<br>NOPSEMA [2]<br>NOPTA [3] | [2] | |
| Report all actual or impending marine pollution incidents that are in, or may impact, state waters as soon as reasonably practicable | CIMT IC or Delegate | Vic Department of Transport and Planning (Vic DTP) | State Duty Officer (SDO) | [4] | Verbally notify Vic DTP SDO that a spill has occurred.<br>Follow up with an email containing a more detailed Marine Pollution Incident Report Form as soon as practicable following verbal notification. Send to:<br>[4] | Verbal and written | |
| | | | State Agency Commander (if SDO unavailable) | [4] | | | |
| As soon as practicable | CIMT IC or Delegate | DEECA Earth Resources Regulation (ERR) | Duty Officer | [5] | Verbally notify Earth Resources Regulation that a spill has occurred.<br>Within 3 days, follow up with an email containing a more detailed information as soon as practicable following verbal notification. Send to:<br>[5] | Verbal and written | |
| As soon as practicable | CIMT IC or Delegate | Port of Portland | Harbour Master/Marine Manager | [6] | Verbally notify Port of Portland that a spill has occurred (responsible for spill response from South Australian-Victoria border to Cape Otway) | Verbal | |
| As soon as practicable | CIMT IC or Delegate | Department of Climate Change, Energy, the Environment and Water (DCCEEW) Director of National Parks | Marine Park Compliance Duty Officer | [7] | The Marine Park Compliance Duty Officer is notified in the event of oil pollution within a marine park, or where an oil spill response action must be taken within a marine park, so far as reasonably practicable, prior to response action being taken.<br>This notification should include:<br>• titleholder details<br>• time and location of the incident<br>• proposed response arrangements and locations as per the OPEP<br>• contact details for the response coordinator<br>• confirmation of access to relevant monitoring and evaluation reports when available. | Verbal | |
| As soon as practicable if there is potential for oiled wildlife or the spill is expected to contact land or waters managed by DEECA | CIMT IC or Delegate | DEECA | State Agency Commander | [8] | Phone call notification | Verbal | |

[1] Notification to NOPSEMA must be from a Woodside Representative.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| As soon as practicable | Public Information | Relevant persons/ organisations | To be determined | To be determined | Should it be identified that additional persons such as, but not limited to, commercial fishers and tourism operators may be affected, Woodside would, at the relevant time, engage with these parties as appropriate.<br>Relevant persons/organisations will be re-assessed throughout the response period. | Verbal initially | |
| As soon as practicable | Public Information | Relevant cultural authorities | To be determined | To be determined | Should it be identified that relevant cultural authorities may be affected, Woodside would, at the relevant time, engage with these parties as appropriate.<br>Relevant cultural authorities will be re-assessed throughout the response period. | Verbal initially | |
| **ADDITIONAL NOTIFICATIONS TO BE MADE ONLY IF SPILL IS FROM A VESSEL** | | | | | | | |
| Without delay as per protection of the Sea Act, part II, section 11(1) | Vessel Master | Australian Maritime Safety Authority (AMSA) | Response Coordination Centre (RCC) | [9] | Verbally notify AMSA RCC of the hydrocarbon spill.<br>Follow up with a written Marine Pollution Report (POLREP) as soon as practicable following verbal notification. | [9] | |
| **ADDITIONAL LEVEL 2/3 NOTIFICATIONS** | | | | | | | |
| As soon as practicable | CIMT IC or Delegate | AMOSC | AMOSC Duty Manager | [10] | Notify AMOSC that a spill has occurred and follow-up with an email from the **CIMT IC/CIMT Deputy IC/CMT Leader** to formally activate AMOSC.<br>Determine what resources are required consistent with the AMOS Plan and detail in a Service Contract that will be sent to Woodside from AMOSC upon activation. | [10] | |
| As soon as practicable | CIMT IC or Delegate | Oil Spill Response Limited (OSRL) | OSRL Duty Manager | [11] | Contact OSRL duty manager and request assistance from technical advisor in Perth.<br>Send the completed notification form to OSRL as soon as practicable. | [11] | |
| | | | | | For mobilisation of resources, send the Mobilisation Form to OSRL as soon as practicable. The mobilisation form must be signed by a nominated callout authority from Woodside. OSRL can advise the names on the call out authority list, if required. | [11] | |
| As soon as practicable if extra personnel are required for incident support | CIMT IC or Delegate | Marine Spill Response Corporation (MSRC) | MSRC Response Manager | [12] | Activate the contract with MSRC (in full) for the provision of up to 30 personnel depending on what skills are required. Please note that provision of these personnel from MSRC are on a best endeavours basis and are not guaranteed. | Verbal | |

# 2. RESPONSE TECHNIQUES

**Table 2-1: Response techniques**

| Technique | Hydrocarbon/spill type | | Level | Pre- Identified Tactics | Responsible | ALARP Commitment Summary | Link to Operational Plans for notification numbers and actions |
|---|---|---|---|---|---|---|---|
| | MDO | Cond. | | | | | |
| **Operational monitoring –tracking buoy (OM02)** | Yes | Yes | ALL | If a vessel is on location, consider the need to deploy the oil spill tracking buoy. If no vessel is on location, consider the need to mobilise oil spill tracking buoys from the King Bay Supply Base (KBSB) Stockpile.<br>If a surface sheen is visible from the facility, deploy the satellite tracking buoy within two hours. | Operations | **DAY 1:**<br>Tracking buoy deployed within 2 hours. | Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02) of The Operational Monitoring Operational Plan.<br>Deploy tracking buoy in accordance with Link. |
| **Operational monitoring – predictive modelling (OM01)** | Yes | Yes | ALL | Undertake initial modelling using the Rapid Assessment Oil Spill Tool and weathering fate analysis using Automated Data Inquiry for Oil Spills (ADIOS) or refer to the hydrocarbon information in **Appendix A.** | Situation or Environment | **DAY 1:**<br>Initial modelling within 6 hours using the Rapid Assessment Tool. | Predictive Modelling of Hydrocarbons to Assess Resources at Risk (OM01 of The Operational Monitoring Operational Plan).<br>*Planning to download immediately and follow steps* |
| | Yes | Yes | ALL | Send Oil Spill Trajectory Modelling (OSTM) form (Appendix B, Form 7) to RPS Response ([13]). | Situation | **DAY 1:**<br>Detailed modelling within 4 hours of RPS Response receiving information from Woodside. | |
| **Operational monitoring – aerial surveillance (OM02)** | Yes | Yes | ALL | Instruct Aviation Unit Leader to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in Appendix B Form 8. | Logistics – Aviation | **DAY 1:**<br>2 trained aerial observers.<br>1 aircraft available.<br>Report made available to the IMT within 2 hours of landing after each sortie. | Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02 of The Operational Monitoring Operational Plan).<br>*Planning to download immediately and follow steps* |
| **Operational monitoring – satellite tracking (OM02)** | Yes | Yes | ALL | The Situation Unit Leader to action satellite imagery services. This may be obtained via:<br>• AMOSC Duty Manager: [10]<br>• OSRL Duty Manager: [11]<br>• KSAT: [14]<br>• Others identified by CIMT | Situation | **DAY 1:**<br>Service provider will confirm availability of an initial acquisition within 2 hours.<br>Data received to be uploaded into Woodside Common Operating Picture. | |
| **Operational monitoring – monitoring hydrocarbons in water (OM03)** | Yes | Yes | ALL | Consider the need to mobilise resources to undertake water quality monitoring (OM03). | Planning or Environment | **DAY 3:**<br>Water quality assessment access and capability<br>Daily fluorometry reports will be provided to IMT. | Detecting and Monitoring for the Presence and Properties of Hydrocarbons in the Marine Environment (OM03 of The Operational Monitoring Operational Plan). |
| **Operational monitoring – pre-emptive assessment of receptors at risk (OM04)** | Yes | Yes | ALL | Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk (OM04). | Planning or Environment | **DAY 1-2:**<br>In agreement with Vic DTP, deployment of 2 specialists for each of the Response Protection Areas (RPA) with predicted impacts. | Pre-emptive Assessment of Sensitive Receptors (OM04 of The Operational Monitoring Operational Plan). |
| **Operational monitoring – shoreline assessment (OM05)** | Yes | Yes | ALL | Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05). | Planning or Environment | **DAY 1-2:**<br>In agreement with Vic DTP, deployment of 2 specialists trained in Shoreline Clean-up Assessment Technique (SCAT) for each of the RPAs with predicted impacts. | Shoreline Assessment (OM05 of The Operational Monitoring Operational Plan). |
| **Surface dispersant** | No | No | N/A | This response strategy is not recommended for a spill of MDO or condensate. | | | |
| **Containment and recovery** | No | No | N/A | This response strategy is not recommended for a spill of MDO or condensate. | | | |
| **Mechanical dispersion** | No | No | N/A | This response strategy is not recommended for a spill of MDO or condensate. | | | |
| **In-situ burning** | No | No | N/A | This response strategy is not recommended for a spill of MDO or condensate. | | | |
| **Shoreline protection and deflection** | Yes | Yes | ALL | Equipment from Woodside, Port Authority, AMOSC and AMSA Victorian Stockpiles and relevant personnel mobilised.<br>Consideration of mobilisation of interstate/international shoreline protection equipment (i.e. OSRL). | Operations and Planning | **DAY 1-2:**<br>In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), mobilise teams to RPAs within 24-48 hours of predicted impact (MDO scenario, CS-02). | Protection and Deflection Operational Plan<br>*Logistics to download immediately and follow steps* |
| **Shoreline clean-up** | Yes | Yes | ALL | Equipment from Woodside, Port Authority, AMOSC and AMSA Victorian Stockpiles and relevant personnel mobilised. | Logistics and Planning | **DAY 1-2:**<br>In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), relevant Tactical Response Plans (TRPs) will | Shoreline Clean-up Operational Plan<br>*Logistics to download immediately and follow steps* |

| Technique | Hydrocarbon/spill type | | Level | Pre- Identified Tactics | Responsible | ALARP Commitment Summary | Link to Operational Plans for notification numbers and actions |
|---|---|---|---|---|---|---|---|
| | MDO | Cond. | | | | | |
| | | | | Consideration of mobilisation of interstate/international shoreline clean-up equipment and relevant personnel (i.e. OSRL). | | be identified in the First Strike plan for activation within 24-48 hours of predicted impact.<br>In liaison with regulatory or jurisdictional authority (for Level 2/3 incidents), mobilise and deploy shoreline clean-up operations within 24-48 hours (MDO scenario, CS-02) | |
| **Oiled wildlife response** | **Yes** | **Yes** | **ALL** | If oiled wildlife is a potential impact, request AMOSC to mobilise containerised oiled wildlife first strike kits and relevant personnel. Refer to relevant Tactical Response Plan for potential wildlife at risk.<br>Mobilise AMOSC Oiled Wildlife Containers.<br>Consider whether additional equipment is required from local suppliers. | Logistics and Planning | **DAY 1:**<br>Initiate a wildlife first strike response within 24 hours of confirmed or imminent wildlife contact as directed by relevant Operational Monitoring techniques (OM01-05) and in liaison with DEECA. | Oiled Wildlife Response Operational Plan |
| **Scientific monitoring (type II)** | **Yes** | **Yes** | **ALL** | Notify Woodside science team of spill event. | Environment | | Oil Spill Scientific Monitoring Programme – Operational Plan |
| **SOURCE CONTROL TECNIQUES** | | | | | | | |
| **Subsea First Response Toolkit** | **No** | **Yes** | **L2/3** | Debris clearance equipment to be mobilised prior to deployment of capping stack. | Source Control | **DAY 2:**<br>Remotely Operated Vehicle (ROV) on Mobile Offshore Drilling Unit (MODU) ready for deployment within 48 hours subject to risk assessment and approvals, to undertake inspection and/or well intervention.<br>Intervention vessel with minimum requirement of a working class ROV and operator mobilised to with for deployment within 11 days. | Source Control Emergency Response Planning Guideline<br>Activity Source Control Emergency Response Plan |
| **Subsea Dispersant** | **No** | **No** | **N/A** | This response strategy is not recommended | | | |
| **Capping Stack** | **No** | **No** | **N/A** | Conventional/vertical capping stack deployment is not feasible at the Minerva well location due to shallow water depths (~60 m). | | | |
| **Relief Well** | **No** | **Yes** | **L2/3** | Relief well drilling will be the main technique employed to control a loss of well containment event. | Source Control | **DAY 1:**<br>Identify source control vessel availability within 24 hours.<br>MODU mobilised to site for relief well drilling within 21 days for a locally available MODU, or 43 days for a MODU from outside the region. | |

# 3. RESPONSE PROTECTION AREAS

**Action: Provide relevant Control Agency with applicable Tactical Response Plans for any Response Protection Areas (RPAs) identified during operational monitoring.**

Based on hydrocarbon spill modelling results, the sensitive receptors outlined in **Table 3-1** are identified as priority protection areas, as they have the potential to be contacted by hydrocarbon at or above impact threshold levels within 48 hours of a spill.

**Table 3-1: Receptors for Priority Protection with Potential Impact within 48 Hours**

| Receptor | Minimum time to shoreline contact (above 100 g/m$^2$) in days | Maximum shoreline accumulation (above 100 g/m$^2$) in tonnes | Tactical Response Plans |
|---|---|---|---|
| Otway Plain | 1.0 | 27 | Aire River - Tactical Response Plan<br>Curdies Inlet - Tactical Response Plan<br>Gellibrand River (Princetown Wetlands) - Tactical Response Plan<br>Warrnambool - Tactical Response Plan |
| Warrnambool Plain | 0.2 | 187 | |
| Otway Ranges | 0.8 | 7 | |

Tactical Response plans for these locations include the details of potential forward operating bases and staging areas.

Oil Spill Trajectory Modelling specific to the spill event will be required to determine the regional sensitive receptors to be contacted beyond 48 hours of a spill.

**Figure 3-1** illustrates the location of the activity and regional sensitive receptors in relation to the Minerva Plug and Abandonment Operational Area.

Consideration should be given to other stakeholders (including mariners) in the vicinity of the spill location. **Table 3-2** indicates the assets or title boundaries adjacent to the Minerva-4 well.

**Table 3-2: Titles in the vicinity of the Minerva Plug and Abandonment Operational Area**

| Asset or title | Distance and Direction from Minerva-4 well | Operator |
|---|---|---|
| Thylacine A (TL/2 and TL/4) | 50 km south | Beach Energy (Operations) Ltd |
| VIC/P43 | 3.45 km, south south-west | Beach Energy (Operations) Ltd |
| VIC/P44 | 11.10 km west | Cooper Energy (CH) Pty Ltd |
| VIC/L24 | 11.61 km west south-west | Cooper Energy (CH) Pty Ltd |

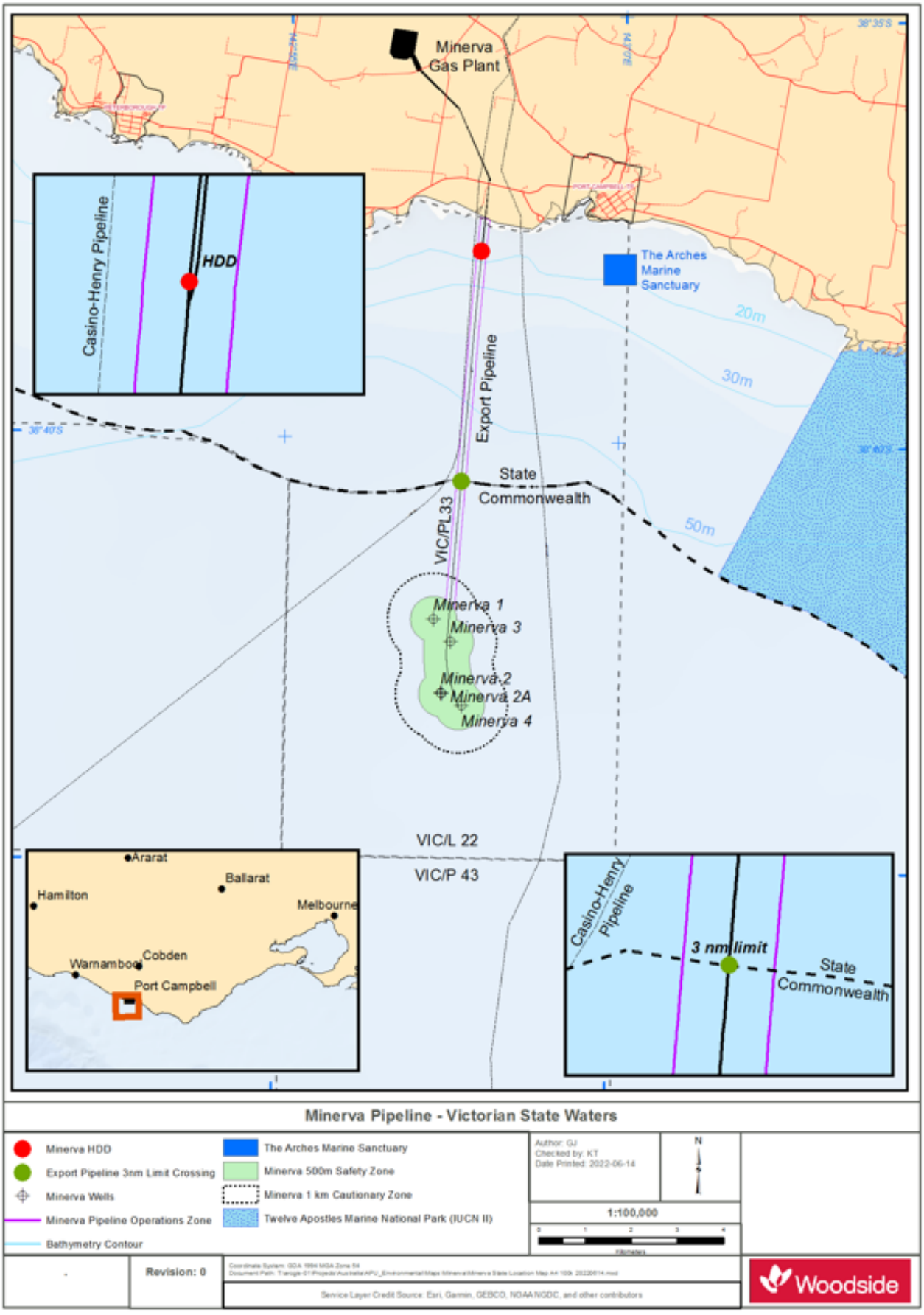



**Figure 3-1: Location of activity**

# 4. DISPERSANT APPLICATION

Dispersant is not considered an appropriate response strategy for these activities as discussed in the Minerva Plug and Abandonment Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA).

# APPENDIX A – CREDIBLE SPILL SCENARIOS AND HYDROCARBON INFORMATION

**Table A - 1: Credible spill scenarios and hydrocarbon information**

| Scenario | Product | Volume | Residue | | Suggested ADIOS2 Analogue[2] |
|---|---|---|---|---|---|
| **CS-01 (WCCS)**<br>**Subsea loss of well containment (LOWC) event discharging condensate at the Minerva-4 well site over 81 days**<br>*Lat: 38° 43' 7.37" S Long: 142° 57' 44.02" E* | Minerva-4 Condensate | ~8368 $m^3$ | **Wind speed** | **Residue** | Marulk 13C 2014 |
| | | | Low wind | 10%, 836.8 $m^3$ | |
| | | | Moderate wind | 0%, 0 $m^3$ (within 24 hours) | |
| | | | High wind | 0%, 0 $m^3$ (within 6 hours) | |
| **CS-02 (WCCS)**<br>**Surface spill of MDO arising from a vessel collision at the nearest point of the operational area to the Victorian coast over 6 hours**<br>*Lat: 38° 42' 6.89" S Long: 142° 57' 17.28" E* | MDO | 330 $m^3$ | **Wind speed** | **Residue** | Marine Diesel (IKU) |
| | | | Low wind | 40%, 132 $m^3$ | |
| | | | Moderate wind | 1%, 3.3 $m^3$ (within 72 hours) | |
| | | | High wind | 0%, 0 $m^3$ (within 12 hours) | |

[2] Initial screening of possible ADIOS2 analogues considered hydrocarbons with similar APIs. Suggested selection is based on the closest distillation cut to the Woodside hydrocarbon. Only hydrocarbons with >380°C distillation cuts were included in selection process.

# APPENDIX B – NOTIFICATION FORMS

**Table B - 1: Notification forms**

| No. | Form Name | Link |
|---|---|---|
| 1 | Record of initial verbal notification to NOPSEMA template | Link |
| 2 | NOPSEMA Incident Report Form | [2] |
| 3 | Marine Pollution Report (POLREP – AMSA) | [9] |
| 4 | AMOSC Service Contract | [10] |
| 5a | OSRL Initial Notification Form | [11] |
| 5b | OSRL Mobilisation Activation Form | [11] |
| 6 | RPS Response Oil Spill Trajectory Modelling Request | [13] |
| 7 | Aerial Surveillance Observer Log | Link |
| 8 | Tracking buoy deployment instructions | Link |

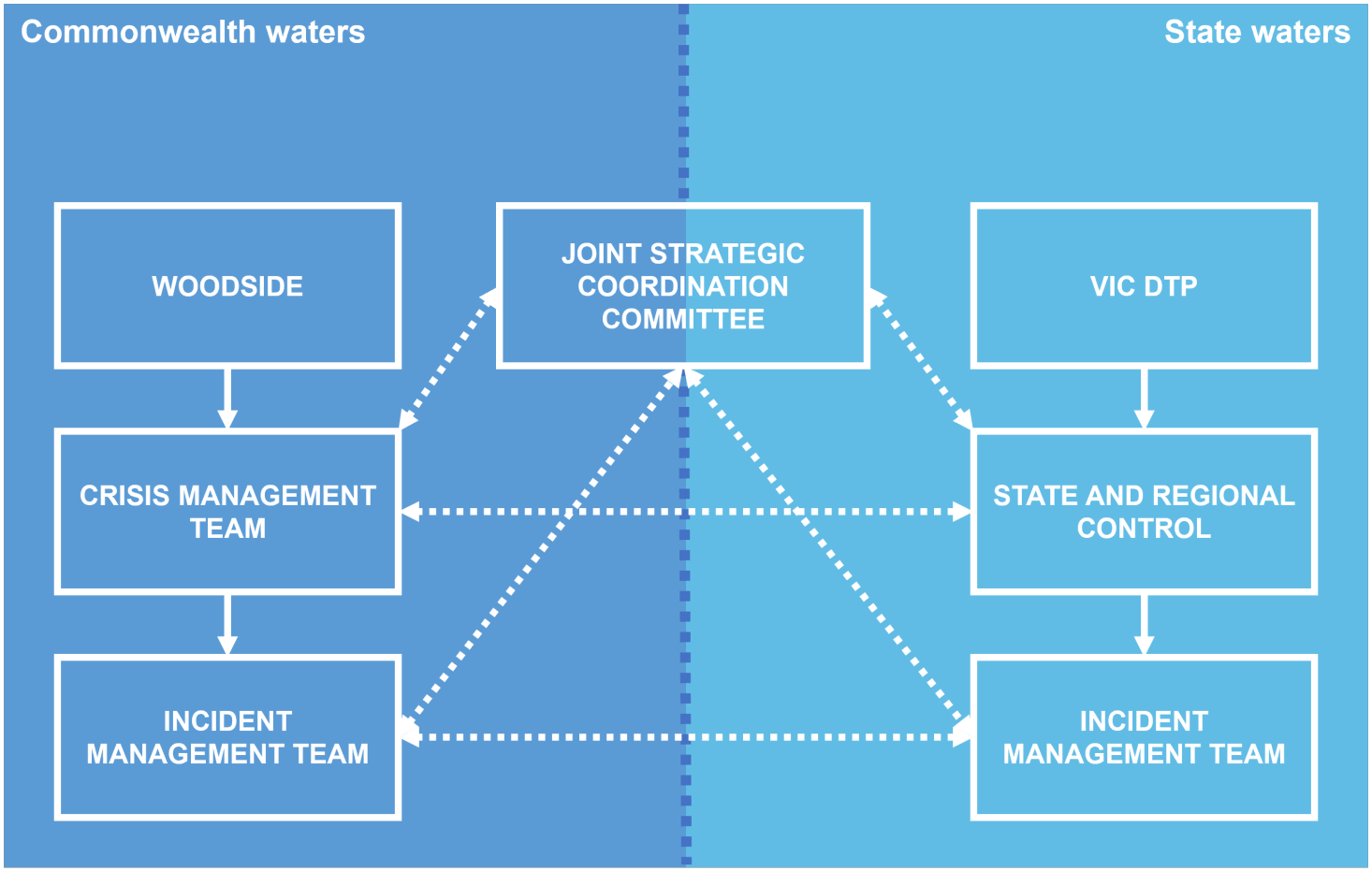
# FORM 1 – RECORD OF INITIAL VERBAL NOTIFICATION TO NOPSEMA

| | | |
|---|---|---|
| **NOPSEMA phone: [2]** | | |
| **Date of call** | | |
| **Time of call** | | |
| **Call made by** | | |
| **Call made to** | | |
| **Information to be provided to NOPSEMA:** | | |
| **Date and time of incident/time caller became aware of incident** | | |
| **Details of incident** | **1. Location** | |
| | **2. Title** | |
| | **3. Source** | **□ Platform** |
| | | **□ Pipeline** |
| | | **□ FPSO** |
| | | **□ Exploration drilling** |
| | | **□ Well** |
| | | **□ Other (please specify)** |
| | **4. Hydrocarbon type** | |
| | **5. Estimated volume** | |
| | **6. Has the discharge ceased?** | |
| | **7. Fire, explosion or collision?** | |
| | **8. Environment Plan(s)** | |
| | **9. Other Details** | |
| **Actions taken to avoid or mitigate environmental impacts** | | |
| **Corrective actions taken or proposed to stop, control or remedy the incident** | | |
| **After the initial call is made to NOPSEMA, please send this record as soon as practicable to:** | | |
| **NOPSEMA** | **[2]** | |
| **NOPTA** | **[3]** | |
| **ERR** | **[5]** | |

# APPENDIX C – SPILL ASSESSMENT QUESTIONS

| | | |
|---|---|---|
| **What has happened?** | | |
| **Date/time** | | |
| **Spill source** | | |
| **Spill cause** | | |
| **Safety situation** | | |
| **What is it?** | | |
| **Oil type and name** | | |
| **Oil properties** | Specific gravity | |
| | Viscosity | |
| | Pour point | |
| | Asphaltenes | |
| | Wax content | |
| | Boiling point | |
| **Where is it?** | | |
| **Latitude and longitude** | | |
| **Distance and bearing** | | |
| **Affected area** | ☐ Offshore | |
| | ☐ Subsea | |
| | ☐ Shoreline | |
| | ☐ Estuary | |
| | ☐ Port | |
| | ☐ Harbour | |
| | ☐ Inland | |
| | ☐ River | |
| | ☐ Other (please detail): | |
| **Water depth** | | |
| **How big is it?** | | |
| **Area** | | |
| **Release type** | ☐ Instantaneous | Estimated volume: |
| | ☐ Continuous release | Estimated release rate: |
| **Where it is going?** | | |
| **Metocean conditions** | | |
| **Currents and tides** | | |
| **What is in the way?** | | |
| **Resources at risk** | | |
| **Time until resource contact** | | |
| **What's happening to it?** | | |
| **Weathering processes** | | |
| **Response actions underway** | | |

# APPENDIX D – COORDINATION STRUCTURE FOR A CONCURRENT HYDROCARBON SPILL IN BOTH COMMONWEALTH AND STATE WATERS/SHORELINES[3]



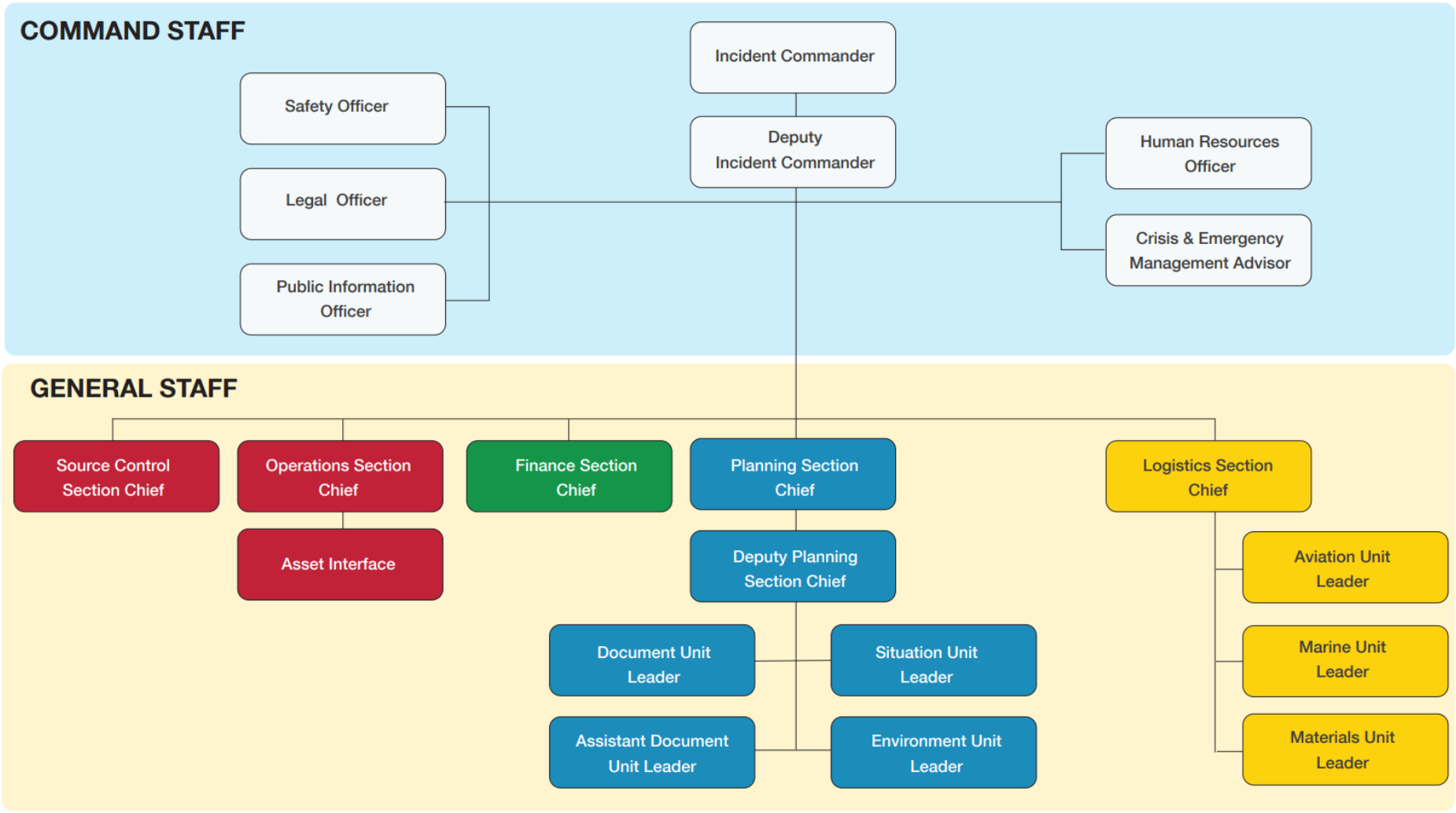

The Control Agency for a hydrocarbon spill in Commonwealth waters resulting from an offshore petroleum activity is Woodside (the Petroleum Titleholder).

The Control Agency/HMA for a hydrocarbon spill in State waters/shorelines resulting from an offshore petroleum activity is Vic DTP. Vic DTP will appoint an Incident Controller and form a separate IMT to only manage the spill within State waters/shorelines.

[3] Adapted from Victorian Joint Industry and State Oil Pollution Responses Guidance Note, V2 2020

# APPENDIX E – WOODSIDE INCIDENT MANAGEMENT STRUCTURE

Woodside Corporate Incident Management Team Structure for hydrocarbon spills:



# Appendix F Consultation

## Appendix F

**Minerva Plug and Abandonment Environment Plan**

- **Table 1: Assessment of Relevance**
- **Consultation Activities**
- **Table 2: Consultation Report with Relevant Persons or Organisations**
- **Table 3: Engagement Report with Persons or Organisations Assessed as Not Relevant**
- **Record of Consultation**

Date: December 2024

Revision: 3

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## APPENDIX F

# RELEVANCY ASSESSMENT

## Assessment of Relevant Persons for the Proposed Activity

The result of Woodside's assessment of relevant persons in accordance with regulation 25 (1) of the Environment Regulations is outlined below at **Table 1** and **Table 2**.

Persons or organisations that Woodside assessed as not relevant but nonetheless chose to contact at its discretion in accordance with **Section 5.3.4** in the EP or self-identified and Woodside assessed as not relevant are summarised below at **Table 1** and **Table 3**.

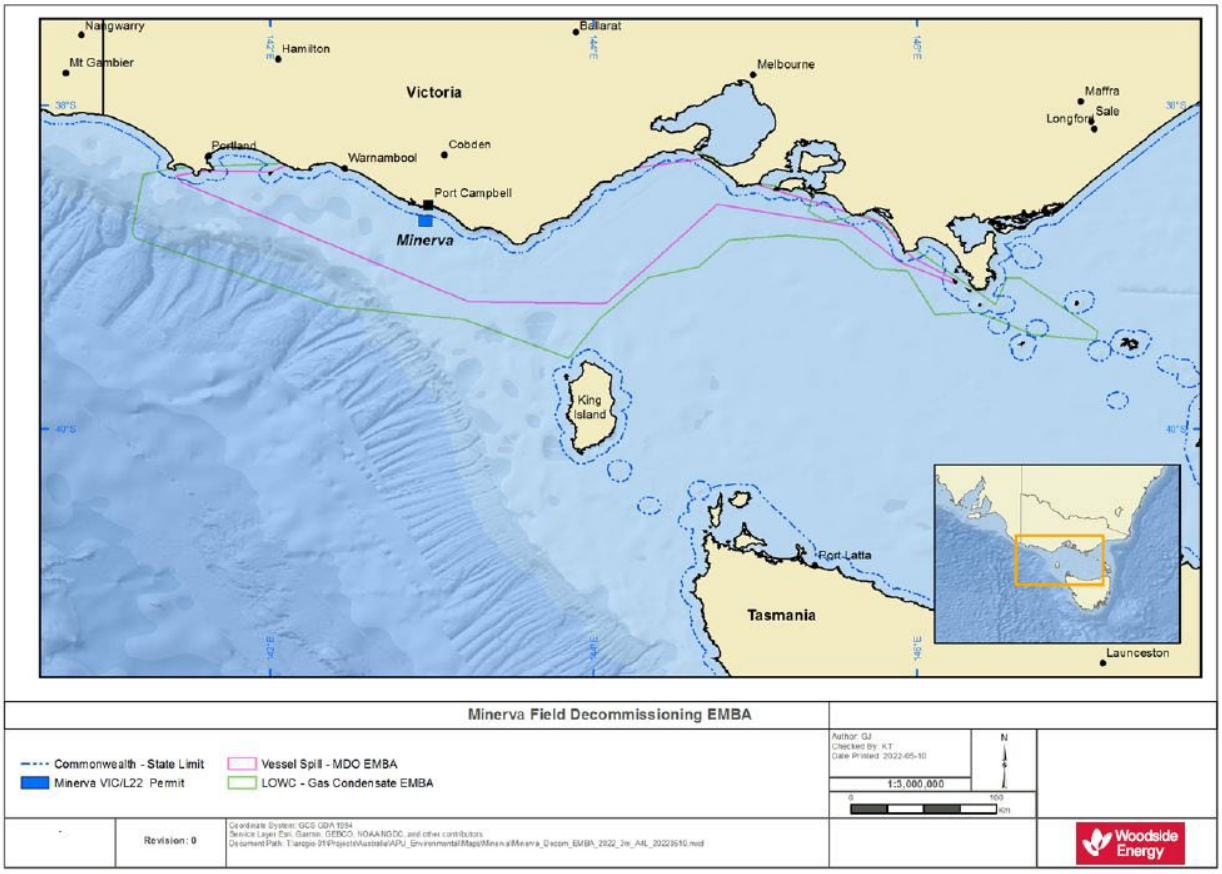



**Figure 1: EMBA for this EP**

## Table 1: Assessment of Relevance

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Commonwealth and Victorian Government Departments or Agencies – Marine | | | |
| Australian Border Force (ABF) | Responsible for coordinating maritime security. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations.<br>ABF's functions may be relevant to the activity as there are proposed vessel activities. | Yes |
| Australian Communications and Media Authority (ACMA) | Regulator for communications and media services. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations.<br>ACMA's responsibilities are not relevant to the activity as telecommunications lines do not intersect the Operational Area. | No |
| Australian Fisheries Management Authority (AFMA) | Responsible for managing Commonwealth fisheries. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations.<br>AFMA's responsibilities may be relevant to the activity as the Southern and Eastern Scalefish and Shark Fishery (SESSF) – CTS and Shark Gillnet and Shark Hook Sectors, and Southern Squid Jig are active in the Operational Area.<br>AFMA's responsibilities may further be relevant to the activity as the Bass Strait Central Zone Scallop Fishery, Southern and Eastern Scalefish and Shark Fishery (SESSF) – CTS and Shark Gillnet and Shark Hook Sectors and Southern Squid Jig are active in the EMBA. | Yes |
| Australian Hydrographic Office (AHO) | Responsible for maritime safety and Notices to Mariners. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations.<br>AHO's responsibilities may be relevant to the activity as there are proposed vessel activities and infrastructure is proposed to be left in situ, requiring navigational chart updates. | Yes |
| Australian Maritime Safety Authority (AMSA) – Marine Safety | Statutory agency for vessel safety and navigation. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations.<br>AMSA – Marine Safety's responsibilities may be relevant to the activity as there are proposed vessel activities. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Australian Maritime Safety Authority (AMSA) – Marine Pollution | Legislated responsibility for oil pollution response in Commonwealth waters. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations.<br><br>AMSA – Marine Pollution's responsibilities may be relevant to the activity as the proposed activity has a hydrocarbon spill risk which may require AMSA response in Commonwealth waters. | Yes |
| Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries | Responsible for implementing Commonwealth policies and programs to support agriculture, fishery, food and forestry industries. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations.<br><br>DAFF - Fisheries responsibilities may be relevant to the activity as the Southern and Eastern Scalefish and Shark Fishery (SESSF) – CTS and Shark Gillnet and Shark Hook Sectors, and Southern Squid Jig are active in the Operational area.<br><br>DAFF - Fisheries responsibilities may further be relevant to the activity as the Bass Strait Central Zone Scallop Fishery, Southern and Eastern Scalefish and Shark Fishery (SESSF) – CTS and Shark Gillnet and Shark Hook Sectors and Southern Squid Jig are active in the EMBA. | Yes |
| Department of Defence (DoD) | Responsible for defending Australia and its national interests. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations.<br><br>DoD's responsibilities may be relevant to the activity as defence training areas lie within the EMBA. | Yes |
| Department of Energy, Environment and Climate Action (DEECA) - Earth Resources Regulator \| Resources Victoria | Responsible for Victorian policy areas of energy, environment, water, agriculture, forestry, resources, climate action, and emergency management functions.<br><br>Regulatory body for oil and gas. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations.<br><br>DEECA's responsibilities may be relevant to the activity as the State agency responsible for responding to wildlife affected by a marine pollution emergency in Victorian waters. | Yes |
| Department of Transport and Planning (DTP) | Prepares for and effectively responds to a marine pollution incident in State coastal waters up to three nautical miles (3 nm) offshore.<br><br>Responsible for Victoria's ports. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations.<br><br>The proposed activity has a hydrocarbon spill risk, which may require DTP response in State waters. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Department of Premier and Cabinet - First Peoples State Relations | Responsible for work in the areas of First Nations community strengthening and engagement, self-determination, treaty, and cultural heritage management and protection. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations.<br><br>The Department's responsibilities may be relevant to the activity as Traditional Custodians and Nominated Representative Corporations have been identified as relevant persons to the activity with Registered Native Title overlapping the EMBA. | Yes |
| Heritage Victoria | Responsible for protections to archaeological sites, shipwrecks, aircraft wrecks and submerged Aboriginal heritage sites. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations.<br><br>There is known Maritime Cultural Heritage overlapping the EMBA. | Yes |
| Port of Melbourne | Responsible for the operation of the port. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations.<br><br>The proposed activity has the potential to impact Port of Melbourne's functions, interests or activities as the EMBA overlaps the port areas of responsibility. | Yes |
| Port of Hastings | Responsible for the operation of the port. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations.<br><br>The proposed activity has the potential to impact Port of Hastings' functions, interests or activities as the EMBA overlaps the port areas of responsibility. | Yes |
| Port of Warrnambool | Responsible for the operation of the port. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations.<br><br>The proposed activity has the potential to impact Port of Warrnambool's functions, interests or activities as the EMBA overlaps the port areas of responsibility. | Yes |
| Port of Portland | Responsible for the operation of the port. | Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(b) of the Environment Regulations.<br><br>The proposed activity has the potential to impact Port of Portland's functions, interests or activities as the EMBA overlaps the port areas of responsibility. | Yes |
| Victorian Fisheries Authority (VFA) | Independent statutory authority responsible for managing Victoria's fisheries resources. There are five | Required to be consulted under regulation 25(1)(c) of the Environment Regulations. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | Victorian state-managed fisheries that overlap the operational area. | The Rock Lobster, Giant Crab, Abalone, Wrasse and Snapper fisheries have been active in the Operational Area within the last 5 years.<br><br>The Rock Lobster, Giant Crab, Abalone, Wrasse and Snapper fisheries have been active in the EMBA within the last 5 years.<br><br>VFA's functions may be relevant to the activity as the authority responsible for State fisheries. | |
| Commonwealth and Victorian Government Departments or Agencies – Environment | | | |
| Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel) | DAFF administers, implements and enforces the Biosecurity Act 2015. The Department requests to be consulted where an activity has the potential to transfer marine pests.<br><br>DAFF also has inspection and reporting requirements to ensure that all conveyances (vessels, installations and aircraft) arriving in Australian territory comply with international health Regulations and that any biosecurity risk is managed.<br><br>The Department requests to be consulted where an activity involves the movement of aircraft or vessels between Australia and offshore petroleum activities either inside or outside Australian territory. | Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations.<br><br>DAFF – Biosecurity's functions may be relevant to the proposed activities in the EMBA in the prevention of introduced marine species. | Yes |
| Department of Climate Change, Energy, the Environment and Water (DCCEEW) | Responsible for implementing Commonwealth policies and programs to support climate change, sustainable energy use, water resources, the environment and our heritage. | Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations.<br><br>DCCEEW's functions may be relevant to the proposed activities in the EMBA as there are potential environmental impacts from the proposed activity.<br><br>There is known Maritime Cultural Heritage overlapping the EMBA. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | Administers the Underwater Cultural Heritage Act 2018 in collaboration with the States, Northern Territory and Norfolk Island, which is responsible for the protection of shipwrecks, sunken aircraft and other types of underwater heritage and their associated artefacts in Commonwealth waters. | | |
| Director of National Parks (DNP) | Responsible for the management of Commonwealth parks and conservation zones. | Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations.<br><br>DNP's functions may be relevant to the activity as DNP requires an awareness of activities that occur within AMPs, and an understanding of potential impacts and risks to the values of parks (NOPSEMA guidance note: N-04750-GN1785 A620236, June 2020). Titleholders are required to consult DNP on offshore petroleum activities if they occur in, or may impact on the values of marine parks, including where potential spill response activities may occur in the event of a spill (i.e. scientific monitoring). | Yes |
| Parks Victoria | Statutory authority of the Victorian Government acting in accordance with the Parks Victoria Act 2018. | Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations.<br><br>Parks Victoria's functions may be relevant to the activity as they manage marine parks, sanctuaries, reserves, and protected areas. | Yes |
| Commonwealth and Victorian Government Departments or Agencies – Industry | | | |
| Department of Industry, Science and Resources (DISR) | Department of relevant Commonwealth Minister. | Required to be consulted under regulation 25(1)(a) of the Environment Regulations. | Yes |
| Commonwealth Commercial Fisheries and Representative Bodies | | | |
| Bass Strait Central Zone Scallop Fishery | Commonwealth commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | | The fishery overlaps the Operational Area and EMBA and has been active in the EMBA within the last 5 years. | |
| Eastern Tuna and Billfish Fishery | Commonwealth commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. | No |
| Skipjack Tuna Fishery (Eastern) | Commonwealth commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. | No |
| Small Pelagic Fishery (Western sub-area) | Commonwealth commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. | No |
| Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine | Commonwealth commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (CTS) overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook | Commonwealth commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (Shark Gillnet) overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Southern Bluefin Tuna Fishery | Commonwealth commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. | No |
| Southern Squid Jig Fishery | Commonwealth commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Commonwealth Fisheries Association (CFA) | Represents the interests of commercial fishers with licences in Commonwealth waters. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>CFA's functions may be relevant to the activity as the SESSF – CTS and Shark Gillnet Sectors and Southern Squid Jig are active in the Operational Area.<br><br>Further, CFA's functions may be relevant as the Bass Strait Central Zone Scallop Fishery, SESSF – CTS and Shark Gillnet and Southern Squid Jig are active in the EMBA. | Yes |
| Australian Southern Bluefin Tuna Industry Association (ASBTIA) | Represents the interests of the Southern Bluefin Tuna Fishery and Western Skipjack Fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The Southern Bluefin Tuna Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the Southern Bluefin Tuna Fishery, the ASBTIA has also been assessed as not relevant.<br><br>Woodside has provided information to the ASBTIA at its discretion in line with Section 5.3 on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations. | No |
| Tuna Australia | Represents the interests of the Eastern Tuna and Billfish Fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. | No |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | | The Eastern Tuna and Billfish Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the Western Tuna and Billfish Fishery, Tuna Australia has also been assessed as not relevant.<br><br>Woodside has provided information to Tuna Australia at its discretion in line with Section 5.3 on AFMA advice that it expects all Commonwealth fishers who have entitlements to fish within the proposed area to be consulted, which can be through the relevant fishing industry associations. | |
| Bass Strait Scallop Industry Association (BSSIA) | Represents the interests of the Bass Strait Central Zone Scallop Fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (Bass Strait Central Zone Scallop Fishery) represented overlaps the Operational Area and EMBA and has been active in the EMBA within the last 5 years. | Yes |
| Small Pelagic Fishery Industry Association (SPFIA) | Represents the interests of the commercial fishing industry in the Small Pelagic Fishery (Western sub-area) Fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Although the fishery (Small Pelagic Fishery (Western sub-area)) represented overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. | No |
| South East Trawl Fishing Industry Association (SETFIA) | Represents the interests of the commercial fishing industry in the Small Pelagic Fishery (Western sub-area) Fishery and the Southern and Eastern Scalefish and Shark Fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fisheries (SESSF - CTS and Shark Gillnet) represented overlap the Operational Area and EMBA and have been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Southern Shark Industry Alliance (SSIA) | Represents the interests of the commercial fishing industry in the Southern and Eastern Scalefish and Shark Fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (SESSF – Shark Gillnet) represented overlaps the Operational Area and EMBA and has been active in the Operational and EMBA within the last 5 years. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Southern Rock Lobster Limited | National peak body working to further the interests of the Australian Southern Rock Lobster industry. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (Rock Lobster Fishery) represented overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |
| State Commercial Fisheries and Representative Bodies | | | |
| Rock Lobster Fishery | State commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Giant Crab Fishery | State commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Abalone Fishery | State commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Wrasse Fishery | State commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Scallop Fishery | State commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Although the fishery overlaps the Operational Area and EMBA, the fishery has not been active in the Operational Area or EMBA within the last 5 years. | No |
| Snapper Fishery | State commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Octopus Fishery | State commercial fishery. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Although the fishery overlaps the Operational Area and EMBA, the fishery has not been active in the Operational Area or EMBA within the last 5 years. | No |
| Seafood Industry Victoria (SIV) | Representative peak body for the Victorian seafood industry. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fisheries (Rock Lobster, Giant Crab, Wrasse, and Snapper) represented overlap the Operational Area and EMBA and have been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Abalone Council Victoria | Peak body representing the wild harvest abalone sector in Victoria, uniting the Western Abalone Divers Association, Abalone Victoria Central Zone, Eastern Zone Abalone Industry Association and the Victorian Abalone Processors Association. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (Abalone) represented overlaps the Operational Area and EMBA and has been active in the EMBA within the last 5 years. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Abalone Victoria Central Zone | Represent the interests of Abalone Central Zone entitlement holders on operational fishery management matters. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (Abalone) represented overlaps the Operational Area and EMBA and has been active in the EMBA within the last 5 years. | Yes |
| Victorian Scallop Fishermen's Association Inc | Represents Victorian scallop fishermen and their families. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (Scallop) represented overlaps the Operational Area and EMBA and has been active in the EMBA within the last 5 years. | Yes |
| Victorian Rock Lobster Association (VRLA) | Represents Victorian rock lobster industry members. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The fishery (Rock Lobster Fishery) represented overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years. | Yes |
| Apollo Bay Fishermen's Cooperative | Retail and distribution outlet for local fishers. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Apollo Bay Fishermen's Cooperative's functions may be relevant to the activity as they may represent professional fishers that operate within the Operational Area or EMBA. | Yes |
| South Eastern Professional Fishermen's Association Inc. | Represents the interests of local professional fishers. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>South Eastern Professional Fishermen's Association Inc's functions may be relevant to the activity as they may represent professional fishers that operate within the Operational Area or EMBA. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Warrnambool Professional Fishermen's Association | Represents the interests of local professional fishers. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Warrnambool Professional Fishermen's Association's functions may be relevant to the activity as they may represent professional fishers that operate within the Operational Area or EMBA. | Yes |
| Eastern Victorian Rock Lobster Industry Association | Represents the interests of local professional fishers. | Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Eastern Victorian Rock Lobster Industry Association's functions may be relevant to the activity as they may represent professional fishers that operate within the Operational Area or EMBA. | Yes |
| Recreational Marine Users, Tourism, and Representative Bodies | | | |
| Otway Recreational Marine Users | Otway-based recreational, tourism and charter operators. | Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Apollo Bay Dive Centre and Surf n Fish, Apollo Bay Fishing Charters, Apollo Bay Surf and Kayak, Dive Industry Association of Australia, Go Surf School, SCUBA Divers Federation of Victoria, Apollo Bay Surf Lifesaving Club, Apollo Bay Sailing Club, Ocean Racing Club of Victoria, Twelve Apostles Helicopters, Academy of Scuba, Allfresh Seafood, Anglesea Motor Yacht Club, Boating Industry Association of Victoria, Diving Industry Victoria, Paddle Victoria, Point Leo Boat Club, Port Fairy Yacht Club, Rye Yacht Club, Victoria Game Fishing Club, Warrnambool Yacht Club, Western Abalone Divers Association, Port Campbell Surf Lifesaving, Beach Patrol 3280.<br><br>Proposed activities have the potential to impact Otway region dive, surf, tourism and charter operator's functions, interests, or activities due to activities within the EMBA or Operational Area. | Yes |
| VR Fish | Peak body for recreational fishers in Victoria. | Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>VR Fish's functions may be relevant to the activity as they may represent recreational fishers within the EMBA or Operational Area. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Port Campbell Visitor Information Centre | Tourism body. | Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The Centre's area of interest and activity overlaps the EMBA. | Yes |
| Apollo Bay Visitor Information Centre | Tourism body. | Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The Centre's area of interest and activity overlaps the EMBA. | Yes |
| Warrnambool Visitor Information Centre | Tourism body. | Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>The Centre's area of interest and activity overlaps the EMBA. | Yes |
| Great Ocean Road Regional Tourism Ltd | Independent peak body for the tourism sector along the Great Ocean Road and Surf Coast, covering the geographical area of Torquay to the South Australian border, including the local government areas of Colac Otway, Corangamite, Moyne, Warrnambool, Glenelg and the Surf Coast. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>The area of responsibility of Great Ocean Road Regional Tourism overlaps the EMBA. | Yes |
| Twelve Apostles Tourism and Business Group | Membership-based organisation that provides leadership for the development and facilitation of local tourism and business initiatives. Based in Port Campbell. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>The area of responsibility of Twelve Apostles Tourism and Business Group overlaps the EMBA. | Yes |
| Titleholders and Operators | | | |
| Beach Energy | Titleholder or Operator. | Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations.<br><br>Titleholder or Operator's permit areas overlap the EMBA. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Cooper Energy | Titleholder or Operator. | Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations.<br><br>Titleholder or Operator's permit areas overlap the EMBA. | Yes |
| Conoco Phillips Australia | Titleholder or Operator. | Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations.<br><br>Titleholder or Operator's permit areas overlap the EMBA. | Yes |
| Peak Industry Representative Bodies | | | |
| Australian Energy Producers (AEP) | Represents the interests of oil and gas explorers and producers in Australia. | Woodside has applied its methodology for 'Peak Industry Representative bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>AEP's responsibilities are identified as having an intersect with Woodside's planned activities in the EMBA. | Yes |
| Traditional Custodians and Nominated Representative Corporations | | | |
| Bunurong Land Council Aboriginal Corporation | Representative Aboriginal Corporation. | Woodside has applied its methodology for 'Traditional Custodians' and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations.<br><br>BLCAC is a Registered Aboriginal Party (RAP) under the Aboriginal Heritage Act 2006 (Vic) for the country recognised as Bunurong/Boonwurrung (various spellings). BLCAC is legally recognised as the primary guardians, keepers and knowledge holders and experts of Aboriginal cultural heritage in their area. BLCAC membership is open to and representative of all Bunurong/Boonwurrung people.<br><br>There are no Prescribed Body Corporates (PBCs) under the Native Title Act 1993 (Cth) or Traditional Owner Corporations (TOCs) under the Traditional Owner Settlement Act 2010 over that area.<br><br>An application by some members of the Boonwurrung people lodged a Native Title claim over an overlapping area in 2021. This Native Title claim was not accepted by the National Native Title Registrar which means it did not meet all the requirements for a prima facie claim. An issue for this claim is that it is not representative or open to all members of the Bunurong/Boonwurrung people. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Eastern Maar Aboriginal Corporation (EMAC) | Representative Aboriginal Corporation. | Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations<br><br>EMAC is recognised as a PBC by the Federal Court as holding the Native Title rights and interests of the Eastern Maar People over most (not all) of their native title claim area. Some sections of overlap with neighbouring groups, the Gunditjmara and Wurundjeri, are still to be settled. EMAC is, however, a RAP under the Aboriginal Heritage Act 2006 (Vic) for Eastern Maar land and nearshore areas. | Yes |
| Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC) | Representative Aboriginal Corporation. | Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations.<br><br>GMTOAC is recognised as a PBC by the Federal Court as holding the Native Title rights and interests of the Gunditjmara People over most (not all) of their native title claim area. Some sections that overlap with neighbouring group, the Eastern Maar, are still to be settled. GMTOAC is, however, a RAP under the Aboriginal Heritage Act 2006 (Vic) for the areas of Gunditjmara land and waters for which it is recognised under native title. | Yes |
| Wadawurrung Traditional Owners Aboriginal Corporation | Representative Aboriginal Corporation. | Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations.<br><br>Wadawurrung is a RAP under the Aboriginal Heritage Act 2006 (Vic) for the country recognised as belonging to the Wadawurrung people. Wadawurrung is legally recognised as the primary guardians, keepers and knowledge holders and experts of Aboriginal cultural heritage in their area. Wadawurrung membership is open to and representative of all Wadawurrung people.<br><br>There are no PBCs under the Native Title Act 1993 (Cth) or TOCs under the Traditional Owner Settlement Act 2010 over that area.<br><br>Part of the Wadawurrung RAP is subject to a Native Title claim by the Eastern Maar people. | Yes |
| Gunaikurnai Land & Waters Aboriginal Corporation (GLWAC) | Representative Aboriginal Corporation. | Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations.<br><br>The GLWAC is recognised as a PBC by the Federal Court as holding the Native Title rights and interests of the Gunaikurnai People over their land, waters and | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | | nearshore areas. They are also recognised as a TOC under the Traditional Owner Settlement Act 2010 and are a RAP under the Aboriginal Heritage Act 2006. | |
| Native Title Representative Bodies | | | |
| First Nations Legal and Research Services (FNLRS) | Established in 2003, FNLRS is a Native Title service provider for Victorian Traditional Owners. As such, they are not a Prescribed or Registered Native Title Body Corporate but work with Traditional Owner groups who wish to pursue land justice outcomes in Victoria through formal recognition including through the provision of Community Liaison Officers, lawyers and researchers. | Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>FNLRS' functions may be relevant to the proposed activity in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation. | Yes |
| Flinders Island Aboriginal Association (FIAAI) | The Flinders Island Aboriginal Association Incorporated is an Aboriginal Community Controlled Organisation. Established in 1971 by a local Aboriginal group, FIAAI is governed by an Aboriginal Board of Management, elected by the local community. | Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 25(1)(d) of the Environment Regulations.<br><br>Woodside has chosen to consult FIAAI after receiving a recommendation to do so by BLCAC | No |
| Local Government and Community Representative Groups or Organisations | | | |
| Bass Coast Shire | Local government governed by the Local Government Act 2020 representing the suburbs and localities of Wonthaggi, Cowes, Inverloch, San Remo and Grantville. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations<br><br>The Bass Coast Shire's area of responsibility overlaps the EMBA. | Yes |
| Colac Otway Shire | Local government governed by the Local Government Act 2020 representing the suburbs and | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | localities of Colac and Elliminyt, Apollo Bay and Marengo. | The Colac Otway Shire's area of responsibility overlaps the EMBA. | |
| Corangamite Shire | Local government governed by the Local Government Act 2020 representing suburbs and localities in Barwon South West, including Port Campbell, Camperdown and Cobden. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Corangamite Shire's area of responsibility overlaps the EMBA. | Yes |
| Glenelg Shire | Local government governed by the Local Government Act 2020 representing suburbs and localities in Barwon South West, including Heywood, Merino and Portland. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Glenelg Shire's area of responsibility overlaps the EMBA. | Yes |
| Mornington Peninsula Shire | Local government governed by the Local Government Act 2020 in south-eastern Metropolitan Melbourne. It represents the wards of Briars, Cerberus, Nepean, Red Hill, Seawinds and Watson. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Mornington Peninsula Shire's area of responsibility overlaps the EMBA. | Yes |
| Moyne Shire | Local government governed by the Local Government Act 2020 representing suburbs and localities in Barwon South West, including the Shipwreck Coast and Port Fairy. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Moyne Shire's area of responsibility overlaps the EMBA. | Yes |
| South Gippsland Shire | Local government governed by the Local Government Act 2020 representing the suburbs and localities in south-eastern Victoria including Wilsons Promontory Mirboo North and Korumburra. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The South Gippsland Shire area of responsibility overlaps the EMBA. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Surf Coast Shire | Local government governed by the Local Government Act 2020 representing the suburbs and localities in Barwon South West including Torquay, Lorne and Aireys Inlet. It is the official start of the Great Ocean Road. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Surf Coast Shire's area of responsibility overlaps the EMBA. | Yes |
| City of Greater Geelong | Local government governed by the Local Government Act 2020 representing the suburbs and localities in Barwon South West region, including Belmont, Corio, Ocean Grove and Highton. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Greater Geelong Shire's area of responsibility overlaps the EMBA. | Yes |
| Borough of Queenscliffe | Local government governed by the Local Government Act 2020 representing the suburbs and localities in Barwon South West region, including Point Lonsdale, Queenscliff and Swan Island. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Borough of Queenscliffe's area of responsibility overlaps the EMBA. | Yes |
| Warrnambool City Shire Council | Local government governed by the Local Government Act 2020 in Barwon South West region, representing the urban district of Warrnambool. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Warrnambool City Shire Council's area of responsibility overlaps the EMBA. | Yes |
| Apollo Bay Chamber of Commerce | Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in Apollo Bay and surrounding areas. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br>The Apollo Bay Chamber of Commerce's interests have the potential to be impacted by the proposed activities. | Yes |
| Great Ocean Road Coast and Parks Authority | Delivers protection and management of the coast and parks of Victoria's Great Ocean Road. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | | The area of responsibility of Great Ocean Road Coast and Parks Authority overlaps the EMBA. | |
| Port Campbell Community Group | Local community group. | Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>The Port Campbell Community Group's interests have the potential to be impacted by the proposed activities. | Yes |
| Other Non-Government Groups or Organisations | | | |
| Australian Marine Oil Spill Centre Pty Ltd (AMOSC) | Non-government organisation. | Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Woodside has assessed that AMOSC is not a relevant person for this EP as they are directly advised of oil spill preparedness via Woodside's Oil Strike Plan. | No |
| Environment Victoria | Non-government organisation. | Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Woodside has assessed that Environment Victoria's public website material and feedback demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2). | Yes |
| Australian Coastal Society - Victorian Chapter | Non-government organisation. | Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Woodside has assessed that Australian Coastal Society – Victorian Chapter's public website material and feedback demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2). | Yes |
| Marine Mammal Foundation | Non-government organisation. | Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Woodside has assessed that Marine Mammal Foundation's public website material and feedback demonstrates an interest with the potential risks and | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | | impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2). | |
| Australian Conservation Foundation (ACF) | Non-government organisation. | Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Woodside has assessed that ACF's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2).<br><br>Woodside chose to contact ACF at its discretion in line with Section 5.3. | No |
| Australian Marine Conservation Society (AMCS) | Non-government organisation. | During the course of preparing the EP, AMCS self-identified, provided comment on the proposed activity and requested to be consulted. Woodside has applied its methodology for 'Additional persons' and 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Woodside has assessed that AMCS's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2).<br><br>Woodside chose to contact AMCS at its discretion in line with Section 5.3. | No |
| Greenpeace Australia Pacific (GAP) | Non-government organisation. | Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine GAP's relevance for the proposed activity.<br><br>Woodside has assessed that GAP's public website material does not demonstrate an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2).<br><br>Woodside chose to contact GAP at its discretion in line with Section 5.3. | No |
| Maritime Union of Australia (MUA) | Union representing members in the maritime industries. | Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine the MUA's relevance for the proposed activity. | Yes |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | | Woodside has assessed that the MUA's feedback demonstrates an intersect with potential risks and impacts specific to the proposed petroleum activity and is in accordance with the intended outcome of consultation (as set out in Section 5.2). | |
| Friends of the Earth Australia | Non-government organisation. | Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Friends of the Earth's relevance for the proposed activity.<br><br>Friends of the Earth self-identified in February 2023 in written correspondence to Woodside advising they represent 'a number of eNGOS' (these have not been identified to Woodside) who meet regularly to discuss the energy sector. The group has allocated Friends of the Earth to manage its decommissioning interests. | Yes |
| Research Institutes and Local Conservation Groups or Organisations | | | |
| Blue Whale Study | Research institute. | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Woodside has assessed that Blue Whale Study's public website material and feedback demonstrates an interest with the potential risks and impacts associated with planned activities in accordance with the intended outcome of consultation (as set out in Section 5.2). | Yes |
| Deakin University - School of Life and Environmental Sciences | Research institute. | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Deakin University – School of Life and Environmental Science's relevance for the proposed activity.<br><br>There is no known research being undertaken by the University that intersects within the EMBA.<br><br>Woodside chose to contact the University at its discretion in line with Section 5.3 of the EP. | No |
| Fisheries Research and Development Corporation | Co-funded partnership between the Australian Government and the fishing and aquaculture sectors. | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Fisheries Research and Development Corporation's relevance for the proposed activity. | No |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| | | There is no known research being undertaken by the Fisheries Research and Development Corporation that intersects within the EMBA.<br><br>Woodside chose to contact the Fisheries Research and Development Corporation at its discretion in line with Section 5.3 of the EP. | |
| Apollo Bay Landcare | Conservation group. | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Apollo Bay Landcare's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps Apollo Bay. | Yes |
| Otway Climate Emergency Action Network (OCEAN) | Community group. | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>OCEAN's activities have the potential to intersect with the EMBA as the EMBA overlaps the Southern Ocean and Otway Basin. | Yes |
| Otway Water | Community group. | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Otway Water's area of interest has the potential to intersect with the EMBA as the EMBA overlaps the Otway area. | Yes |
| Warrnambool Coastcare Landcare Network | Volunteer community organisation. | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations.<br><br>Warrnambool Coastcare Landcare Network's activities have the potential to intersect with the EMBA as the EMBA overlaps Warrnambool Coast. | Yes |
| Commonwealth Scientific and Industrial Research Organisation (CSIRO) | Research institute. | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine CSIRO's relevance for the proposed activity.<br><br>Woodside chose to contact CSIRO at its discretion in line with Section 5.3 of the EP. | No |

| Person or Organisation | Summary of functions, interests, or activities | Assessment of relevance | Relevant person |
|---|---|---|---|
| Australian Institute of Marine Science (AIMS) | Research institute | Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine AIMS's relevance for the proposed activity.<br><br>There is no known research being undertaken by the AIMS that intersects within the EMBA.<br><br>Woodside chose to contact AIMS at its discretion in line with Section 5.3 of the EP. | No |

# CONSULTATION ACTIVITIES

## Minerva Plug and Abandonment Environment Plan Consultation Activities

Woodside has been conducting extensive consultation with relevant persons and other parties for this EP since April 2022 (at the time as BHP). Consultation commenced with interested and affected stakeholders as part of a planned, integrated and consistent approach to stakeholder engagement for Woodside's proposed opportunities. A broad consultation process has been undertaken with relevant persons for the Minerva Plug and Abandonment Environment Plan. Consultation aims to be inclusive, transparent, voluntary, respectful and two-way. Consultation was undertaken by email, letter, phone call and/or meeting.

- In April 2022, Woodside (at the time as BHP) provided a Consultation Information Sheet to relevant persons, which included details such as an activity overview, map, a summary of key risks and/or impacts and management measures (**Record of Consultation, reference 1.1)**
- Woodside advertised the planned activities proposed for this EP in national, state and relevant local newspapers including The Australian, Herald Sun, Colac Herald, Cobden Times and Warrnambool Standard (see **Record of Consultation, reference 2.3**). Regional newspapers do not require subscription and are available (and in some cases delivered) directly to households. All communities within or adjacent to the EMBA had access to this information via this media. No direct comments or feedback were received from the advertisements.

| Newspaper | Coverage | Publication dates |
|---|---|---|
| The Australian | National | 17 May 2023 |
| Herald Sun | Regional (VIC) | 17 May 2023 |
| Colac Herald | Local (VIC) | 17 May 2023 |
| Cobden Times | Local (VIC) | 17 May 2023 |
| Warrnambool Standard | Local (VIC) | 17 May 2023 |

- In May 2023, Woodside provided an activity update Consultation Information Sheet to relevant persons and persons Woodside chose to contact (see **Section 5.3.4** in the EP), which included details such as an activity overview, maps, a summary of key risks and/or impacts and management measures (**Record of Consultation, reference 2.1**).
- In January 2024, Woodside provided a further activity update Consultation Information Sheet to relevant persons and persons Woodside chose to contact (see **Section 5.3.4**), which included an update regarding planned activities, including timing changes (**Record of Consultation, reference 3.1**).
- Since commencing the initial consultation period, a stakeholder Consultation Information Sheet has been available first on BHP's website (since April 2022, **Record of Consultation, reference 1.1**), then on Woodside's website (May 2023, **Record of Consultation, reference 2.1**). The activity update Consultation Information Sheet has been available on Woodside's website since January 2024 (**Record of Consultation, reference 3.1**). The Woodside Consultation Information Sheets include a toll-free 1800 phone number and Woodside's feedback email address (feedback@woodside.com).
- Additional targeted information was provided to relevant marine users including the AHO and AMSA – Marine Safety (**Record of Consultation, references 2.8 and 3.40**). This

information included maps and additional information relevant to the specific category of persons. The relevant persons had a 30-day period in which to provide feedback.

- Where appropriate, Woodside conducted phone calls and meetings with relevant persons.
- Where appropriate, targeted follow-up emails were sent to relevant persons who had not provided a response prior to the close of the target feedback period.
- Woodside considered relevant person responses and assessed the merits and relevance of objections and claims about the potential adverse impact of the proposed activity set out in the EP, in accordance with the intended outcome of consultation (see **Section 5.2** in the EP).
- Consultation activities undertaken with relevant persons are summarised at **Appendix F, Table 2**.
- Engagement undertaken with persons or organisations Woodside assessed as not relevant but chose to contact (see **Section 5.3.4** in the EP) or self-identified and Woodside assessed as not relevant are summarised at **Appendix F, Table 3**.

## Traditional Custodian Specific Consultation

In addition to the approaches above, additional activities were undertaken with relevant Traditional Custodians, which were specifically designed to provide for effective consultation with Traditional Custodians and so that information was provided in a form that was readily accessible and appropriate (see **Section 5.4** in the EP). Consultation undertaken specifically with Traditional Custodians for this Environment Plan includes:

- Direct consultation with nominated representative bodies via the contact listed on the Office of the Registrar of Indigenous Corporations (ORIC) website, requesting advice on how they would like to be engaged and asking whether other members and/or individuals should be consulted and requesting that information be shared with their members or any other Traditional Custodian groups or individuals they believe should receive the information and be consulted.. This has resulted in:
    - Meetings with directors, PBC representatives, Elders and any nominated representatives, by telephone and video conference, or in person on country
    - Requests and offers of resourcing to enable and support consultation
    - Exchange of written feedback and correspondence
    - Summary Consultation Information Sheet, developed and reviewed by Indigenous representatives in collaboration with technical experts to ensure content is appropriate to the intended recipients, was provided to relevant Traditional Custodian groups (Record of Consultation, references 2.2 and 3.2) and phone calls to provide context to the consultation made.
- Ongoing efforts were made to consult and develop relationships with these bodies via a variety of means such as email, phone calls, alternative contacts, texts and in some cases physical visits.
- Consultation meetings with attendees decided by Traditional Custodian groups, supported by senior Woodside representatives, subject matter experts and First Nations Relations advisers with skills and experience in community engagement. Meetings are developed through a two-way consultation process to enable effective information sharing via:
    - Mutually agreed agenda (with the aim of avoiding time pressure).

- Encouraging Traditional Custodian attendees to control the pace of the meeting and pause at any time to ask questions, seek clarification or provide feedback Visual aids such as presentations, simplified technical videos and real-world pictures and footage.
- Emphasis on potential planned and unplanned risks and impacts of the activity.
- Ample opportunity for questions and feedback.
- Discussion about ongoing relationship development and opportunities.
- Distribution of Consultation Information Sheets (**Record of Consultation, reference 2.1 and 3.1**) and Summary Consultation Information Sheets (**Record of Consultation, reference 2.2 and 3.2**).
- Meeting all reasonable costs such as sitting fees, travel, legal support and executive support and other reasonable support required.

Woodside has employed a diverse range of techniques to allow relevant persons to become aware of the proposed activity and how it may affect their functions, activities or interests, and to understand their ability to provide feedback. The combination of PBC consultation meetings and traditional print media advertising was designed with input from Indigenous representatives and adapted to the audience, so that it provides a wide-ranging opportunity to consult.

### *Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC) consultation*

Woodside contacted GMTOAC as the representative body for the Gunditjmara native title group and has been consulting with GMTOAC in this capacity since 17 May 2023 (See Figure 2). GMTOAC is the representative body as both the Prescribed Body Corporate under the *Native Title Act 1993* (Cth) and the Registered Aboriginal Party under the *Aboriginal Heritage Act 2006* (Vic).

Woodside rejects GMTOAC's assertion that Woodside has not provided an opportunity for GMTOAC members to be consulted adequately. In accordance with Woodside's consultation methodology, Woodside contacts Indigenous peoples' nominated representative entity, in this case, GMTOAC.

According to the United Nations Declaration of the Rights of Indigenous Peoples and contrary to GMTOAC's assertion, consultation is to take place through the Indigenous Peoples' chosen representative entity. In this case, GMTOAC is the representative entity. Woodside will not circumvent those processes.

Woodside provided opportunities for people to self-identify as relevant during the consultation period. The nature and scale of the decommissioning activity determined Woodside's consultation approach. This approach included:

- Analysis of the EMBA to identify relevant Traditional Owner groups to target for consultation. This is a broad and inclusive method of consultation.
- Running advertisements in national and Victorian newspapers with readership in the appropriate area.
- Making information about the activity available on the Woodside website since May 2023.
- Repeatedly asking Traditional Owner groups including GMTOAC to advise Woodside if there were other groups or individuals with whom Woodside should consult, and to forward Woodside's correspondence to their members or any other

Traditional Owner groups or individuals they believe should receive this information and who GMTOAC considers should be consulted.

Woodside has provided GMTOAC with details about the activity in the form of written summaries, maps, timelines, diagrams, in-person presentations and written responses to questions raised during presentations. Woodside has made this information available and has, on numerous occasions, asked GMTOAC as a representative body to share this information with its members or any other Traditional Custodian groups or individuals who GMTOAC considers should be consulted.

Woodside accepted an invitation from GMTOAC to participate in the GMTOAC 'Offshore Oil and Gas Consultation Day' with its members on 17 February 2024. GMTOAC advertised the consultation day to its members via Facebook on at least three different occasions. In the social media post GMTOAC said to its members, "*Help shape the feedback on these proposed activities*". Woodside attended the consultation day in good faith and made cultural heritage, environment, well delivery and decommissioning specialists available to answer questions from GMTOAC and its members.

Woodside understands the meeting on 17 February 2024 was recorded. This was not communicated to Woodside prior to the recording. Woodside sent a letter to GMTOAC on 13 March 2024 requesting a copy of the recording of the Woodside portion of the meeting, for its records. To date, GMTOAC has not provided Woodside with a copy of this recording. Woodside is not aware of the purpose of the recording, or if the recording was shared with GMTOAC members.

Environmental Justice Australia (EJA) was also in attendance at the GMTOAC consultation day. In February 2024, EJA published social media posts on Facebook and Instagram relating to their attendance at the GMTOAC consultation day. EJA said, they were "*assisting Traditional Owners in relation to the rapid growth of offshore oil and gas projects in the Otway Basin"* and that "*EJA lawyers are working hard to make sure that these companies do consultation properly and to support Traditional Owners in their fight to protect Sea Country".*

On 17 February 2024, Woodside attendees participated in a cultural tour at the Budj Bim Cultural Landscape World Heritage Area on Gunditjmara Country. Woodside understands EJA also participated in the cultural tour.

On 21 March 2024, Woodside received a letter from EJA, informing Woodside that EJA acts for GMTOAC in relation to the Minerva Plug and Abandonment and Field Maintenance activities.

From this point Woodside noticed a change, for example in attitude, approach and cooperation by GMTOAC towards consultation with Woodside. Since Woodside began consultation with GMTOAC in May 2023, more than 17 months ago, Woodside has sought confirmation from GMTOAC about how it would like to be consulted. Despite engaging cooperatively in consultation and discussions for almost a year, GMTOAC via EJA informed Woodside on 21 March 2024, 10 months after Woodside's initial contact with GMTOAC, that consultation had not even commenced and that a consultation plan setting out how GMTOAC would engage in consultation would be provided to Woodside by late May. Despite a number of requests for the consultation plan, Woodside has still not received a copy of it.

Woodside notes that GMTOAC published a newsletter with the heading 'Member News' in August 2024, that is publicly available on the GMTOAC website (www.gunditjmirring.com/news). The newsletter notes that a working draft of the 'Gunditjmara Consultation Protocol' (the Consultation Plan) was approved by the GMTOAC Board at its 5 July 2024 meeting. The newsletter states, "*Discussions and planning are currently underway with lawyers at EJA to determine the best way to release the Protocols to offshore petroleum proponents. EJA will advise on this in the near future. In the meantime,*

*GMTOAC has been advised to NOT share the Protocols with any proponents or NOPSEMA.*" Woodside refers to this in the absence of receiving any other consultation plan from GMTOAC.

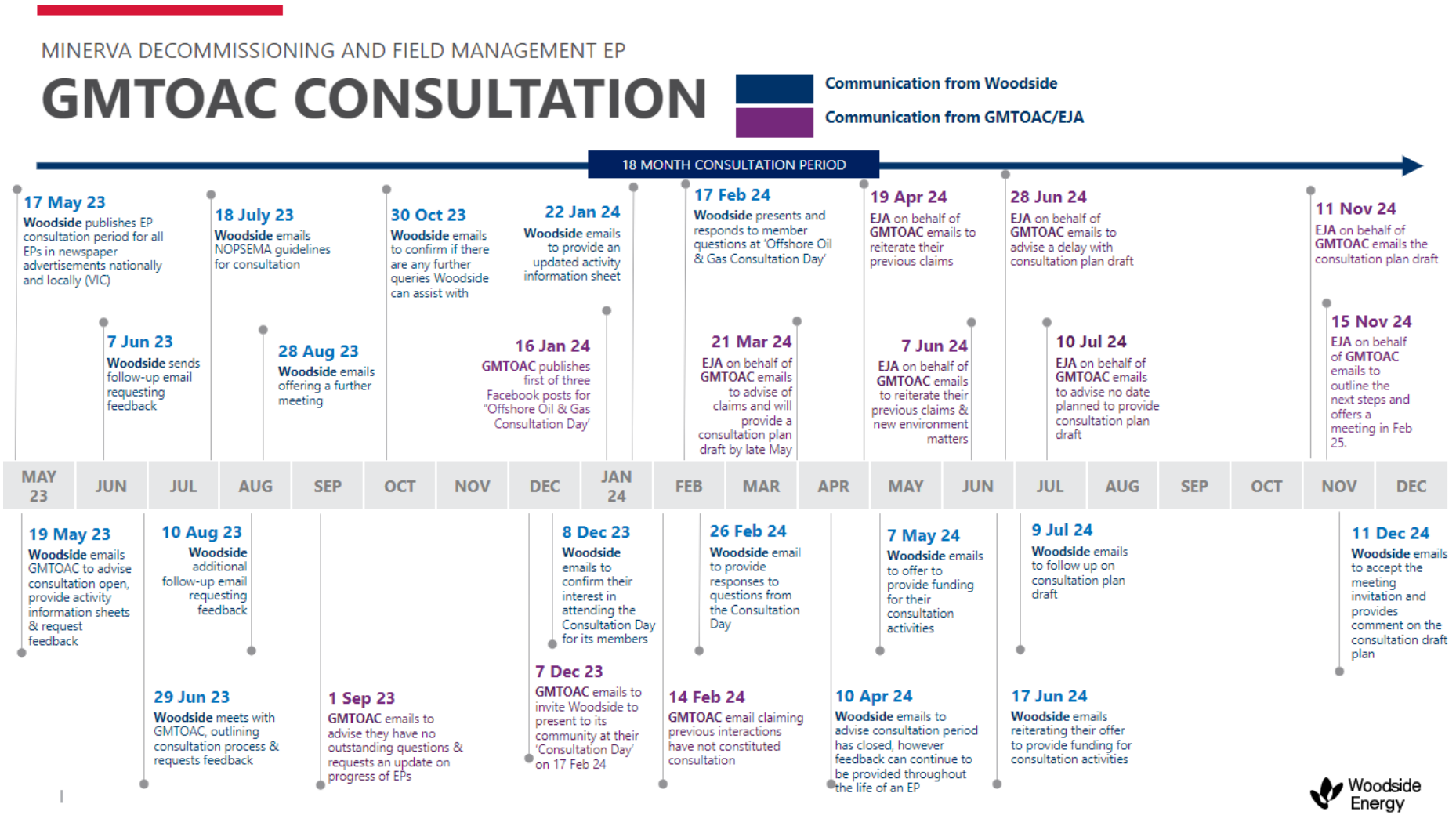
On 9 September 2024, EJA emailed Woodside a letter advising that the Consultation Plan was expected to be adopted at a full group meeting of Gunditjmara native title holders in late October 2024 and would be provided thereafter to titleholders.

The Consultation Plan was provided to Woodside on 11 November 2024. While the Consultation Plan sets out useful consultation protocols for GMTOAC (Woodside notes that the approach we undertook during consultation on the EPs aligns with a number of the protocols proposed in the new proposed Consultation Plan), it also included items which contravene the Regulations of which Woodside is working within. For example, GMTOAC's proposed Consultation Plan assumes GMTOAC to be the decision maker instead of NOPSEMA which is inconsistent with the Regulations.

Further, the Regulations state that if a person is approached for consultation and that person does not wish to engage in consultation, there is no requirement for consultation to proceed (a person cannot be forced to consult). As long as titleholders provide sufficient information, allow a reasonable period of time for consultation and provide reasonable opportunity for consulted persons to make an informed assessment of the possible consequences of the activities on their functions, interests and activities. It must be pragmatic and capable of performance. Woodside asserts that consultation has been in accordance with reasonable input from GMTOAC, has remained open to consulting with GMTOAC and has repeatedly provided opportunities and meetings to consult with GMTOAC and its membership.

Woodside reiterates that agreeing a consultation plan is not a prerequisite for consultation, and that consultation has occurred in parallel with discussions relating to the proposed Consultation Plan.

**Figure 2: Timeline of Consultation activity with *Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC)***



## Table 2: Consultation Report With Relevant Persons Or Organisations

| ***Commonwealth and Victorian Government Departments or Agencies – Marine*** | | |
|---|---|---|
| **Australian Border Force (ABF)** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with ABF for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Consultation Information provided to the ABF on 14 April 2022 based on their functions, interests or activities.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the ABF with the opportunity to provide feedback over a 30-month period.<br>**Summary of information provided and record of consultation:**<br>• On 14 April 2022, Woodside emailed ABF advising of the proposed activity (Record of Consultation, reference 1.10) and provided a Consultation Information Sheet.<br>• On 31 May 2023, Woodside emailed ABF advising of the proposed activity (Record of Consultation, reference 2.4) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*<br>• On 22 June 2023, Woodside emailed ABF advising of the proposed activity (Record of Consultation, reference 2.4.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed ABF advising of the proposed activity (Record of Consultation, reference 3.11) and provided an updated Consultation Information Sheet.<br>• On 25 January 2024, Woodside sent a reminder email to ABF advising of the proposed activity (Record of Consultation, reference 3.11.1). | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Australian Fisheries Management Authority (AFMA)** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AFMA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Consultation Information provided to AFMA on 14 April 2022 based on their functions, interests or activities. | | |

- Woodside has provided a link to NOPSEMA's brochure Consultation on offshore petroleum environment plans: Information for the community.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to AFMA over a 26-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed AFMA advising of the proposed activity (Record of Consultation, reference 1.9) and provided a Consultation Information Sheet.
- On 19 April 2022, AFMA responded via email and:
  - **(1)** Advised it had no specific comments on the proposal.
  - **(2)** Encouraged Woodside to continue engaging directly with potentially impacted Commonwealth fishing stakeholders in the area and included a link to a website that outlines how AFMA engages with the petroleum sector.
- On 23 May 2022, Woodside thanked AFMA for their reply, stating it notes the feedback.
- On 31 May 2022, Woodside emailed AFMA advising of the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 2 June 2023, AFMA responded via email and:
  - **(1)** Advised it had no specific comments on the proposal.
  - **(2)** Encouraged Woodside, if it had not already done so, to engage directly with relevant fishing stakeholders and included contact details for relevant industry associations. AFMA specifically identified the Bass Strait Central Zone Scallop Fishery, CFA, Tasmanian Industry Seafood Council (TISC), Small Pelagic Fishery, South East Trawl Fishery Industry Association, Southern and Eastern Scalefish and Shark Fishery and Southern Shark Industry Alliance Inc.
- On 22 June 2023, Woodside emailed AFMA advising of the proposed activity (Record of Consultation, reference 2.7.1) and provided a Consultation Information Sheet.
- On 10 August 2023, Woodside responded to AFMA to provide confirmation that Woodside has provided information to relevant fishery licence holders as well as representative organisations on behalf of Commonwealth fishing licence holders who have entitlements to fish within the proposed area. Woodside attached a relevant map to show the EMBA.
- On 12 January 2024, Woodside emailed AFMA advising of the proposed activity (Record of Consultation, reference 3.41) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to AFMA advising of the proposed activity (Record of Consultation, reference 3.41.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| AFMA:<br>**(1)** Advised it had no specific comments on the proposal.<br>**(2)** Encouraged Woodside to consult directly with fishing operators who have entitlements to fish within the proposed area.<br>Whilst feedback has been received, there were no objections or claims. | Woodside:<br>**(1)** Noted AFMA had no comments on the proposal.<br>**(2)** Confirmed it had provided consultation information to relevant fishery licence holders as well as representative organisations on behalf of Commonwealth fishing licence holders who have entitlements to fish within the proposed area.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it | **(1)** Not required.<br>**(2)** Woodside has assessed the potential for interaction with Commonwealth- and State-managed fisheries in Section 4.6.2 of this EP.<br>Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth |

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| | will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of activities as referenced as PS 1.4 in this EP.<br>No additional controls or measures are required. |

**Australian Hydrographic Office (AHO)**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AHO for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to the AHO on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has addressed and responded to the AHO over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed the AHO advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet.
- **(1)** On 14 April 2022, AHO sent an automated response, acknowledging receipt of Woodside's email. It advised that the data supplied would be registered, assessed, prioritised and validated in preparation for updating Navigational Charting products.
- On 31 May 2023, Woodside emailed AHO advising of the proposed activity (Record of Consultation, reference 2.8) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- **(1)** On 31 May 2023, AHO responded, acknowledging receipt of Woodside's email. It advised that the data supplied would be registered, assessed, prioritised and validated in preparation for updating Navigational Charting products.
- On 12 January 2024, Woodside emailed AHO advising of the proposed activity (Record of Consultation, reference 3.40) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to AHO advising of the proposed activity (Record of Consultation, reference 3.40.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| **(1)** The AHO acknowledged receipt of Woodside's email and noted the data would be assessed, prioritised and validated for updating on navigational charts.<br>Whilst feedback has been received, there were no objections or claims. | **(1)** Woodside noted AHO's acknowledgement of its email and that it had no specific feedback for this EP.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required.<br>Woodside will notify the AHO no less than four working weeks before activities commence, as referenced as a PS 1.3 in this EP.<br>No additional measures or controls are required. |

**Australian Maritime Safety Authority (AMSA) — Marine Safety**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AMSA — Marine Safety for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to AMSA — Marine Safety on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to AMSA — Marine Safety over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed AMSA — Marine Safety advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet.
- On 20 April 2022, AMSA — Marine Safety responded via email and requested that Woodside:
  - **(1)** Contacts the Australian Hydrographic Office (AHO) no less than four weeks before operations commence, detailing relevant details. The AHO will then promulgate the appropriate Notice to Mariners (NTM).
  - **(2)** Notifies AMSA's Joint Rescue Coordination Centre (JRCC) 24-48 hours before operations commence. This must include:
    - Vessel details (name, callsign and Maritime Mobile Service Identity (MMSI))
    - Satellite communications details (including INMARSAT-C and satellite telephone numbers),
    - Area of operation,
    - Requested clearance from other vessels,
    - Any other information that may contribute to safety at sea,
    - When operations start and end.
  - The JRCC will then promulgate radio-navigation warnings.
  - **(3)** Provides updates to both the AHO and JRCC on updates and changes to the intended operations.

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| ○ **(4)** Ensures that vessels comply with the Convention on the International Regulations for Preventing Collisions at Sea (COLREGs), including using appropriate lights and accurate navigation status in the Automatic Identification System (AIS). For this purpose, AMSA provided instructions on how to obtain a vessel traffic plot showing AIS data for the area.<br>• On 23 May 2022, Woodside replied, noted AMSA — Marine Safety's feedback and committed to:<br>○ Notify the AHO no less than four weeks before operations commence with the relevant details.<br>○ Notify AMSA's JRCC at least 24-48 hours before operations commence with the requested details, including when operations start and end.<br>○ Provide the AHO and JRCC with updates on progress and intended changes. Comply with the COLREGs, including ensuring accurate navigation status in the AIS of any vessels.<br>• On 31 May 2023, Woodside emailed AMSA — Marine Safety advising of the proposed activity (Record of Consultation, reference 2.8) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 22 June 2023, Woodside sent a reminder email to AMSA — Marine Safety advising of the proposed activity (Record of Consultation, reference 2.8.1) and provided a Consultation Information Sheet.<br>• **(5)** On 27 June 2023, AMSA — Marine Safety responded that they are satisfied with the mitigation measures listed in the EP from a safety of navigation perspective. They also made the following requests that Woodside:<br>○ Contact the Australian Hydrographic Office (AHO) no less than four weeks before operations commence, detailing relevant details. The AHO will then promulgate the appropriate Notice to Mariners (NTM).<br>○ Notify AMSA's Joint Rescue Coordination Centre (JRCC) 24-48 hours before operations commence. This must include:<br>▪ vessel details (name, call-sign and Maritime Mobile Service Identity (MMSI))<br>▪ satellite communications details (including INMARSAT-C and satellite telephone numbers)<br>▪ area of operation<br>▪ requested clearance from other vessels<br>▪ when operations start and end.<br>○ The JRCC will then promulgate radio-navigation warnings.<br>• **(4)** Ensure that vessels comply with the COLREGs, including using appropriate lights and accurate navigation status in the Automatic Identification System (AIS). For this purpose, AMSA — Marine Safety provided instructions on how to obtain a vessel traffic plot showing AIS data for the area.<br>• On 21 July 2023, Woodside replied, noted AMSA — Marine Safety's feedback and committed to:<br>○ Notify the AHO no less than four weeks before operations commence with the relevant details.<br>○ Notify AMSA's JRCC at least 24-48 hours before operations commence with the requested details, including when operations start and end.<br>○ Provide the AHO and JRCC with updates on progress and intended changes.<br>○ Comply with the COLREGs, including exhibiting appropriate lights and shapes.<br>• On 12 January 2024, Woodside emailed AMSA — Marine Safety advising of the proposed activity (Record of Consultation, reference 3.40) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to AMSA – Marine Safety advising of the proposed activity (Record of Consultation, reference 3.40.1). | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |

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| AMSA — Marine Safety requested that Woodside:<br>**(1)** Notifies the Australian Hydrographic Office (AHO) no less than four weeks before operations commence, detailing relevant details.<br>**(2)** Notifies AMSA's Joint Rescue Coordination Centre (JRCC) 24-48 hours before operations commence, with requested details.<br>**(3)** Provides the AHO and JRCC with updates on progress and changes.<br>**(4)** Ensures that vessels comply with the Convention on the International Regulations for Preventing Collisions at Sea (COLREGs).<br>In addition:<br>**(5)** AMSA noted they are satisfied with the mitigation measures outlined in the EP from a safety of navigation perspective.<br>Whilst feedback has been received, there were no objections or claims. | Woodside confirmed it will:<br>**(1)** Notify the AHO no less than four weeks before operations commence with the relevant details.<br>**(2)** Notify AMSA's JRCC at least 24-48 hours before operations commence with the requested details, including when operations start and end.<br>**(3)** Provide the AHO and JRCC with updates on progress and intended changes.<br>**(4)** Comply with the COLREGs.<br>In addition:<br>**(5)** Woodside noted that AMSA — Marine Safety is satisfied with the mitigation measures outlined in the EP from a safety of navigation perspective.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Woodside will notify AHO no less than four working weeks before operations commence, referenced as PS 1.3 in this EP.<br>**(2)** Woodside will notify AMSA's JRCC at least 24–48 hours before operations commence, referenced as PS 1.6 in this EP.<br>**(3)** Woodside will provide updates to the AHO and AMSA's JRCC with progress and changes, as referenced in Section 9.8, PS 1.3, and PS 1.6 of this EP.<br>**(4)** Woodside will comply with the COLREGs. For example, Section 7 of the EP contains several controls that address AMSA's feedback on COLREG compliance, including lighting.<br>**(5)** Not required.<br>No additional measures or controls are required. |

**Australian Maritime Safety Authority (AMSA) — Marine Pollution**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AMSA — Marine Pollution for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to AMSA — Marine Pollution on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure Consultation on offshore petroleum environment plans: Information for the community.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided AMSA — Marine Pollution with the opportunity to provide feedback over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed AMSA — Marine Pollution advising of the proposed activity (Record of Consultation, reference 1.7) and provided a Consultation Information Sheet.
- On 31 May 2023, Woodside emailed AMSA — Marine Pollution advising of the proposed activity (Record of Consultation, reference 2.9) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

- On 22 June 2023, Woodside sent a reminder email to AMSA — Marine Pollution advising of the proposed activity (Record of Consultation, reference 2.9.1) and provided a Consultation Information Sheet.
- On 11 December 2023, Woodside sent AMSA — Marine Pollution the project's activity-specific Oil Pollution First Strike Plan and offered the opportunity to review or provide comment (Record of Consultation, reference 2.9.2)
- On 12 January 2024, Woodside emailed AMSA — Marine Pollution advising of the proposed activity (Record of Consultation, reference 3.48) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to AMSA — Marine Pollution advising of the proposed activity (Record of Consultation, reference 3.48.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has addressed oil pollution planning and response in the Oil Pollution Emergency Plan (OPEP) (Appendix E).<br>No additional measures or controls are required. |

**Department of Agriculture, Fisheries and Forestry (DAFF) — Fisheries**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DAFF — Fisheries for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to DAFF — Fisheries (formerly Department of Agriculture, Water, and the Environment (DAWE)) on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided DAFF — Fisheries with the opportunity to provide feedback over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed DAFF — Fisheries, advising of the proposed activity (Record of Consultation, reference 1.6) and provided a Consultation Information Sheet.
- On 31 May 2023, Woodside emailed DAFF — Fisheries advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to DAFF — Fisheries advising of the proposed activity (Record of Consultation, reference 2.10.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed DAFF — Fisheries advising of the proposed activity (Record of Consultation, reference 3.13) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to DAFF — Fisheries advising of the proposed activity (Record of Consultation, reference 3.13.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed fisheries in Section 4.4.2 of this EP.<br>Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of activities as referenced as PS 1.4 in this EP.<br>No additional controls or measures are required. |
| **Department of Defence (DoD)** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DoD for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to DoD on 31 May 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has addressed and responded to the DoD over a 16-month period.<br>**Summary of information provided and record of consultation:**<br>• On 31 May 2023, Woodside emailed DoD advising of the proposed activity (Record of Consultation, reference 2.15) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*. | | |

- On 23 June 2023, Woodside sent a reminder email to DoD advising of the proposed activity (Record of Consultation, reference 2.15.1) and provided a Consultation Information Sheet.
- On 11 July 2023, DoD thanked Woodside for its email and provided this feedback:
  - **(1)** The activity areas are located within restricted airspace.
  - **(2)** Unexploded ordinance (UXO) may be present on and in the seafloor. Woodside must inform itself as to the risks associated with conducting activities in that area, with the Commonwealth of Australia taking no responsibility for reporting the UXO in the area, identifying or removing UXO from the area, or any loss or damage suffered or incurred by Woodside or any third party arising out of, or directly related to, UXO in the area.
  - **(3)** DoD's notification requirements include liaising with the Australian Hydrographic Service/Office (AHS/AHO) for Notices to Mariners (NOTMAR).
- On 21 July 2023, Woodside thanked DoD for its feedback and confirmed:
  - It had noted the location of activity areas and the presence of exercise areas and restricted airspace.
  - It had noted the advice regarding location, identification, removal or damage to equipment from unexploded ordinances (UXOs).
  - The Australian Hydrographic Service/Office (AHS/AHO) has already been engaged for this activity and is part of the activity notification protocols. At its request, the AHS/AHO will be notified four weeks prior to activity commencement.
  - Woodside notes the DoD requirement to engage with Airservices Australia if the restricted airspace is activated. Woodside will confirm restricted air space status with the DoD as part of its commencement of activity notification. Woodside will notify the DoD at least five weeks prior to the commencement of activities.
- On 12 January 2024, Woodside emailed DoD advising of the proposed activity (Record of Consultation, reference 3.38) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to DoD advising of the proposed activity (Record of Consultation, reference 3.38.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| DoD provided feedback on:<br>**(1)** The location of exercise areas and restricted airspace.<br>**(2)** The risk of unexploded ordinance (UXO) in the area.<br>**(3)** The need for Woodside to continue liaising with the AHO and ensure AHO is notified three weeks prior to the actual commencement of activities.<br>Whilst feedback has been received, there were no objections or claims. | Woodside assessed DoD's feedback and confirmed:<br>**(1)** It had noted DoD's advice on the location of activity areas within an exercise area and restricted airspace.<br>**(2)** It had noted the DoD's advice with respect to the risk, location, identification, removal or damage from any UXO.<br>**(3)** The AHS/AHO had been engaged by Woodside for these activities and is included in Woodside's activity notification protocols. At its request, the AHO will be notified four weeks prior to the start of activities.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1, 2)** Woodside has recorded the defence areas, facilities and UXOs overlapping the Operational Area and/or EMBA in Section 4.6.6 of this EP.<br>Further, Woodside will notify DoD five weeks before the proposed activities commence, as referenced in PS 1.5. This notice shall include advice from Airservices Australia about the status of the airspace in relation to the petroleum activity, as described in Section 9.8.1.1 of this EP.<br>**(3)** Woodside will notify the AHO no less than four working weeks before operations commence as referenced in PS 1.3 in this EP. |

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| | | Woodside considers the measures and controls in the EP are appropriate |

**Department of Energy, Environment, and Climate Action (DEECA) - Earth Resources Regulator | Resources Victoria**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DEECA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to DEECA (previously managed by Department of Jobs, Precincts and Regions (DJPR): Earth Resources Regulation and The Department of Environment, Land, Water and Planning (DELWP)) on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure Consultation on offshore petroleum environment plans: Information for the community.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to DEECA over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed DEECA advising of the proposed activity (Record of Consultation, reference 1.12) and provided a Consultation Information Sheet.
- **(1)** On 20 April 2022, DEECA replied via email (then under the name DJPR), requesting to be engaged about decommissioning of the Minerva pipeline within the State waters jurisdiction.
- On 23 May 2022, DEECA attended a meeting with Department of Transport and Planning (DTP), Woodside, and other stakeholders to discuss marine pollution response engagements for this EP.
- On 13 June 2022, Woodside emailed DEECA (and other participants from the 23 May 2022 meeting, including DTP) the presentation material and meeting wrap-up.
- **(2)** On 13 June 2022, DEECA replied via email. They confirmed that they (at the time under the name DELWP) were responsible for establishing and coordinating a wildlife response under the DTP Incident Management Team (IMT) in case of a marine pollution emergency within Victoria.
- On 14 June 2022, Woodside emailed DEECA, thanking them for their reply and for detailing their response arrangements for wildlife, in case of a potential oil spill.
- On 30 June 2022, Woodside emailed DEECA and DTP several documents:
  - Minerva Field Decommissioning Oil Pollution Emergency Plan (Rev 0) (00MC-BHP-N00-0002)
  - Minerva Field Emergency Response: Basis of Design and Field Capability Assessment (Rev 0) (00MC-BHP-N00-0003)
  - Corporate Incident Coordination Centre (CICC) Capability Assessment Report (Rev 4) (AOHSE-ER- 0071)
  - Minerva Field: Operational and Scientific Monitoring Bridging Implementation Plan (Rev 0) (00MC- BHP-N00-0004).
- On 1 June 2023, Woodside emailed DEECA advising of the proposed activity (Record of Consultation, reference 2.17) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to DEECA advising of the proposed activity (Record of Consultation, reference 2.17.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed DEECA advising of the proposed activity (Record of Consultation, reference 3.35) and provided an updated Consultation Information Sheet

- On 25 January 2024, Woodside sent a reminder email to DEECA advising of the proposed activity (Record of Consultation, reference 3.35.1)
- On 12 February 2024, DEECA responded and:
  - **(3)** Advised that, as Regulator, feedback is limited to process matters at this time.
  - **(4)** Noted Woodside's recent meeting with NOPSEMA around this project. It recommended that the EP for the activities in Vic waters be submitted to DEECA at the same time that the EP is submitted to NOPSEMA (for the same activity in Commonwealth waters) as the pipeline removal is intended to be carried out in a single campaign.
- On 13 February 2024, Woodside emailed DEECA and:
  - Noted that DEECA is the Regulator and current feedback is only on process matters.
  - Confirmed Woodside's intention to align the timing of the submission of the two Commonwealth EPs with the State Minerva EP at the end of February 2024, subject to the close out of any ongoing consultation.
  - Shared timeframes for the new Commonwealth EP submission approx 5 business days prior to the State EP, to accommodate the NOPSEMA 5 business day "completeness check".
  - Confirmed that, based on that EP passing the completeness check, the EPs would commence assessment with the respective regulators at the same time.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| DEECA:<br>**(1)** Requested to be kept updated on decommissioning of the Minerva pipeline within the State waters jurisdiction.<br>**(2)** Confirmed they (at the time DELWP) were responsible for establishing and coordinating a wildlife response under the DTP IMT in case of a marine pollution emergency.<br>**(3)** Advised that only process matters feedback is appropriate at this time, as they are a Regulator.<br>**(4)** Noted Woodside's recent meeting with NOPSEMA on this project, recommending all relevant Commonwealth EPs be submitted at the same time as State.<br>Whilst feedback has been received, there were no objections or claims. | Woodside:<br>**(1)** Noted DEECA's request to be engaged about decommissioning of the Minerva pipeline in State waters.<br>**(2)** Noted the responsibilities of DEECA.<br>**(3)** Noted DEECA's role as Regulator and that any response will only relate to processes, at this time<br>**(4)** Confirmed that Woodside aims to submit the 2 Commonwealth EPs and State Minerva EP at the same time, late February, based on the completeness check approval by NOPSEMA.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required. As described in Section 1.3 of this EP, the pipeline in Victorian coastal waters is outside of the scope of this EP.<br>**(2-4)** Not required.<br>No additional measures or controls are required. |

**Department of Transport and Planning (DTP)**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DTP for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to the DTP on 14 April 2022 based on their functions, interests or activities.

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to the DTP over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed DTP advising of the proposed activity (Record of Consultation, reference 1.16) and provided a Consultation Information Sheet.
- On 23 May 2022, Woodside attended a meeting with DTP and other stakeholders to discuss marine pollution response arrangements for this EP.
- On 13 June 2022, Woodside emailed DTP (and other participants from the 23 May 2022 meeting) the presentation material and meeting notes.
- On 30 June 2022, Woodside emailed DTP several documents for review:
  - Minerva Field Decommissioning Oil Pollution Emergency Plan (OPEP) (Rev 0) (00MC-BHP-N00-0002)
  - Minerva Field Emergency Response: Basis of Design and Field Capability Assessment (Rev 0) (00MC-BHP-N00-0003)
  - Corporate Incident Coordination Centre (CICC) Capability Assessment Report (Rev 4) (AOHSE-ER- 0071)
  - Minerva Field: Operational and Scientific Monitoring Bridging Implementation Plan (Rev 0) (00MC- BHP-N00-0004)
- On 2 August 2022, DTP responded and:
  - **(1)** Provided comments for inclusion in the OPEP.
  - Provided updated details for 24-hour reporting processes.
  - **(2)** Asked if the Tactical Response Plans (TRPs) will be or had been done in consultation with the DTP.
- On 22 August 2022, Woodside responded with an updated version of the OPEP and committed to following up with the JV Partner (who created the TRPs) to identify DTP's involvement.
- On 19 June 2023, Woodside emailed the DTP advising of the proposed activity (Record of Consultation, reference 2.37) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 16 November 2023, Woodside sent a reminder email to DTP advising of the proposed activity (Record of Consultation, reference 2.37.1) advising of a two-week period to respond.
- On 11 December 2023, Woodside sent DTP Victoria the project's activity-specific Oil Pollution First Strike Plan and offered the opportunity to review or provide comment (Record of Consultation, reference 2.37.2)
- On 13 December 2023, DTP responded with:
  - **(3)** The latest version of the Victorian Joint Industry and State Oil Pollution Response Guidance Note attached to assist Woodside with the development of the
  - EPs.
  - A request to update DTP contact details for notification of marine pollution incidents.
  - **(4)** Questions to clarify if the Oil Pollution First Strike Plans was in lieu of the Oil Pollution Emergency Plan (OPEP).
- On 11 January 2024, Woodside emailed DTP thanking them for the review, and:
  - Said Woodside would review the Guidance Note.
  - Acknowledged the latest contact details for incidents.

- Confirmed that the Oil Pollution First Strike Plan is one of two main documents that form Woodside's OPEP, both of which sit as separate appendices in the EP.
- Explained the function of each of the two documents.
- Offered to set up some time to discuss Woodside's approach to oil spill emergency planning.

- On 12 January 2024, Woodside emailed DTP advising of the proposed activity (Record of Consultation, reference 3.29) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to DTP advising of the proposed activity (Record of Consultation, reference 3.29.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| DTP:<br>**(1)** Sent updates for Woodside to include in the original OPEP.<br>**(2)** Asked about DTP's involvement in TRPs.<br>**(3)** Sent Woodside the latest Guidance Note on State response.<br>**(4)** Asked if the First Strike Plan received was in lieu of the OPEP.<br>While feedback has been received, there were no objections or claims. | Woodside:<br>**(1)** Incorporated DTP's updates into the original OPEP<br>**(2)** Committed to follow up on DTP's involvement with TRPs<br>**(3)** Acknowledged receipt and review of the Guidance Note<br>**(4)** Confirmed the two main documents that form Woodside's OPEP and offered to meet to discuss further.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** DTP's feedback has been considered as part of the development of the original OPEP.<br>**(2, 3)** Not required.<br>**(4)** Not required. Appendix E includes the Oil Pollution Emergency Plan (OPEP).<br>No additional measures or controls are required. |

**Department of the Premier and Cabinet (DPC) – First Nations State Relations**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DPC – First Nations State Relations for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to DPC – First Nations State Relations on 15 January 2024 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has addressed and responded to the DPC – First Nations State Relations over a 9-month period.

**Summary of information provided and record of consultation:**

- On 15 January 2024, DPC – First Nations State Relations emailed Woodside requesting to meet to discuss the Minerva EPs.
- On 15 January 2024, Woodside emailed DPC – First Nations State Relations providing the updated Consultation Information Sheet and arranged a meeting for 17 January 2024 (Record of Consultation, reference 3.47).
- On 17 January 2024, Woodside met with DPC – First Nations State Relations and provided an overview of Minerva decommissioning activities and timeframes for the activities and the EP submissions.
  - At the meeting DPC asked:

- **(1)** How the pipeline would be removed.
  - Woodside advised the pipeline would be cut up and placed on to vessels.

  **(2)** What Woodside has done to gain an understanding of cultural impacts, specifically potential impacts of upcoming activities on sea country and submerged cultural landscapes.
  - Woodside advised it had engaged a maritime archaeologist who will use available geophysical data such as sonar mapping to gain an understanding of seabed landforms. Woodside was compiling this into a report on prospective underwater cultural heritage in the project area.
- **(3)** How consultation was going with the Registered Aboriginal Parties (RAPS).
  - Woodside advised various levels of consultation had occurred over the past 7-8 months and was ongoing.
- **(4)** If Woodside had engaged with Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC).
  - Woodside advised it had and was attending the GMTOAC session on February 17, 2024 meeting in Victoria.
  - DPC advised that they were facilitating the day and that this type of engagement had been very successful in other regions.
- **(5)** DPC responded to a previously emailed Woodside question on how to get access to the Aboriginal Cultural Heritage Register and Information Session (ACHRIS) and advised that Woodside could apply for an account directly or the Consultant could do the search on Woodside's behalf. DPC also confirmed that you can upload shape files.
- Woodside asked about the role of the First Peoples – State Relations group.
  - **(6)** DPC advised that First People – State Relations administers the Aboriginal Heritage Act. Heritage Victoria manages historic heritage including shipwrecks as the delegated authority for Victoria for the Commonwealth UCH Act but Heritage Victoria and First Peoples – State Relations have an MOU enabling First Peoples.

- On 17 January 2024, Woodside emailed the DPC confirming and summarising the earlier meeting content.
- On 24 January 2024, Woodside submitted an Application for Advice – Victorian Aboriginal Heritage Register, using the DPC ACHRIS online portal.
- On 15 February 2024, DPC emailed the Certificate of Advice in response to Woodside's Application for Advice – Victorian Aboriginal Heritage Register.
- On 20 February 2024, Woodside emailed DPC seeking to clarify the Certificate of Advice in relation to the presence of offshore cultural heritage sites and confirm that there were no places intersecting the Operational Area.
- On 29 February 2024, DPC emailed Woodside clarifying that the places in the Certificate of Advice are not located near Woodside's activities.
- On 29 February 2024, Woodside emailed DPC thanking them for the clarification.

| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
|---|---|---|
| DPC:<br>**(1)** Queried how the pipeline would be removed.<br>**(2)** Requested to understand what had been done to gain an understanding of cultural impacts, specifically impacts of activities on sea country and submerged cultural landscapes.<br>**(3)** Enquired about consultation with traditional owners.<br>**(4)** Enquired specifically about consultation with Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC). | Woodside:<br>**(1)** Advised the pipeline would be dismantled and removed via vessels.<br>**(2)** Advised DPC it was using geophysical data to understand seabed landforms and this would be compiled into a report on prospective underwater cultural heritage.<br>**(3)** Has consulted with traditional owners as summarised in the *Traditional Custodians and Nominated Representative Corporations* section of this Table 2. | **(1)** Section 3 of this EP describes the proposed removal activities.<br>**(2)** Woodside has updated Section 7.3.6 to require a review of existing data by a suitably qualified maritime archaeologist.<br>**(3)** Consultation with Traditional Owners is captured within this Table 2.<br>**(4)** Consultation with GMTOAC is captured within this Table 2. |

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| **(5)** Provided advice on how to gain access to the Aboriginal Cultural Heritage Register and Information Session (ACHRIS).<br>**(6)** Advised Woodside on DPC's role in administering the Aboriginal Heritage Act.<br>Whilst feedback has been received, there were no objections or claims. | **(4)** Confirmed consultation had occurred with GMTOAC as summarised in this Table 2. Woodside confirmed attendance at a GMTOAC meeting that occurred on February 17 2024.<br>**(5)** Noted the advice on how to access ACHRIS and committed to gaining access for the purposes of this EP.<br>**(6)** Acknowledged it understood the function and responsibilities of DPC.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(5)** Woodside has captured output from the ACHRIS in Section 4.6.1.5 of the EP.<br>**(6)** Not required.<br>No additional measures or controls are required. |

**Heritage Victoria**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Heritage Victoria for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Heritage Victoria on 20 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has addressed and responded to Heritage Victoria over a 16-month period.

**Summary of information provided and record of consultation:**

- On 20 June 2023, Woodside emailed Heritage Victoria advising of the proposed activity (Record of Consultation, reference 2.38) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 26 June 2023, Heritage Victoria emailed Woodside and:
  - **(1)** Advised of relevant Heritage Acts including *Underwater Cultural Heritage Act 2018* and protections to archaeological sites, shipwrecks and aircraft wrecks as well as submerged Aboriginal heritage sites, and noted that Heritage Victoria has delegated responsibilities in Commonwealth waters off Victoria.
  - **(2)** Advised Woodside to undertake an impact assessment and management plan for underwater cultural heritage that may be impacted.
  - **(3)** Attached the Underwater Cultural Heritage Guidance for Offshore Developments produced by the Commonwealth.
- On 4 July 2023, Woodside emailed Heritage Victoria thanking for the Guidance and acknowledging the various Heritage Acts and their application. Woodside:
  - Confirmed that an impact assessment is appropriate and will be undertaken for the proposed decommissioning activities including a review of relevant heritage databases.
  - Clarified that the *Underwater Cultural Heritage Act 2018* applies to submerged Aboriginal heritage sites where these were subject to a declaration under section 17 of that Act. However, as a principal of good practice and in accordance with Woodside's First Nations Communities Policy, Woodside will act to avoid damage or disturbance to such sites in close consultation with First Nation communities and Traditional Custodians.
  - Shared its First Nations Communities Policy.

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| • On 12 January 2024, Woodside emailed Heritage Victoria advising of the proposed activity (Record of Consultation, reference 3.32) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to Heritage Victoria advising of the proposed activity (Record of Consultation, reference 3.32.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| Heritage Victoria emailed Woodside and:<br>**(1)** Advised of relevant Heritage Acts including *Underwater Cultural Heritage Act 2018 (Cth).*<br>**(2)** Advised Woodside to undertake an impact assessment and management plan for underwater cultural heritage.<br>**(3)** Attached a copy of the Underwater Cultural Heritage Guidance for Offshore Developments. | Woodside:<br>**(1)** Acknowledged the various Acts and their application, including clarifying aspects of the *Underwater Cultural Heritage Act 2018 (Cth)* whilst stating that Woodside always acts to avoid damage or disturbance to such sites. Woodside also shared its First Nations Communities Policy.<br>**(2)** Confirmed that an impact assessment will be undertaken for the proposed decommissioning activities.<br>**(3)** Acknowledged the shared Commonwealth Guidance.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required.<br>**(2)** Section 4.6.1.8 of this EP notes there is no known underwater cultural heritage within the Operational Area, but there are many shipwrecks within the EMBA. Section 4.6.1.7 describes historic heritage sites overlapping the EMBA, and Section 4.5 describes which protected and significant areas overlap the EMBA.<br>Section 4.6.1.5 describes the assessment of Sea Country Values and First Nations groups with cultural features and values within the Operational Area and the EMBA.<br>Woodside has updated Section 7.4.6 to require a review of existing data by a suitably qualified maritime archaeologist.<br>Woodside has assessed that a Management Plan for underwater cultural heritage is not required, on the basis that no underwater cultural heritage has been identified in the Operational Area and none of the cases listed in Heritage Victoria's Conservation Management Plan guidance apply – refer to "When do I need a Conservation Management Plan" (Heritage Council of Victoria, 2010).<br>Woodside has assessed that a Cultural Heritage Management Plan under the Aboriginal Heritage Regulations 2018 (VIC) is not required as "The |

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| | | development of the sea bed of the coastal waters of Victoria or any sea within the limits of Victoria is an exempt activity."<br>**(3)** Woodside has applied the recommendations in the Underwater Cultural Heritage Guidance for Offshore Developments when developing the EP – including, reviewing the Australian Underwater Cultural Heritage Database (Section 4.6.1.8); Control C 3.1 requiring review of existing survey data by a suitably qualified archaeologist; Control C 3.2 requiring reporting of any new suspected underwater cultural heritage sites; and the steps provided In the Unexpected Finds Procedure (Section 9.4).<br>Woodside considers the measures and controls in the EP are appropriate. |
| **Port of Melbourne** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Port of Melbourne for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to Port of Melbourne on 31 May 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the Port of Melbourne with the opportunity to provide feedback over an 17-month period.<br>**Summary of information provided and record of consultation:**<br>• On 31 May 2023, Woodside emailed Port of Melbourne advising of the proposed activity (Record of Consultation, reference 2.16) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to Port of Melbourne advising of the proposed activity (Record of Consultation, reference 2.16.1) and provided a Consultation Information Sheet. | | |

- On 12 January 2024, Woodside emailed Port of Melbourne advising of the proposed activity (Record of Consultation, reference 3.37) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Port of Melbourne advising of the proposed activity (Record of Consultation, reference 3.37.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Port of Hastings**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Port of Hastings for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Port of Hastings on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Port of Hastings with the opportunity to provide feedback over a 17-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Port of Hastings advising of the proposed activity (Record of Consultation, reference 2.16) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Port of Hastings advising of the proposed activity (Record of Consultation, reference 2.16.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Port of Hastings advising of the proposed activity (Record of Consultation, reference 3.37) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Port of Hastings advising of the proposed activity (Record of Consultation, reference 3.37.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Port of Warrnambool**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Port of Warrnambool for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Port of Warrnambool on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Port of Warrnambool with the opportunity to provide feedback over a 17-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Port of Warrnambool advising of the proposed activity (Record of Consultation, reference 2.16) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Port of Warrnambool advising of the proposed activity (Record of Consultation, reference 2.16.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Port of Warrnambool advising of the proposed activity (Record of Consultation, reference 3.37) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Port of Warrnambool advising of the proposed activity (Record of Consultation, reference 3.37.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Port of Portland**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Port of Portland for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Consultation Information provided to Port of Portland on 11 December 2023 based on their functions, interests or activities. Woodside has also sent an oil pollution plan and activity update, seeking feedback on the proposed activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has addressed and responded to the Port of Portland over a 17-month period.

**Summary of information provided and record of consultation:**

- **(1)** On 14 June 2023, Port of Portland emailed Woodside advising it was responsible for pollution response in the region from the South Australian border to Cape Otway, as delegated by the Victorian Government, and requested to be added to the distribution list for the Minerva decommissioning.
- On 23 June 2023, Woodside sent a response email to Port of Portland thanking them for their response and noting that Woodside's records have been updated. Woodside advised it would be in touch.
- On 11 December 2023, Woodside emailed the Port or Portland advising of the proposed Minerva activities including this EP (Record of Consultation, reference 2.47) and attached Oil Pollution First Strike Plans for three separate Minerva Decommissioning EPs. These form part of Woodside's Oil Pollution Emergency Plans (OPEPs).
- On 12 January 2024, Woodside emailed Port of Portland advising of the proposed activity (Record of Consultation, reference 3.43) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Port of Portland advising of the proposed activity (Appendix F, reference 3.43.1) and provided a Consultation Information Sheet.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| **(1)** Port of Portland advised it has been delegated the responsibility of pollution response from the South Australian border to Cape Otway by the Victorian Government and requested to be consulted for Minerva decommissioning EPs.<br>Whilst feedback has been received, there were no objections or claims. | **(1)** Woodside acknowledged the Port's status as relevant as the Victorian Government's pollution response delegate and committed to ongoing consultation in relation to this EP including providing Oil Pollution First Strike Plans.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Woodside has consulted Port of Portland in the course of preparing this EP. Woodside has assessed the claims or objections raised by Port of Portland.<br>Woodside has addressed oil pollution planning and response in the Oil Pollution Emergency Plan (OPEP) (Appendix E), which includes the Oil Pollution First Strike Plan.<br>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Port of Portland's functions, interests and activities. |

**Victorian Fisheries Authority (VFA)**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with VFA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to VFA on 20 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to the VFA over a 30-month period.

**Summary of information provided and record of consultation:**

- On 20 April 2022, Woodside emailed VFA advising of the proposed activity (Record of Consultation, reference 1.19) and provided a Consultation Information Sheet.
- On 5 May 2022, VFA replied via email and:
  - **(1)** Expressed appreciation that Woodside was liaising with SIV, relevant licence holders and the Apollo Bay Fishermen's Cooperative.
  - **(2)** Requested a description of subsea infrastructure that is likely to remain and provision of coordinates if structures a proposed to be left *in situ* to ensure that fishers can be notified.
  - **(3)** Asked if planned chemical discharges to the marine environment will result in any loss of marine life or pose any risk to the safety of consuming seafood harvested from the area.
- On 23 May 2022, Woodside attended a meeting with VFA and other stakeholders (through Department of Transport and Planning (DTP)) to discuss marine pollution response arrangements for this EP.
- On 13 June 2022, Woodside emailed VFA (and other participants from the 23 May 2022 meeting, including DTP) the presentation material and meeting notes.
- On 16 June 2022, Woodside replied to the 5 May email with the following info:
  - Woodside confirmed its decommissioning approach is for the full removal of subsea infrastructure, to be undertaken in stages and under separate EPs.
  - Woodside confirmed that all proposed activities were to be managed to International Convention for the Prevention of Pollution from Ships (MARPOL) and international standards, with no expected impacts to commercial fisheries in the region.
- On 2 June 2023, Woodside emailed VFA advising of the proposed activity (Record of Consultation, reference 2.19) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to VFA advising of the proposed activity (Record of Consultation, reference 2.19.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed VFA advising of the proposed activity (Record of Consultation, reference 3.33) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to VFA advising of the proposed activity (Record of Consultation, reference 3.33.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| VFA:<br>**(1)** Expressed appreciation that Woodside was liaising with SIV, relevant licence holders and the Apollo Bay Fishermen's Cooperative.<br>**(2)** Requested a description and coordinates of subsea infrastructure that is likely to remain.<br>**(3)** Asked if planned chemical discharges to the marine environment will result in any loss of marine life or pose any risk to safety of consuming seafood harvested from the area. | Woodside:<br>**(1)** Noted VFA's appreciation of the consultation approach for relevant persons.<br>**(2)** Confirmed its decommissioning approach was for full removal of subsea infrastructure, to be undertaken in stages and under separate Environment Plans.<br>**(3)** Confirmed that all proposed activities were to be managed to MARPOL and international standards, with no expected impacts to commercial fisheries in the region<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing | **(1)** Not required. Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>**(2)** Not required. The scope of this EP is outlined in Section 1.3 of this EP.<br>**(3)** Not required. Woodside has assessed potential impacts on marine life in Sections 7 and 8 of this EP. |

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| Whilst feedback has been received, there were no objections or claims. | consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of activities as referenced as PS 1.4 in this EP.<br>No additional measures or controls are required |
| ***Commonwealth and Victorian Government Departments or Agencies – Environment*** | | |
| **Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DAFF — Biosecurity for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Consultation Information provided to DAFF — Biosecurity (formerly Department of Agriculture, Water, and the Environment (DAWE)) on 14 April 2022 based on their functions, interests or activities.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided DAFF — Biosecurity with the opportunity to provide feedback over a 30-month period.<br>**Summary of information provided and record of consultation:**<br>• On 14 April 2022, Woodside emailed DAFF — Biosecurity advising of the proposed activity (Record of Consultation, reference 1.6) and provided a Consultation Information Sheet.<br>• On 31 May 2023, Woodside emailed DAFF — Biosecurity advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to DAFF — Biosecurity advising of the proposed activity (Record of Consultation, reference 2.10.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed DAFF — Biosecurity advising of the proposed activity (Record of Consultation, reference 3.13) and provided an updated Consultation Information Sheet | | |

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| • On 25 January 2024, Woodside sent a reminder email to DAFF — Biosecurity advising of the proposed activity (Record of Consultation, reference 3.13.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Vessels are required to comply with the *Australian Biosecurity Act 2015*, specifically the Australian Ballast Water Management Requirements (as defined under the *Biosecurity Act 2015*) (aligned with the International Convention for the Control and Management of Ships' Ballast Water and Sediments) to prevent introducing invasive marine species (IMS). Vessels will be assessed and managed to prevent the introduction of invasive marine species in accordance with Woodside's Invasive Marine Species Management Plan (see Sections 8.7 and 9.3 of the EP).<br>Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of activities as referenced as PS 1.4 in this EP.<br>No additional measures or controls are required. |
| **Department of Climate Change, Energy, the Environment and Water (DCCEEW)** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DCCEEW for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: | | |

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to DCCEEW on 2 June 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to the DCCEEW over a 17-month period.

**Summary of information provided and record of consultation:**

- On 2 June 2023, Woodside emailed the DCCEEW advising of the proposed activity (Record of Consultation, reference 2.18) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to the DCCEEW advising of the proposed activity (Record of Consultation, reference 2.18.1) and provided a Consultation Information Sheet.
- On 19 July 2023, the DCCEEW emailed Woodside thanking them for information for this (and two other EPs) and:
  - (1) Advised that Woodside's approach to risk mitigation and compliance with the Underwater Cultural Heritage (UCH) Act aligns with the Department's advice.
  - (2) Requested that Woodside continued to consult with the Department as the EP documentation and any relevant technical reports are developed.
- On 19 July 2023, Woodside responded and confirmed that the methodology described would be applied across the Minerva EPs and that Woodside will keep DCCEEW's UCH Team informed of future developments.
- On 12 January 2024, Woodside emailed DCCEEW advising of the proposed activity (Record of Consultation, reference 3.34) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to DCCEEW advising of the proposed activity (Record of Consultation, reference 3.34.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| DCCEEW:<br>**(1)** Advised that Woodside's approach to risk mitigation and compliance with the *UCH Act* requirements aligned with its advice.<br>**(2)** Requested that Woodside consult with its team as the EP documentation and any relevant technical reports are developed.<br>Whilst feedback has been received, there were no objections or claims. | Woodside:<br>**(1)** Confirmed it would apply the methodology as described by DCCEEW for this EP.<br>**(2)** Agreed to keep the UCH team updated on future developments.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1, 2)** Woodside addresses the *Underwater Cultural Heritage Act* in Section 4.6.1.5 of this EP.<br>No additional measures or controls are required. |
| **Director of National Parks (DNP)** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DNP for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: | | |

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to DNP on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to the DNP over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed DNP advising of the proposed activity (Record of Consultation, reference 1.4) and provided a Consultation Information Sheet.
- On 17 June 2022, Woodside sent a reminder email to DNP, asking if they wanted to provide feedback (Record of Consultation, reference 1.4.1).
- On 19 June 2023, Woodside emailed DNP advising of the proposed activity (Record of Consultation, reference 2.34) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 12 July 2023, Woodside sent a reminder email to the DNP advising of the proposed activity (Record of Consultation, reference 2.34.1) and provided a Consultation Information Sheet.
- On 7 December 2023, the DNP emailed Woodside and:
  - (1) Confirmed that the Minerva planned activities do not overlap any Australian Marine Parks (AMP) and therefore do not require DNP's authorisation.
  - (2) Shared a joint NOPSEMA/DNP guidance note which outlines what titleholders need to consider and evaluate.
  - (3) Stated that the current 2013 South-east Commonwealth Marine Reserves Network Management Plan expired on 30 June 2023.
  - (3) Stated that Parks Australia is preparing a new management plan which will include updated approvals in place for the South-east Marine Parks for mining operations and greenhouse gas activities.
  - (1) Confirmed that the DNP does not require further notification of progress made in relation to this activity unless details regarding the activity change and result in an overlap with or new impact to a marine park, or for emergency responses.
  - (4) Reiterated that the DNP should be made aware of oil/gas pollution incidences which occur within a marine park or are likely to impact on a marine park as soon as possible and that daily or weekly Situation Reports may be requested, depending on the scale and severity of the pollution incident.
- On 11 December 2023, Woodside responded and:
  - Noted DNP's confirmation that planned activities do not overlap AMPs and that there are no authorisation requirements at this time.
  - Confirmed Woodside has taken into consideration the joint NOPSEMA/AMP's guidance note.
  - Noted that the South-east Commonwealth Marine Reserves Network Management Plan expired on 30 June 2023.
  - Stated that Woodside will continue to comply with the expired plan until the new South-east Commonwealth Marine Reserves Network Management Plan is published.
  - Agreed that Woodside would notify DNP with any changes/updates to these activities.
  - Advised that there will an updated activity information in the next few days.
- On 12 January 2024, Woodside emailed DNP advising of the proposed activity (Record of Consultation, reference 3.27) and provided an updated Consultation Information Sheet
- On 15 January 2024, the DNP responded and:
  - **(1)** Confirmed that the Minerva planned activities do not overlap any Australian Marine Parks (AMP) and therefore do not require DNP's authorisation.

- **(2)** Shared a joint NOPSEMA/DNP guidance note which outlines what titleholders need to consider and evaluate.
- **(1)** Confirmed that the DNP does not require further notification of progress made in relation to this activity unless details regarding the activity change and result in an overlap with or new impact to a marine park, or for emergency responses.
- **(4)** Reiterated that the DNP should be made aware of oil/gas pollution incidences which occur within a marine park or are likely to impact on a marine park as soon as possible and that daily or weekly Situation Reports may be requested, depending on the scale and severity of the pollution incident.

- On 25 January 2024, Woodside sent a reminder email to DNP advising of the proposed activity (Record of Consultation, reference 3.27.1)
- On 29 January 2024, Woodside responded to DNP's 15 January email thanking them for their reply, and confirmed:
  - Planned activities do not overlap any AMPs and there are no authorisation requirements from the DNP at this time.
  - That Woodside has taken into consideration the 'Petroleum Activities and Australian Marine Parks' guidance note.
  - Woodside will notify DNP in relation to these activities if details regarding the activities change and result in an overlap with or new impact to a marine park, or for emergency responses.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| DNP:<br>**(1)** Advised planned activities do not overlap any Australian Marine Parks and there are therefore no authorisation requirements from the DNP. It does not require further notification of progress unless details regarding the activity change and result in an overlap with a marine park or new impact, or for emergency responses.<br>**(2)** Shared a joint DNP/NOPSEMA guidance note outlining considerations needed by titleholders.<br>**(3)** Advised that Parks Australia is preparing a new management plan for approvals as the current Management Plan expired 30 June 2023.<br>**(4)** Emphasised the need for notification of oil/gas pollution incidences.<br>Whilst feedback has been received, there were no objections or claims. | Woodside:<br>**(1)** Noted that this activity doesn't overlap with any AMPs so there are no authorisation requirements from the DNP.<br>**(2)** Confirmed that the guidance note had been taken into account to ensure the EP identifies and manages all risks on AMP values, and clearly demonstrates that activities will not be inconsistent with the management plan.<br>**(3)** Noted the expiry of the Management Plan and that Woodside will continue to comply with the expired plan until an updated one is produced.<br>**(4)** Agreed that the DNP will be notified with any incidences and changes.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Woodside has assessed protected and significant areas, including AMPs, in Section 4.5.6 of this EP.<br>**(2)** This EP demonstrates how Woodside will identify and manage all impacts and risks on Australian marine park values (including ecosystem values) to an ALARP and acceptable level and that the activity is not inconsistent with the management plan (Section 6).<br>**(3)** Not required.<br>**(4)** Woodside will ensure DNP is made aware of any incidences within a marine park for the activity, as per the commitment in the Oil Pollution Emergency Plan (OPEP) (Appendix E).<br>Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on DNP's functions, interests or activities.<br>No additional measures or controls are required. |

**Parks Victoria**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Parks Victoria for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to Parks Victoria on 21 December 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has provided Parks Victoria with the opportunity to provide feedback over a 10-month period.

**Summary of information provided and record of consultation:**

- On 23 May 2022, Woodside attended a meeting with Parks Victoria and other stakeholders (through the Department of Transport and Planning (DTP)) to discuss marine pollution response arrangements for this EP.
- On 13 June 2022, Woodside emailed Parks Victoria (and other participants from the 23 May 2022 meeting, including DTP) the presentation material and meeting notes.
- On 21 December 2023, Woodside emailed Parks Victoria advising of the proposed activity (Record of Consultation, reference 2.48) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 21 December 2023, Parks Victoria sent an email acknowledging receipt of the email and stating that a ticket had been created.
- On 12 January 2024, Woodside emailed Parks Victoria advising of the proposed activity (Record of Consultation, reference 3.30) and provided an updated Consultation Information Sheet
- On 12 January 2024, Parks Victoria sent an email acknowledging receipt of the email and stating that a ticket had been created.
- On 25 January 2024, Woodside sent a reminder email to Parks Victoria advising of the proposed activity (Record of Consultation, reference 3.30.1)
- On 25 January 2024, Parks Victoria sent an email acknowledging receipt of the email and stating that a ticket had been created.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

***Commonwealth and Victorian Government Departments or Agencies – Industry***

**Department of Industry, Science and Resources (DISR)**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DISR for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to DISR on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided DISR with the opportunity to provide feedback over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed DISR advising of the proposed activity (Record of Consultation, reference 1.5) and provided a Consultation Information Sheet.
- On 31 May 2023, Woodside emailed DISR advising of the proposed activity (Record of Consultation, reference 2.5) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 22 June 2023, Woodside sent a reminder email to DISR advising of the proposed activity (Record of Consultation, reference 2.5.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed DISR advising of the proposed activity (Record of Consultation, reference 3.12) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to DISR advising of the proposed activity (Record of Consultation, reference 3.12.1) and provided a Consultation Information Sheet.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

***Commonwealth Commercial Fisheries and Representative Bodies***

**Bass Strait Central Zone Scallop Fishery**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Bass Strait Central Zone Scallop Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Bass Strait Central Zone Scallop Fishery on 26 July 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Bass Strait Central Zone Scallop Fishery with the opportunity to provide feedback over an 15-month period.

**Summary of information provided and record of consultation:**

- On 26 July 2023, Woodside sent a letter to Bass Strait Central Zone Scallop Fishery advising of the proposed activity (Record of Consultation, reference 2.45) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 18 August 2023, Woodside sent a reminder email to Bass Strait Central Zone Scallop Fishery advising of the proposed activity (Record of Consultation, reference 2.45.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Bass Strait Central Zone Scallop Fishery advising of the proposed activity (Record of Consultation, reference 3.9) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Bass Strait Central Zone Scallop Fishery advising of the proposed activity (Record of Consultation, reference 3.9.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |

**Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine on 26 July 2023, based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine with the opportunity to provide feedback over an 15-month period.

**Summary of information provided and record of consultation:**

- On 26 July 2023, Woodside sent a letter to Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine advising of the proposed activity (Record of Consultation, reference 2.45) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 18 August 2023, Woodside sent a reminder email to Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine advising of the proposed activity (Record of Consultation, reference 2.45.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine advising of the proposed activity (Record of Consultation, reference 3.9) and provided an updated Consultation Information Sheet

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| • On 25 January 2024, Woodside sent a reminder email to Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine advising of the proposed activity (Record of Consultation, reference 3.9.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of activities as referenced as PS 1.4 in this EP.<br>No additional measures or controls are required. |
| **Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook on 26 July 2023, based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook with the opportunity to provide feedback over an 15-month period. | | |

**Summary of information provided and record of consultation:**

- On 26 July 2023, Woodside sent a letter to Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook advising of the proposed activity (Record of Consultation, reference 2.45) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 18 August 2023, Woodside sent a reminder email to Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook advising of the proposed activity (Record of Consultation, reference 2.45.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook advising of the proposed activity (Record of Consultation, reference 3.9) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook advising of the proposed activity (Record of Consultation, reference 3.9.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of activities as referenced as PS 1.4 in this EP.<br>No additional measures or controls are required. |

**Southern Squid Jig Fishery**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Southern Squid Jig Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to the Southern Squid Jig Fishery on 26 July 2023, based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Southern Squid Jig Fishery with the opportunity to provide feedback over an 15-month period.

**Summary of information provided and record of consultation:**

- On 26 July 2023, Woodside sent a letter to the Southern Squid Jig Fishery advising of the proposed activity (Record of Consultation, reference 2.45) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 18 August 2023, Woodside sent a reminder email to the Southern Squid Jig Fishery advising of the proposed activity (Record of Consultation, reference 2.45.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed the Southern Squid Jig Fishery advising of the proposed activity (Record of Consultation, reference 3.9) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to the Southern Squid Jig Fishery advising of the proposed activity (Record of Consultation, reference 3.9.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of activities as referenced as PS 1.4 in this EP.<br>No additional measures or controls are required. |
| **Commonwealth Fisheries Association (CFA)** | | |

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with CFA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to CFA on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the CFA with the opportunity to provide feedback over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed CFA advising of the proposed activity (Record of Consultation, reference 1.11) and provided a Consultation Information Sheet.
- On 2 June 2023, Woodside emailed CFA advising of the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to CFA advising of the proposed activity (Record of Consultation, reference 2.21.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed the CFA advising of the proposed activity (Record of Consultation, reference 3.8) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to CFA advising of the proposed activity (Record of Consultation, reference 3.8.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of |

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| | | activities as referenced as PS 1.4 in this EP.<br>No additional measures or controls are required. |
| **Bass Strait Scallop Industry Association (BSSIA)** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the BSSIA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to BSSIA on 2 June 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the BSSIA with the opportunity to provide feedback over a 16-month period.<br>**Summary of information provided and record of consultation:**<br>• On 2 June 2023, Woodside emailed BSSIA advising of the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to BSSIA advising of the proposed activity (Record of Consultation, reference 2.21.1) and provided a Consultation Information Sheet<br>• On 12 January 2024, Woodside emailed BSSIA advising of the proposed activity (Record of Consultation, reference 3.8) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to BSSIA advising of the proposed activity (Record of Consultation, reference 3.8.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |
| **South East Trawl Fishing Industry Association (SETFIA)**<br>***(Representing: Southern Shark Industry Alliance (SSIA))*** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with SETFIA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: | | |

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to SETFIA on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has addressed and responded to SETFIA over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed SETFIA advising of the proposed activity (Record of Consultation, reference 1.11) and provided a Consultation Information Sheet.
- On 19 April 2022, SETFIA sent an email and:
  - **(1)** Noted that they also represent Small Pelagic Fishery Industry Association (SPFIA) and Southern Shark Industry Alliance (SSIA).
  - **(2)** Commented on respective rights of fishers and petroleum companies.
  - **(3)** Commented that their understanding is that the default approach for decommissioning is full removal.
  - **(4)** Commented that they expect there will be no permanent exclusion zone and the area be over-fishable or compensation should be paid to fishers for long-term loss of fishing grounds.
  - **(5)** Commented that Petroleum Safety Zones (PSZs) are not an instrument to close fishing grounds and that fishers faced imprisonment if fishing within a PSZ.
  - Requested to discuss this with Woodside.
- On 30 May 2022, SETFIA emailed again, requesting acknowledgement that its 19 April 2022 email was received.
- On 31 May 2022, Woodside emailed to:
  - Confirm that that planned activities for this EP comprised the plugging and permanent abandoning of four wells, with final decommissioning activities planned to be completed in 2025.
  - Advise that decommissioning activities, including the removal of subsea infrastructure no longer required, would be covered by a separate EP and Woodside would continue to consult the SETFIA on planned activities for Woodside's interests in the Otway Basin.
  - Confirm that the base case for decommissioning under the OPGGS Act was for complete removal.
  - Confirm that PSZs were a requirement under the OPGGS Act and Woodside complied with this requirement.
- On 1 June 2022, SETFIA emailed and:
  - Requested a virtual meeting.
  - **(4)** Advised that the SE fishing industry's expectations is that compensation is made for lost grounds (which impact cost to catch and the value of rights) and risk.
  - **(5)** Advised that the SE fishing industry's expectations is that Fishers do not go to jail for being in proximity of a disused wellhead.
- On 3 June 2022, Woodside replied and advised of the merger with Woodside; thanked SETFIA for their reply and suggested times to meet.
- On 3 June 2022, SETFIA replied via email, and:
  - Sent through a meeting invitation.
  - **(6)** Provided contextual information on the nature and value of property rights in the fishing industry and cumulative loss of fishing grounds in the South East Marine Region.

- On 9 June 2022, SETFIA and Woodside met.
- On 9 June 2022, Woodside sent a follow-up email, acknowledging challenges facing the fishing industry in the South East Marine Region and a meeting summary covering the following discussion points on proposed decommissioning activities to be managed under this and future Environment Plans:
  - Woodside's planned approach for future decommissioning of the Minerva field is for full removal of subsea infrastructure, with the first stage of decommissioning being the plugging and permanent abandonment of the Minerva wells.
  - The P&A activity will include the planned removal of the wellheads from the field via the mobile offshore drilling unit or temporary storage of the wellheads on the seafloor within the existing petroleum safety zone for removal during the next stage of decommissioning via a vessel.
  - The second stage of decommissioning will comprise the removal of all remaining subsea infrastructure, including the subsea trees, wellheads (if still in field), and the flowline running from the gas field to the horizontal directional drill (HDD) exit point approximately 800m from shore just south of Port Campbell. The removal of this infrastructure would be supported by a field survey confirming all potential obstructions on the sea floor had been removed. Prior to the commencement of this activity, an additional EP shall be submitted to NOPSEMA covering this scope.
  - Upon completion of the decommissioning work, and consistent with the requirements of the OPGGS Act, Woodside Petroleum (Victoria) Pty Ltd (as titleholder) would apply to have the PSZ lifted and progress with relinquishing the petroleum title via NOPTA.
- On 14 June 2022, SETFIA replied via email, thanking Woodside for the meeting on 9 June 2022 and:
  - **(7)** Affirmed support for full removal.
  - **(8)** Provided details on a commercial SMS system operated by SETFIA to support pre-start and activity completion notifications.
- On 2 June 2023, Woodside emailed SETFIA advising of the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 2 June 2023, Woodside attempted to call SETFIA and followed up with an email to confirm that SETFIA also represents Small Pelagic Fishery Industry Association (SPFIA) and Southern Shark Industry Alliance (SSIA), or if there are any other appointed individuals Woodside should directly contact with the proposed activity information.
- **(1)** On 20 June 2023, SETFIA responded confirming management of all three associations, and thanked Woodside for the personal contact.
- On 20 June 2023, SETFIA emailed again, requesting a meeting to discuss this EP.
- On 20 June 2023, Woodside replied via email and requested SETFIA's availability to set up a meeting.
- On 20 June 2023, SETFIA emailed and confirmed its availability. SETFIA shared three documents usually shared with companies around drilling, seismic survey proponents and a press release on the pressure on the industry from shared marine proponents, whilst acknowledging that the first two were likely irrelevant to this activity.
- On 21 June 2023, Woodside responded via email and confirmed a meeting time for the following day.
- On 22 June 2023, Woodside met with SETFIA. Summary:
  - **(9)** SETFIA presented an overview of the three organisations under their organisation and the issues in regard to shared marine space projects which take up 70 per cent of SETFIA's time, specifically wind farms and increased related consultation activity.
  - **(10)** Woodside provided a project overview and SETFIA advised it was not sure whether it fishes in that area, however, there was no concerns with the activity.
  - **(7)** SETFIA advised it was good to hear equipment would be removed. Woodside clarified that the shore crossing pipeline will not be removed, however this was not related to this EP.
  - **(8)** SETFIA offered a one-off SMS service for a fee to reach licence holders for the relevant area. Woodside thanked SETFIA for that information.
  - **(9)** SETFIA advised that a Perth meeting was planned for the following week with NOPSEMA where it was planned to let NOPSEMA know that enforcing companies to do blanket campaigns about activities was doing more harm than good. SETFIA received on average three packs of consultation information a day from industry which adds no value for the members.

- **(11)** SETFIA advised that no further briefings from Woodside were needed and thanked Woodside for reaching out directly.

- On 26 July 2023, Woodside emailed SETFIA, thanking them for the previous meeting and advised that Woodside has been consulting directly with Commonwealth and Victorian fishery associations, Otway Basin recreational marine users, local shires, tourism operators, relevant government departments and local environment groups. Woodside had received contact details via AFMA for the relevant Commonwealth fisheries and stated it would send them a letter and consultation information sheet.
- **(9)** On 27 July 2023, SETFIA responded saying that they recognise Woodside is under pressure from the regulator to send letters to permit holders. However, for a variety of listed reasons, SETFIA requested that Woodside not do that as only a tiny fraction of letters will arrive to the correct people, but SETFIA understands that the regulator is forcing this approach. SETFIA was writing to NOPSEMA regarding AFMA releasing personal details for consultation.
- On 18 August 2023, Woodside thanked SETFIA for their understanding of the consultation requirements and reiterated commitments from the June meeting that Woodside will continue to contact relevant licence holders and for them to provide any feedback.
- On 12 January 2024, Woodside emailed SETFIA advising of the proposed activity (Record of Consultation, reference 3.8) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to SETFIA advising of the proposed activity (Record of Consultation, reference 3.8.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| SETFIA:<br>**(1)** Confirmed that it also manages SPFIA and SSIA.<br>**(2)** Commented on respective rights of fishers and petroleum companies and shared documents.<br>**(3)** Commented that their understanding is that the default approach for decommissioning is full removal.<br>**(4)** Emphasised that they expect there will be no permanent exclusion zones or that compensation should be paid to fishers for long-term loss of fishing grounds.<br>**(5)** Commented that PSZs are not an instrument to close fishing grounds, that fishers could face imprisonment for fishing within a PSZ, and that they expected this would not be the case.<br>**(6)** Provided contextual information on their concerns.<br>**(7)** Affirmed support for full removal.<br>**(8)** Provided details on a commercial SMS system operated by SETFIA to support pre-start and activity completion notifications if required.<br>**(9)** Emphasised the challenges SETFIA faced with multiple packs of consultation from various companies, a matter that would be brought up with NOPSEMA during a meeting.<br>**(10)** Confirmed this activity did not concern SETFIA. | Woodside:<br>**(1)** Acknowledged that SETFIA also manages SPFIA and SSIA.<br>**(2)** Noted SETFIA's comments on respective rights of fishers and petroleum companies.<br>**(3)** Noted SETFIA's comment on the decommissioning approach, explaining that the scope for this EP is to permanently plug and abandon four wells, and that future decommissioning activities, including the removal of subsea infrastructure no longer required for production, will be covered under separate Eps. Woodside also confirmed that SETFIA, SPFIA, and SSIA will be consulted for future activities in the Otway Basin.<br>**(4, 5)** Noted that the approach to field decommissioning is consistent with the OPGGS Act, and that Woodside must comply with all relevant sections of the OPGSS Act, including Section 616 and 617 for the purpose of protecting a petroleum or greenhouse gas well, a structure, or any equipment, in an offshore area.<br>**(6)** Woodside has noted SETFIA's contextual information, thanking them for outlining some of the challenges faced by commercial fishers within the South East Marine Region.<br>**(7)** Confirmed that Woodside's planned approach to the future decommissioning of the Minerva gas field includes the full removal of subsea infrastructure.<br>**(8)** Noted the provision of an SMS service to notify licence holders if or as required. | **(1–11)** Not required.<br>Woodside has assessed the potential for interaction with Commonwealth- and State-managed fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |

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| **(11)** Stated no further briefings were required. | **(9)** Reiterated its commitment to contact relevant licence holders in line with the relevant regulations for consultation and allow time for fisheries to provide any feedback on the activities.<br>**(10)** Acknowledged SETFIA's feedback that it had no concerns with the activity.<br>**(11)** Acknowledged SETFIA's feedback that no further briefings were required.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | |

**Southern Shark Industry Alliance (SSIA)**
***(Represented by SETFIA)***

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with SSIA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Consultation Information provided to SSIA on 2 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the SSIA with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 2 June 2023, Woodside emailed SSIA advising of the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside emailed SSIA advising of the proposed activity (Record of Consultation, reference 2.21.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed SSIA advising of the proposed activity (Record of Consultation, reference 3.8) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to SSIA advising of the proposed activity (Record of Consultation, reference 3.8.1).

| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |

**Southern Rock Lobster Limited**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Southern Rock Lobster Limited for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Southern Rock Lobster Limited on 12 January 2024, based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has provided Southern Rock Lobster Limited with the opportunity to provide feedback over a 9-month period.

**Summary of information provided and record of consultation:**

- On 12 January 2024, Woodside emailed Southern Rock Lobster Limited advising of the proposed activity (Record of Consultation, reference 3.10) and provided an updated Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*
- On 25 January 2024, Woodside sent a reminder email to Southern Rock Lobster Limited advising of the proposed activity (Record of Consultation, reference 3.10.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

***State Commercial Fisheries and Representative Bodies***

**Rock Lobster Fishery**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Rock Lobster Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to the Rock Lobster Fishery on 20 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to the Rock Lobster Fishery over a 30-month period.

**Summary of information provided and record of consultation:**

- On 20 April 2022, Woodside emailed the Rock Lobster Fishery (through MJH Fisheries), advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet.
- On 31 May 2022, Woodside sent individual fishers recommended by Apollo Bay Fishermen's Cooperative a Consultation Information Sheet and requested feedback.
- On 19 July 2023, SIV forwarded information (provided by Woodside) via email (where available) to commercial fishing licence holders in the Rock Lobster Fishery advising of the proposed activity (Record of Consultation, reference 2.20). This included a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 9 February 2024, SIV forwarded information (provided by Woodside) via email (where available) to commercial fishing licence holders in the Rock Lobster Fishery advising of the proposed activity (Record of Consultation, reference 3.18) and provided an updated Consultation Information Sheet. SIV also published the Consultation Information Sheet in the members notification section on its website.
- **(1)** On 10 February 2024, an individual fisher replied to Woodside and asked whether there will be works in the state waters of Woodside's boundary within the next two weeks.
- On 13 February 2024, Woodside replied via email and confirmed that there are no plans for any activities this quarter, and enquired where and what the individual was fishing.
- **(2)** On 15 February 2024, the fisher confirmed that they are an owner/operator in the western zone rock lobster industry.
- On 15 February 2024, Woodside replied, thanked the fisher for the feedback and said that they will be kept updated.
- On 19 February 2024, an individual Warrnambool cray fisher emailed Woodside and:
  - **(3**) Stated that this project's EMBA will affect the southern rock lobster population in their working area
  - **(4)** Shared their concern on how this project will affect the fishery's future.
- On 22 February 2024, Woodside responded and:
  - Noted the feedback in regard to this EP's activities on southern rock lobsters
  - Explained in more detail EMBA and potential environmental impacts:
    - The EMBA, as shown in the consultation information, is the largest spatial extent where these activities could potentially have an environmental consequence (direct or indirect impact).
    - The EMBA represents the merged area of many possible paths a high unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of this release.
    - in this case, the hydrocarbon spill risk would be due to a marine diesel spill from a Woodside vessel or loss of well containment.
  - Reiterated that Woodside implements a range of controls to prevent spills, and maintains spill response capabilities to mitigate the effects of a spill if one did occur.
  - Explained that, in the highly unlikely case of a hydrocarbon spill, the hydrocarbons will be concentrated in surface waters and are unlikely to affect the sandy seabed where subsea infrastructure is installed, hence southern rock lobsters and the habitat are unlikely to be directly impacted by a spill.
  - Explained that planned activities are restricted to the smaller operational area and supplied a map.
  - Said that fishers are expected to have unrestricted access to the locations, following removal of the Minerva subsea infrastructure.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| A Western zone fisher responded and: | For the Western zone fisher, Woodside: | **(1-3)** Not required.<br>**(4)** The Oil Pollution Emergency Plan (OPEP) (Appendix E) describes |

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| **(1)** Asked whether Woodside was conducting any work in State waters within the next two weeks (February 2024)<br>**(2)** Confirmed that they were in the western zone rock lobster industry<br>A Warrnambool lobster fisher responded and:<br>**(3)** Stated that the EMBA covers their working area<br>**(4)** Shared concern about this project's effect on the southern rock lobster population in the area<br>Whilst feedback has been received, there were no objections or claims. | **(1)** Confirmed there was no planned activity in the next quarter and enquired where the fisher was from<br>**(2)** Thanked the fisher for their feedback and said they would be kept updated<br>For the Warrnambool fisher, Woodside:<br>**(3)** Explained the EMBA in more detail, including that it is the largest spatial extent where these activities could potentially have an environmental consequence and shared a map of the actual operational area. Woodside explained that on removal of infrastructure, fishers are expected to have unrestricted access to the locations.<br>**(4)** Explained that in the highly unlikely case of a hydrocarbon spill, it will be concentrated in surface waters and unlikely to affect the sandy seabed where subsea infrastructure is installed, hence southern rock lobsters and the habitat are unlikely to be directly impacted by a spill. Woodside also reiterated its extensive range of controls to prevent spills as well as spill response capabilities, if one did occur.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | emergency plans for the unlikely event of a hydrocarbon spill.<br>Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |
| **Giant Crab Fishery** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Giant Crab Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Consultation Information provided to the Giant Crab Fishery on 20 April 2022 based on their functions, interests or activities.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has provided the Giant Crab Fishery with the opportunity to provide feedback over a 30-month period.<br>**Summary of information provided and record of consultation:**<br>• On 20 April 2022, Woodside emailed the Giant Crab Fishery (through MJH Fisheries), advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet.<br>• On 19 July 2023, SIV forwarded information (provided by Woodside) via email (where available) to commercial fishing licence holders in the Giant Crab Fishery, advising of the proposed activity (Record of Consultation, reference 2.20). This included a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*. | | |

- On 9 February 2024, SIV forwarded information (provided by Woodside) via email (where available) to commercial fishing licence holders in the Giant Crab Fishery, advising of the proposed activity (Record of Consultation, reference 3.18) and provided an updated Consultation Information Sheet. SIV also published the Consultation Information Sheet in the members notification section on its website.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

**Abalone Fishery**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Abalone Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to the Abalone Fishery on 19 June 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to the Abalone Fishery over a 30-month period.

**Summary of information provided and record of consultation:**

- On 20 April 2022, Woodside emailed Abalone Fishery (through Abalone Victoria Central Zone) advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet.
- On 17 June 2022, Woodside sent a reminder email to an Abalone Fishery representative individual advising of the proposed activity.
- **(1)** On 19 June 2022, Abalone Fishery replied via email, noting the distance from shore and water depth of the proposed activity is not relevant to Abalone Fishery.
- On 19 June 2022, Woodside replied via email, asking if the Abalone Fishery could provide information on relevant water depth and distance from shore for rock lobster fishing.
- On 19 June 2023 through Abalone Council Victoria (Record of Consultation 2.23), Woodside advised the Abalone Fishery of the proposed activity and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 July 2023, through Abalone Council Victoria (Record of Consultation, reference 2.23.1), Woodside sent a reminder email advising the Abalone Fishery of the proposed activity and provided a Consultation Information Sheet.
- On 12 January 2024, through Abalone Council Victoria (Record of Consultation, reference 3.5) Woodside advised the Abalone Fishery of the proposed activity and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Abalone Council Victoria (Record of Consultation, reference 3.5.1), advising the Abalone Fishery of the proposed activity.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| **(1)** Abalone Fishery noted that they will not be in the area of the proposed activities due to the water depth and distance from shore of the proposed activities.<br>Whilst feedback has been received, there were no objections or claims. | **(1)** Woodside acknowledged Abalone Fishery's feedback about the lack of potential impact the proposed activities may have on the Fishery.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required.<br>Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |

**Wrasse Fishery**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Wrasse Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to the Wrasse Fishery (via Seafood Industry Victoria) on 20 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has provided the Wrasse Fishery with the opportunity to provide feedback over a 30-month period.

**Summary of information provided and record of consultation:**

- On 20 April 2022, Woodside emailed the Wrasse Fishery (through MJH Fisheries), advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet.
- On 19 July 2023, SIV forwarded information (provided by Woodside) via email (where available) to commercial fishing licence holders in the Wrasse Fishery advising of the proposed activity (Record of Consultation, reference 2.20). This included a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 9 February 2024, SIV forwarded information (provided by Woodside) via email (where available) to commercial fishing licence holders in the Wrasse Fishery advising of the proposed activity (Record of Consultation, reference 3.18) and provided an updated Consultation Information Sheet. SIV also published the Consultation Information Sheet in the members notification section on its website.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

**Snapper Fishery**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Snapper Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to the Snapper Fishery (via Seafood Industry of Victoria) on 19 July 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has provided Snapper with the opportunity to provide feedback over an 15-month period.

**Summary of information provided and record of consultation:**

- On 19 July 2023, SIV forwarded information (provided by Woodside) via email (where available) to commercial fishing licence holders in theSnapper Fishery advising of the proposed activity (Record of Consultation, reference 2.20). This included a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 9 February 2024, SIV forwarded information (provided by Woodside) via email (where available) to commercial fishing licence holders in the Snapper Fishery, advising of the proposed activity (Record of Consultation, reference 3.18) and provided an updated Consultation Information Sheet. SIV also published the Consultation Information Sheet in the members notification section on its website.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

**Seafood Industry Victoria (SIV)**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with SIV for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to SIV on 20 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has addressed and responded to SIV over a 30-month period.
- At the request of Seafood Industry Victoria, the summary of information provided and record of consultation has not been made publicly available.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| SIV:<br>**(1)** Confirmed they have circulated material to licence holders in the past<br>**(2)** Provided Woodside with details for relevant contacts at Victorian Fisheries Authority (VFA), Abalone Council Victoria and other key stakeholder groups.<br>**(3)** Advised it is best placed to disseminate information to relevant members and was working on a service model to support this in the future.<br>**(4)** Noted that Abalone Fishery licence holders are represented by Abalone Council Victoria.<br>**(5)** Confirmed it would distribute the Woodside consultation material to its members<br>**(6)** Advised it had a new Marine Development Policy and provided a link to the policy. Advice was provided that the policy may be updated from time to time and Woodside should monitor the website for updates when referencing this policy.<br>**(7)** Stated that an 'engagement model' was now in place and Woodside was asked to have an 'engagement agreement' with SIV for future distribution of consultation information to relevant fishery licence holders.<br>**(8)** Advised t had distributed the communication material to relevant fishery holders<br>**(9)** Advised no specific feedback was received from relevant licence holders that was accompanied by permission from the person/entity to pass this on.<br>**(10)** Requested that Woodside maintains confidentiality regarding all past and future correspondence with SIV, either verbal or electronic, unless otherwise agreed in writing with SIV.<br>**(11)** Confirmed Woodside's approach to confidentiality with SIV was appropriate in line with its Engagement Agreement. | Woodside:<br>**(1)** Noted SIV's past involvement in distributing material.<br>**(2)** Noted the contact details provided by SIV and distributed consultation material accordingly.<br>**(3)** Confirmed SIV as the distribution point for consultation materials for its relevant members/license holders:<br>• Rock Lobster<br>• Giant Crab<br>• Wrasse<br>• Snapper.<br>**(4)** Noted Abalone Council Victoria (ACV) as the representative for the Abalone licence fishers and also directed consultation material to ACV for distribution.<br>**(5)** Acknowledged SIV would distribute consultation information to relevant licence holders.<br>**(6)** Acknowledged the introduction of the SIV Marine Development Policy.<br>**(7)** Signed a service agreement in February 2024 for the distribution of all future consultation materials which included the updated Consultation Information Sheet.<br>**(8)** Noted SIV had distributed the consultation information<br>**(9)** Noted SIV had not received any feedback on the EP it was able to share with Woodside.<br>**(10)** Provided SIV with a document outlining the references to SIV that would be made publicly available upon submission of this EP. Noted this was an opportunity for SIV to review and make comments for Woodside's consideration. Clarified Woodside's position that historical engagement with SIV was always on the basis that the correspondence with SIV and licence holders would be included in the EP for the proposed activities, which would then be submitted to the regulators as required under legislation. Woodside's understanding was SIV was aware and consented to this. Noted that going forward, the use and disclosure of information and correspondence will be governed by the terms of the SIV engagement agreement.<br>**(11)** Noted SIV's feedback that Woodside's approach to confidentiality was appropriate as outlined in the Engagement Agreement.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing | **(1-11)** Not required.<br>Woodside has assessed the potential for interaction with Commonwealth- and State-managed fisheries in Section 4.6.2 of this EP.<br>Woodside will provide notifications to government departments (AFMA, DAFF, VFA), industry representative bodies (CFA, SIV), Commonwealth licenced fishers that have the potential to be impacted by activities in the Operational Area (The Southern and Eastern Scalefish and Shark Fishery (CTS and Shark Gillnet) and Southern Squid Jig Fishery), and Victorian licenced fishers that have requested notifications during consultation facilitated by SIV prior to the commencement and upon completion of activities as referenced as PS 1.4 in this EP.<br>Woodside has consulted SIV in the course of preparing this EP. Woodside has assessed the claims or objections raised by SIV.<br>No additional measures or controls have been put in place. |

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| | consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | |

**Abalone Council Victoria**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Abalone Council Victoria for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Abalone Council Victoria on 19 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Abalone Council Victoria with the opportunity to provide feedback over a 17-month period.

**Summary of information provided and record of consultation:**

- On 19 June 2023, Woodside emailed Abalone Council Victoria advising of the proposed activity (Record of Consultation, reference 2.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 July 2023, Woodside sent a reminder email to Abalone Council Victoria advising of the proposed activity (Record of Consultation, reference 2.23.1) and provided a Consultation Information Sheet
- On 12 January 2024, Woodside emailed Abalone Council Victoria advising of the proposed activity (Record of Consultation, reference 3.5) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Abalone Council Victoria advising of the proposed activity (Record of Consultation, reference 3.5.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |

**Abalone Victoria Central Zone**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Abalone Victoria Central Zone for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Abalone Victoria Central Zone on 19 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Abalone Victoria Central Zone with the opportunity to provide feedback over a 17-month period.

**Summary of information provided and record of consultation:**

- On 20 April 2022, Woodside emailed Abalone Victoria Central Zone, advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet.
- On 19 June 2023, Woodside emailed Abalone Victoria Central Zone advising of the proposed activity (Record of Consultation, reference 2.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 July 2023, Woodside sent a reminder email to Abalone Victoria Central Zone. Advising of the proposed activity (Record of Consultation, reference 2.23.1) and provided a Consultation Information Sheet
- On 12 January 2024, Woodside emailed Abalone Victoria Central Zone advising of the proposed activity (Record of Consultation, reference 3.5) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Abalone Victoria Central Zone advising of the proposed activity (Record of Consultation, reference 3.5.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

**Victorian Scallop Fishermen's Association Inc**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Victorian Scallop Fishermen's Association Inc for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Victorian Scallop Fishermen's Association Inc on 19 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Victorian Scallop Fishermen's Association Inc with the opportunity to provide feedback over a 17-month period.

**Summary of information provided and record of consultation:**

- On 19 June 2023, Woodside emailed Victorian Scallop Fishermen's Association Inc advising of the proposed activity (Record of Consultation, reference 2.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 July 2023, Woodside sent a reminder email to Victorian Scallop Fishermen's Association Inc advising of the proposed activity (Record of Consultation, reference 2.23.1) and provided a Consultation Information Sheet
- On 12 January 2024, Woodside emailed Victorian Scallop Fishermen's Association Inc advising of the proposed activity (Record of Consultation, reference 3.5) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Victorian Scallop Fishermen's Association Inc advising of the proposed activity (Record of Consultation, reference 3.5.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

**Victoria Rock Lobster Association (VRLA)**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Victoria Rock Lobster Industry Association (VRLA) for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to VRLA on 2 June 2023, based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the VRLA with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 2 June 2023, Woodside emailed VRLA advising of the proposed activity (Record of Consultation, reference 2.19) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to VRLA advising of the proposed activity (Record of Consultation, reference 2.19.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed VRLA advising of the proposed activity (Record of Consultation, reference 3.10) and provided an updated Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*
- On 25 January 2024, Woodside sent a reminder email to VRLA advising of the proposed activity (Record of Consultation, reference 3.10.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |
| **Apollo Bay Fishermen's Co-operative** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Apollo Bay Fishermen's Co-operative for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Consultation Information provided to Apollo Bay Fishermen's Co-operative on 20 April 2022 based on their functions, interests or activities.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has addressed and responded to the Apollo Bay Fishermen's Co-operative over a 30-month period.<br>**Summary of information provided and record of consultation:**<br>• On 20 April 2022, Woodside emailed Apollo Bay Fishermen's Co-operative, advising of the proposed activity (Record of Consultation, reference 1.18) and provided a Consultation Information Sheet<br>• On 22 April 2022, Woodside followed up with Apollo Bay Fishermen's Cooperative and asked if they knew of any stakeholders to consult directly.<br>• On 23 May 2022, Woodside followed up with Apollo Bay Fishermen's Cooperative, seeking feedback.<br>• **(1)** On 26 May 2022, Apollo Bay Fishermen's Cooperative replied, suggesting individual rock lobster fishers to consult.<br>• On 2 June 2023, Woodside emailed Apollo Bay Fishermen's Co-Operative advising of the proposed activity (Record of Consultation, reference 2.19) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to Apollo Bay Fishermen's Co-Operative advising of the proposed activity (Record of Consultation, reference 2.19.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed Apollo Bay Fishermen's Co-Operative advising of the proposed activity (Record of Consultation, reference 3.33) and provided an updated Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*<br>• On 25 January 2024, Woodside sent a reminder email to Apollo Bay Fishermen's Co-operative advising of the proposed activity (Record of Consultation, reference 3.33.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |

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| **(1)** Apollo Bay Fishermen's Co-operative suggested Woodside consults with specific Rock Lobster fishers.<br>Whilst feedback has been received, there were no objections or claims. | **(1)** Woodside provided the suggested individual fishers with the consultation information on 31 May 2022.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required.<br>Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

**South Eastern Professional Fishermen's Association Inc.**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with South Eastern Professional Fishermen's Association Inc. for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to South Eastern Professional Fishermen's Association Inc on 2 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the South Eastern Professional Fishermen's Association Inc with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 2 June 2023, emailed South Eastern Professional Fishermen's Association Inc advising of the proposed activity (Record of Consultation, reference 2.19) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to South Eastern Professional Fishermen's Association Inc advising of the proposed activity (Record of Consultation, reference 2.19.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed South Eastern Professional Fishermen's Association Inc advising of the proposed activity (Record of Consultation, reference 3.7) and provided an updated Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*
- On 25 January 2024, Woodside sent a reminder email to South Eastern Professional Fishermen's Association advising of the proposed activity (Record of Consultation, reference 3.7.1)

| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

**Warrnambool Professional Fishermen's Association**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Warrnambool Professional Fishermen's Association for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Warrnambool Professional Fishermen's Association on 12 January 2024 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has provided the Warrnambool Professional Fishermen's Association with the opportunity to provide feedback over a 9-month period.

**Summary of information provided and record of consultation:**

- On 12 January 2024, Woodside emailed Warrnambool Professional Fishermen's Association advising of the proposed activity (Record of Consultation, reference 3.10) and provided an updated Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*
- On 25 January 2024, Woodside sent a reminder email to Warrnambool Professional Fishermen's Association advising of the proposed activity (Record of Consultation, reference 3.10.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required |

**Eastern Victorian Rock Lobster Industry Association**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Eastern Victorian Rock Lobster Industry Association for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Eastern Victorian Rock Lobster Industry Association on 12 January 2024 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has provided the Eastern Victorian Rock Lobster Industry Association with the opportunity to provide feedback over a 9-month period.

**Summary of information provided and record of consultation:**

- On 12 January 2024, Woodside emailed Eastern Victorian Rock Lobster Industry Association advising of the proposed activity (Record of Consultation, reference 3.10) and provided an updated Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*
- On 25 January 2024, Woodside sent a reminder email to Eastern Victorian Rock Lobster Industry Association advising of the proposed activity (Record of Consultation, reference 3.10.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |

***Recreational Marine Users and Representative Bodies***

**Otway Recreational Marine Users**

**Group 1:**

*Apollo Bay Dive Centre and Surf*
*Apollo Bay Fishing Charters*
*Apollo Bay Surf and Kayak*
*Dive Industry Association of Australia*
*Go Surf School*
*SCUBA Divers Federation of Victoria*
*Apollo Bay Surf Lifesaving Club*
*Apollo Bay Sailing Club*
*Ocean Racing Club of Victoria*
*Twelve Apostles Helicopters Tours*

**Group 2:**

*Academy of Scuba*
*Allfresh Seafood*
*Anglesea Motor Yacht Club*
*Boating Industry Association of Victoria*
*Diving Industry Victoria*
*Beach Patrol 3280*

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| *Paddle Victoria*<br>*Point Leo Boat Club*<br>*Port Fairy Yacht Club*<br>*Rye Yacht Club*<br>*Victoria Game Fishing Club*<br>*Warrnambool Yacht Club*<br>*Western Abalone Divers Association*<br>*Port Campbell Surf Lifesaving Club* |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Otway Rec Marine Users for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to Otway Recreational Marine Users and Representative Bodies Group 1 on 19 June 2023 and Group 2 on 12 January 2024 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has addressed and responded to Otway Recreational Marine Users and Representative Bodies Group 1 over a 16-month period and Group 2 over a 5-month period.<br>**Summary of information provided and record of consultation:**<br>• On 19 June 2023, Woodside emailed to Otway Recreational Marine Users and Representative Bodies (Group 1) advising of the proposed activity (Record of Consultation, reference 2.35) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 11 July 2023, Woodside sent a reminder email to Otway Recreational Marine Users and Representative Bodies (Group 1) advising of the proposed activity (Record of Consultation, reference 2.35.1) and provided a Consultation Information Sheet<br>• **(1)** On 27 July 2023, an Otway Recreational Marine User member responded advising Woodside to decommission safely and to not open up any additional wells or drilling.<br>• On 27 July 2023, Woodside responded thanking the Otway Recreational Marine User member for their response and explained:<br>o All activities will be undertaken in line with maritime and petroleum industry safety and environmental standards.<br>o There will be no additional well interventions or drilling activities in relation to this activity as Minerva was a decommissioning activity.<br>• On 12 January 2024, Woodside emailed Otway Recreational Marine Users (Groups 1 and 2) advising of the proposed activity (Record of Consultation, reference 3.26 and 3.44) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to Otway Recreational Marine Users (Groups 1 and 2) advising of the proposed activity (Record of Consultation, reference 3.26.1 and 3.44.1) |

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| **(1)** Otway Recreational Marine group member, Go Surf School, responded requesting that Woodside not create any additional wells. | **(1)** Woodside replied thanking them for their response and clarifying that this activity does not involve any drilling, and that Minerva is decommissioning.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required.<br>No additional measures or controls are required. |
| **VR Fish** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with VR Fish for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Consultation Information provided to VR Fish on 14 April 2022 based on their functions, interests or activities.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided VR Fish with the opportunity to provide feedback over a 30-month period.<br>**Summary of information provided and record of consultation:**<br>• On 14 April 2022, Woodside emailed VR Fish advising of the proposed activity (Record of Consultation, reference 1.3) and provided a Consultation Information Sheet.<br>• On 23 May 2022, Woodside sent a follow-up email and asked if VR Fish was interested in providing feedback (Record of Consultation, reference 1.3.1).<br>• On 19 June 2023, Woodside emailed VR Fish advising of the proposed activity (Record of Consultation, reference 2.23) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 11 July 2023, Woodside sent a reminder email to VR Fish advising of the proposed activity (Record of Consultation, reference 2.23.1) and provided a Consultation Information Sheet<br>• On 12 January 2024, Woodside emailed VR Fish advising of the proposed activity (Record of Consultation, reference 3.5) and provided an updated Consultation Information Sheet.<br>• On 25 January 2024, Woodside sent a reminder email to VR Fish advising of the proposed activity (Record of Consultation, reference 3.5.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Apollo Bay Visitor Information Centre** | | |

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Apollo Bay Visitor Information Centre for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Apollo Bay Visitor Information Centre on 19 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Apollo Bay Visitor Information Centre with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 19 June 2023, Woodside emailed Apollo Bay Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 2.35) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 July 2023, Woodside sent a reminder email to Apollo Bay Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 2.35.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Apollo Bay Visitor information Centre advising of the proposed activity (Record of Consultation, reference 3.26) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Apollo Bay Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 3.26.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Port Campbell Visitor Information Centre**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Port Campbell Visitor Information Centre for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Port Campbell Visitor Information Centre on 19 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Port Campbell Visitor Information Centre with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 19 June 2023, Woodside emailed Port Campbell Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 2.35) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 July 2023, Woodside sent a reminder email to Port Campbell Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 2.35.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Port Campbell Visitor information Centre advising of the proposed activity (Record of Consultation, reference 3.26) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Port Campbell Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 3.26.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Warrnambool Visitor Information Centre**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Warrnambool Visitor Information Centre for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Warrnambool Visitor Information Centre on 19 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Warrnambool Visitor Information Centre with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 19 June 2023, Woodside emailed Warrnambool Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 2.35) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 July 2023, Woodside sent a reminder email to Warrnambool Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 2.35.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Warrnambool Visitor information Centre advising of the proposed activity (Record of Consultation, reference 3.26) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Warrnambool Visitor Information Centre advising of the proposed activity (Record of Consultation, reference 3.26.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Great Ocean Road Regional Tourism** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Great Ocean Road Regional Tourism for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to Great Ocean Road Regional Tourism on 31 May 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the Great Ocean Road Regional Tourism with the opportunity to provide feedback over a 16-month period.<br>**Summary of information provided and record of consultation:**<br>• On 31 May 2023, Woodside emailed Great Ocean Road Regional Tourism advising of the proposed activity (Record of Consultation, reference 2.12) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to Great Ocean Road Regional Tourism advising of the proposed activity (Record of Consultation, reference 2.12.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed Great Ocean Road Regional Tourism advising of the proposed activity (Record of Consultation, reference 3.42) and provided an updated Consultation Information Sheet.<br>• On 25 January 2024, Woodside sent a reminder email to Great Ocean Road Regional Tourism advising of the proposed activity (Record of Consultation, reference 3.42.1). | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Twelve Apostles Tourism and Business Group** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Twelve Apostles Tourism and Business Group for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback. | | |

- Consultation Information provided to Twelve Apostles Tourism and Business Group on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Twelve Apostles Tourism and Business Group with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Twelve Apostles Tourism and Business Group advising of the proposed activity (Record of Consultation, reference 2.12) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Twelve Apostles Tourism and Business Group advising of the proposed activity (Record of Consultation, reference 2.12.1) and provided a Consultation Information Sheet.
- On 12 February 2024, Woodside emailed Twelve Apostles Tourism and Business Group advising of the proposed activity (Record of Consultation, reference 3.42) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Twelve Apostles Tourism and Business Group advising of the proposed activity (Record of Consultation, reference 3.42.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

***Titleholders and Operators***

**Beach Energy**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Beach Energy for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to Beach Energy on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided Beach Energy with the opportunity to provide feedback over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed Beach Energy advising of the proposed activity (Record of Consultation, reference 1.15) and provided a Consultation Information Sheet.
- On 31 May 2023, Woodside emailed Beach Energy advising of the proposed activity (Record of Consultation, reference 2.14) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

- On 23 June 2023, Woodside sent a reminder email to Beach Energy advising of the proposed activity (Record of Consultation, reference 2.14.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Beach Energy advising of the proposed activity (Record of Consultation, reference 3.36) and provided an updated Consultation Information Sheet.
- On 17 January 2024, Beach Energy emailed Woodside with updated contact details for consultation.
- On 17 January 2024, Woodside responded and acknowledged the latest email contact details. Woodside confirmed it had updated its contacts list.
- On 25 January 2024, Woodside sent a reminder email to Beach Energy advising of the proposed activity (Record of Consultation, reference 3.36.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Cooper Energy**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Cooper Energy for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to Cooper Energy on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided Cooper Energy with the opportunity to provide feedback over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed Cooper Energy advising of the proposed activity (Record of Consultation, reference 1.14) and provided a Consultation Information Sheet.
- On 3 May 2022, Cooper Energy thanked Woodside for the opportunity to provide feedback and noted they have been kept well informed as the JV partner and do not have any issues.
- On 23 May 2022, Woodside replied with an email, thanking Cooper Energy for their reply.
- On 31 May 2023, Woodside emailed Cooper Energy advising of the proposed activity (Record of Consultation, reference 2.14) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Cooper Energy advising of the proposed activity (Record of Consultation, reference 2.14.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Cooper Energy advising of the proposed activity (Record of Consultation, reference 3.36) and provided an updated Consultation Information Sheet.

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| • On 25 January 2024, Woodside sent a reminder email to Cooper Energy advising of the proposed activity (Record of Consultation, reference 3.36.1). | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Conoco Phillips Australia** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Conoco Phillips Australia for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to Conoco Phillips on 31 May 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the Conoco Phillips with the opportunity to provide feedback over a 16-month period.<br>**Summary of information provided and record of consultation:**<br>• On 31 May 2023, Woodside emailed Conoco Phillips advising of the proposed activity (Record of Consultation, reference 2.14) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to Conoco Phillips advising of the proposed activity (Record of Consultation, reference 2.14.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed Conoco Phillips Australia advising of the proposed activity (Record of Consultation, reference 3.36) and provided an updated Consultation Information Sheet.<br>• On 25 January 2024, Woodside sent a reminder email to Conoco Phillips Australia advising of the proposed activity (Record of Consultation, reference 3.36.1). | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| ***Peak Industry Representative Bodies*** | | |
| **Australian Energy Producers (AEP)** | | |

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AEP for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided to AEP (formerly Australian Petroleum Production & Exploration Association (APPEA)) on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the AEP with the opportunity to provide feedback over a 30-month period.

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed AEP advising of the proposed activity (Record of Consultation, reference 1.13) and provided a Consultation Information Sheet.
- On 31 May 2023, Woodside emailed AEP advising of the proposed activity (Record of Consultation, reference 2.6) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 22 June 2023, Woodside sent a reminder email to AEP advising of the proposed activity (Record of Consultation, reference 2.6.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed AEP advising of the proposed activity (Record of Consultation, reference 3.39) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to AEP advising of the proposed activity (Record of Consultation, reference 3.39.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

***Traditional Custodians and Nominated Representative Corporations***

**Bunurong Land Council Aboriginal Corporation (BLCAC)**

BLCAC is a Registered Aboriginal Party (RAP) recognised as per the Aboriginal Heritage Act 2006 (Vic.), whose function is to protect and manage the Aboriginal cultural heritage of the Bunurong people of the South-Eastern Kulin Nation in the state of Victoria in Australia.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with BLCAC for the purposes of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

**Sufficient Information:**

- Woodside sought direction on BLCAC's preferred method of consultation. This resulted in a virtual meeting with BLCAC nominated representatives. This meeting included Woodside presenting information in a format and style that was readily accessible and appropriate.

- Provided Consultation Information Sheets and Consultation Summary Sheets developed by Indigenous staff to BLCAC. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity with controls in a digestible, plain English format.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls to manage potential impacts to ALARP and acceptable levels.
- Confirmed the purpose of consultation and set out in detail what was being sought through consultation.
- Asked for the consultation and information sheets to be distributed to members and individuals.
- Woodside has provided NOPSEMA's Brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing and environment plan".
- Provided response to questions asked about the activity through consultation. Through these questions, BLCAC has displayed an understanding of the activities under this EP.
- Advised that BLCAC can request that particular information provided in the consultation not be published (to align with regulation 25(4)).

**Reasonable Period:**

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Woodside commenced consultation with BLCAC in May 2023. Woodside has addressed and responded to BLCAC queries over 18 months, demonstrating a "reasonable period" of consultation.
- Woodside asked BLCAC if it was aware of any other Traditional Custodians groups or individuals with whom Woodside should consult. BLCAC recommended Woodside contact Flinders Island Aboriginal Association.
- Woodside has provided a reasonable opportunity for input since May 2023, and a genuine two-way dialogue has occurred via a meeting and written exchanges to further understand the environment in which the activity will take place. BLCAC has engaged in the detail of the activity asked related questions. The details of these engagement are described in the consultation summary below.
- Woodside engaged on ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revisions process (see Section 9.10.4 of the EP).
- Woodside considered that measures and controls described in the EP address the potential impact from the proposed activity on BLCAC functions, interests or activities.

**Summary of information provided and record of consultation:**

- On 19 May 2023, Woodside emailed BLCAC advising of the proposed activity (Record of Consultation, reference 2.39) and provided a Consultation Information Sheet.
- **(1)** On 19 May 2023, BLCAC called Woodside advising that BLCAC does not require consultation as the activity does not impact its country. **(1)** Woodside provided further information on the activity and EMBA and BLCAC stated it would discuss the requirement for consultation internally.
- On 19 May 2023, BLCAC forwarded Woodside's email to other BLCAC contacts, cc'ing Woodside.
- On 2 June 2023, Woodside emailed BLCAC to follow-up on the proposed activity and suggested a virtual meeting to discuss consultation.
- On 13 July 2023, Woodside emailed BLCAC to follow-up on the proposed activity and offered to arrange a discussion with project engineers.
- On 18 July 2023, Woodside emailed BLCAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that BLCAC advised Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 10 August 2023, Woodside emailed BLCAC to follow-up on the proposed activity and offered to arrange a virtual meeting.
- On 30 October 2023, Woodside emailed BLCAC to follow-up on whether BLCAC would like a meeting to discuss the Environmental Plan.
- On 31 October 2023, BLCAC emailed Woodside an alternative point of contact and requested an impact assessment and virtual meeting.

- On 31 October 2023, Woodside emailed BLCAC a Consultation Information Sheet and details of the proposed times for a virtual meeting.
- On 14 November 2023, Woodside emailed BLCAC to follow up on the suggestion of a virtual meeting to discuss the information.
- On 14 November 2023, BLCAC emailed Woodside details for an alternative point of contact.
- Between 14 November 2023 and 5 December 2023 Woodside and BLCAC exchanged emails about availability for a virtual meeting. This resulted in the meeting being scheduled for 8 December 2023.
- On 8 December 2023, BLCAC emailed Woodside providing contact details for a Cultural Values Project Manager as a contact point for a possible Cultural Values Assessment.
- On 8 December 2023, Woodside met with BLCAC. At the meeting Woodside:
  - Described the EP framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of EPs;
  - Displayed a map of activities open for feedback to be discussed in the meeting;
  - Described the proposed activities for this EP including types of vessels involved and decommissioning activities;
  - Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks were not expected to occur and were unlikely;
  - Displayed and spoke to the EMBA for the proposed activity;
  - Described an oil spill response approach and the use of key response techniques should this unexpected event occur;
  - Woodside specifically asked the following questions:
    - How could these activities impact your cultural values, interests, and activities – does protecting the environment do enough to protect your cultural values?
    - What are your concerns about the proposed activities and what do you think we should do about them?
    - Is there anything you would like included in the EPs before submission?
    - Is there anyone else Woodside should consult with about the activities?
  - Advised that Woodside would continue to take feedback from BLCAC for the life of the EP;
  - Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should BLCAC wish to provide feedback directly to the Regulator.
- At the 8 December 2023 meeting BLCAC provided the following feedback:
  - BLCAC is supportive of the broad approach to consultation taken by Woodside but notes that the project is somewhat removed from BLCAC's area of interest.
  - (2) Suggested spill response training for the PBCs given this is the only way in which BLCAC would be impacted (the activity site is not on Bunurong country). (2) Woodside noted this request and said it would relay this back to the team and work with BLCAC's Cultural Values Department in the future on the matter as part of ongoing consultation with the group.
  - Noted that BLCAC had a Cultural Values department which was responsible for the management of cultural knowledge relating to stories, animals, connections, plants and intangible values. BLCAC said it may be appropriate for its own Cultural Values Department to do desktop research to confirm that no cultural interests would be impacted and to provide suggestions on how to manage the impact to Woodside. Woodside agreed to wait to hear from BLCAC's Cultural Values department on the matter.
- On 15 January 2024, Woodside emailed BLCAC and identified a new point of contact and offered to arrange an in person meeting in Victoria should this be required by BLCAC.
- On 17 January 2024, Woodside phoned BLCAC but there was no answer so a message was left to return the call when possible.
- On 23 January 2024, Woodside emailed BLCAC to provide an update on planned activities and associated environmental management measures, and a revised Consultation Information Sheet. The email requested feedback in relation to the revised activities and potential impacts on cultural values.

- On 2 February 2024, Woodside emailed BLCAC to follow-up on the status of a potential Cultural Values Assessment and support relating to Ranger Programs. Woodside also offered to meet with BLCAC in person in February.
- On 2 February 2024, Woodside emailed BLCAC via an alternative contact to follow up on the potential Cultural Values Assessment and support for Ranger Programs.
- **(3)** On 5 February 2024, BLCAC emailed Woodside advising that a Cultural Values Assessment had not yet been undertaken for this project. BLCAC advised it happy to meet and discuss a potential Cultural Values Assessment, however it did not have capacity to undertake this until the beginning of next financial year.
- On 5 February 2024, BLCAC emailed Woodside suggesting an in-person meeting in February and requested further information about the activity.
- On 5 February 2024, Woodside emailed BLCAC providing a summary information sheet and minutes from the meeting on 8 December 2023.
- On 7 March 2024, Woodside had a phone discussion with BLCAC and exchanged emails to plan a virtual meeting.
- On 13 March 2024, Woodside and BLCAC had a virtual meeting. At the meeting:
  - Woodside explained the location of the Minerva activities, the scope of the activities, and the EMBA
  - Woodside advised the planned EP submission timeframe, and noted that consultation with BLCAC had started in 2023.
  - **(4)** BLCAC advised that eels and seagrass are culturally important to the Bunurong people.
  - **(3)** BLCAC advised that instead of a Cultural Values Assessment, a workshop with community members would be an appropriate mechanism to capture any feedback the community may wish to share with Woodside. BLCAC advised they would look to schedule that workshop in April, and would get back to Woodside with a proposed date.
  - **(3)** Woodside responded that it would support a workshop but that any feedback received as a result of the workshop would be treated as ongoing consultation, and information arising from the workshop would be assessed through the Management of Change process.
- On 13 March 2024, Woodside emailed BLCAC with a summary of the 13 March meeting:
  - **(4)** Woodside noted BLCAC's advice regarding the cultural importance of eels and seagrass and that these would be incorporated in the EPs.
  - Woodside advised the planned EP submission timeframe, and noted that consultation with BLCAC had started in 2023.
  - **(3)** Woodside would await BLCAC's advice regarding the date for a community workshop. Woodside advised that the workshop would form part of ongoing consultation, and any feedback received from the workshop would be assessed through the Management of Change process. Woodside noted the mechanisms that Woodside can use should members of the community request that information shared with Woodside Energy is not made publicly available.
  - The Consultation Information Sheet "Activity Update – Minerva Decommissioning Environment Plans" was attached to the email.
- **(3)** Between 14 March 2024 and 15 April 2024, BLCAC and Woodside corresponded to organise the community workshop, with a revised proposed date of 7 May.
- **(3)** On 7 May 2024, Woodside and BLCAC met virtually. Matters discussed included:
  - **(4)** Concerns by BLCAC about the protection of whales, seagrasses and shells including warrener shells.
  - **(5)** BLCAC's recommendation that Woodside should contact the Flinders Island Aboriginal Association as BLCAC believes a spill would reach Flinders Island.
  - **(4), (6)** Requests by BLCAC that Woodside examine the migratory patterns of all species of whales as they are all important.
  - **(4)** Requests by BLCAC that Woodside considers impacts to seals which are of importance to continuation of Womens' stories, as are whales.
  - **(7)** Request by BLCAC that Woodside employs a marine biologist of BLCAC's choice for the duration of the decommissioning. EMAC, Wadawurrung and the Flinders Island community should be consulted on suitable candidates for the job.
  - **(8)** BLCAC requires Woodside to identify the Pleistocene land bridge between the Australian mainland and Tasmania which is a submerged cultural landscape that could be impacted by a spill.
  - **(9)** BLCAC wishes to understand the time it would take for a spill to travel from Eastern Maar to Bunurong Country.
  - **(10)** Request by BLCAC for mitigation funding to protect seagrasses.

- Employment opportunities for First Nations people.
- **(11)** BLCAC's suggestion of ceremonies to welcome the project, clean workers and heal the community.
- **(12)** BLCAC's requirement for regular feedback over two years.
- **(13)** Measures that will need to be taken by Woodside and BLCAC regarding Womens' Business.

- On 23 May 2024, Woodside emailed BLCAC responses to matters raised during the virtual meeting on 7 May 2024. These responses included:
  - **(2), (3), 4), (6), (8),** Woodside would update the Minerva EPs to include information about Bunurong cultural values including the importance of seals, all species of whales, the submerged land bridge, seagrass and shells (including warrener shells).
  - **(9)** Woodside has not calculated the time it would take for spilled hydrocarbons to reach Bunurong country, however it would take 14 days for a spill to reach Warrnambool Plain, therefore Woodside would expect it would take a similar or greater length of time to reach Bunurong country.
  - **(6) (4)** In response to BLCAC's feedback about the importance of all whale species, Woodside would now have dedicated Marine Fauna Observers on project vessels for the whole project duration to report any fauna sightings. This will include whales and seals.
  - **(12)** Woodside would provide BLCAC with regular updates about its activities.
  - **(11)** Woodside supports BLCAC's suggestion of ceremonies. These would be organised by BLCAC and Woodside would be privileged to attend if invited.
  - **(7)** Woodside has provided alternatives to employing a marine biologist. These include:
    - Dedicated Marine Fauna Observers on all vessels.
    - Making whale sighting information publicly available.
    - Providing reasonable funding for BLCAC to engage an independent expert to review this information and report to BLCAC.
    - Requiring all offshore crew members be informed about Bunurong cultural values.
    - Support further meetings with Woodside and BLCAC.
    - Notify Traditional Owners in the event of a hydrocarbon release (as outlined in Woodside's Oil Pollution First Strike Plan).
  - **(10)** In relation to the request for mitigation funding, Woodside is unable to fund mitigation activities as part of consultation on EPs. Woodside has social investment and social grants programs.
  - **(13)** Woodside manages women-only information through limiting consultation meeting and information gathered to women only. Woodside ensures women-only information is transmitted to NOPSEMA separately. Woodside supports consultation on women-only information.
  - **(14)** Woodside has contacted EMAC about suggestions for further engagement and for collaboration with BLCAC, as suggested by BLCAC to Woodside:
    - The suggestion that the women of BLCAC and EMAC connect.
    - The suggestion that BLCAC and EMAC hold shared ceremonies before and during activities.
    - An EMAC observer onboard project vessels, as a conduit to report back to EMAC, BLCAC and other RAPs.
    - BLCAC's suggestion that Woodside hire a marine biologist for the duration of the activity.
- On 11 June, 2024, Woodside emailed BLCAC to follow-up on all Woodside Minerva EPs.
- **(12)** On 21 November 2024, Woodside emailed BLCAC a Start of Activity notification about the Minerva Decommissioning and Field Management Plan.
- **(15)** On 22 November 2024, BLCAC emailed Woodside and requested a copy of a Sea Country Map and sought clarification about Woodside's response to potential oil spills.
- On 27 November 2024, Woodside emailed BLCAC to note that spill modelling for the EP has been updated and would provide the updated maps soon.
- **(15)** On 29 November 2024, Woodside provided BLCAC with updated spill modelling maps and information about Woodside's oil spill response measures.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| **(1)** BLCAC advised that the project is significantly removed from their area of interest.<br>**(2)** BLCAC suggested spill response training for PBC's as an opportunity to mitigate potential impact.<br>**(3)** BLCAC had suggested a Cultural Values Assessment would be an appropriate mechanism to share information with Woodside. This Cultural Values Assessment took the form of a community workshop on 7 May 2024.<br>**(4)** BLCAC advised that eels, whales, seals, shells including warrener shells and seagrass are culturally important to the Bunurong people. BLCAC advised that whales are companion animals to dingoes.<br>**(5)** BLCAC has recommended Woodside consult with the Flinders Island Aboriginal Association Inc (FIAAI).<br>**(6)** BLCAC has asked Woodside to examine the migratory patterns of all species of whales as they are all important.<br>**(7)** BLCAC has requested Woodside employ a marine biologist of BLCAC's choice for the duration of decommissioning activities.<br>**(8)** BLCAC requires Woodside to identify the Pleistocene land bridge which is a submerged cultural landscape which could be impacted by a spill.<br>**(9)** BLCAC wishes to understand the time it would take for a spill to travel from Eastern Maar to Bunurong Country.<br>**(10)** BLCAC requests mitigation funding to protect seagrass.<br>**(11)** BLCAC suggests ceremonies be held to welcome the project, clean workers and heal the community.<br>**(12)** BLCAC requires regular updates over a two-year period. | **(1)** Woodside noted BLCAC's positions and explained the concept of an EMBA and the requirement for consultation.<br>**(2)** Woodside responded to BLCAC's suggestion on spill response training during face-to-face engagements. Woodside responded in the meeting that it may be able to assist BLCAC in a local spill response/ranger training program and that this will form ongoing consultation with BLCAC, as described in Section 9.8 of the EP. No further information was requested on the topic during the 7 May workshop.<br>**(3)** Woodside supported BLCAC's proposal that a workshop be held to provide community members the opportunity to give feedback on Woodside's activities. This workshop was held on 7 May 2024 and is treated as ongoing consultation.<br>**(4)** Woodside accepted BLCAC's feedback regarding the cultural importance of eels, whales, seals, warrener shells and seagrass.<br>**(5)** Woodside has considered BLCAC's advice about contacting the Flinders Island Aboriginal Association. Following updated EMBA modelling, the modelling shows that a release would be more than 100 kilometres north of King Island, and accordingly based on the methodology in the EP, King Island stakeholders are not relevant. However Woodside has accepted BLCAC's recommendation and contacted FIAAI. Details of this contact are in Table 3.<br>**(6)** Woodside accepts BLCAC's feedback that all species of whales are important. Woodside will have dedicated Marine Fauna Observers on MODU/vessels. Details of this are captured in Section 7.6.6.<br>**(7)** Woodside has assessed BLCAC's request for the employment of a marine biologist. Woodside has responded with alternatives including dedicated Marine Fauna Observers on all vessels for the duration of the project, making whale sighting data public, providing reasonable funding for BLCAC to review this data, providing information to offshore crew members about Bunurong cultural values and communicating with Traditional Owners regularly and in the event of a hydrocarbon release. Details of this are captured in Sections 7 and 8.<br>**(8)** Woodside accepts BLCAC's feedback about the importance of the Pleistocene land bridge which is a cultural landscape. Assessment of the risks to the land bridge are provided in Sections 7 & 8.<br>**(9)** Woodside has provided information to BLCAC about the time it would take for a spill to travel to Bunurong Country.<br>**(10)** Woodside has assessed BLCAC's request for mitigation funding to protect seagrass. Woodside is unable to fund mitigation activities as | **(1)** No additional measures or controls are required.<br>**(2)** No additional measures or controls are required.<br>**(3)** Information from the workshop held on 7 May 2024 has been captured in the Environment Plan. The outcomes from the workshop with BLCAC are addressed in Appendix F, Table 2 (this table) points (4), (5), (6), (7), (8), (9), (10), (11), (12), (13), (14).<br>**(4)** Woodside has captured BLCAC's feedback regarding culturally important species in Section 4.6.1. Woodside has assessed potential impacts to these in Sections 7 & 8.<br>**(5)** No additional measures or controls are required.<br>**(6)** Woodside has assessed BLCAC's claim about the importance of all species of whales. Woodside will have dedicated Marine Fauna Observers on MODU/vessels. Details of this are captured in Section 7.5. Woodside considers the measure appropriate.<br>**(7)** Woodside has assessed the claims raised by BLCAC regarding the employment of a marine biologist. The protection of marine fauna is covered in Sections 7 & 8. No additional measures or controls are required.<br>**(8)** Woodside has assessed the claim raised by BLCAC. Details about the Pleistocene land bridge are included in Section 4.6.1.5, and potential impacts and risks to tangible and intangible heritage are considered in Sections 7 & 8. |

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| **(13)** BLCAC has identified that measures will need to be taken to manage Womens' business.<br>**(14)** BLCAC suggested Woodside should contact EMAC regarding possibilities for further engagement between Woodside and EMAC:<br>• that the women of BLCAC and EMAC connect<br>• that BLCAC and EMAC hold shared ceremonies before and during activities<br>• an EMAC observer onboard project vessels, as a conduit to report back to EMAC, BLCAC and other RAPs<br>• that Woodside hire a marine biologist for the duration of the activity.<br>**(15)** BLCAC sought clarification about Woodside's oil spill response measures and Sea Country maps.<br>Woodside has addressed objections and claims as noted above. | part of consultation on EPs. Woodside has made BLCAC aware that it has a range of social investment programs and a social contribution grants program and provided a link to more information.<br>**(11)** Woodside supports BLCAC's suggestion of ceremonies. These would be organised by BLCAC and Woodside would be privileged to attend if invited.<br>**(12)** Woodside is committed to ongoing consultation with Traditional Owners and will provide regular updates to BLCAC throughout the project. Woodside will accept feedback from BLCAC for the life of the EP.<br>**(13)** Woodside manages women-only information through limiting consultation meeting and information gathered to women only. Woodside ensures women-only information is transmitted to NOPSEMA separately. Woodside supports consultation on women-only information. Woodside's methods for handline gender sensitive information are outlined in Section 5.5.2.<br>**(14)** Woodside has assessed BLCAC's suggestion that Woodside should contact EMAC regarding further engagement possibilities. Woodside has passed this information to EMAC – refer to Appendix F Table 2 (this table).<br>**(15)** Woodside provided BLCAC with updated EMBAs for both Commonwealth Minerva EPs and provided information about its oil spill response measures.<br>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4). | **(9)** No additional measures or controls are required.<br>**(10)** No additional measures or controls are required.<br>**(11)** Section 9.8 has been updated to capture the potential for BLCAC to engage in ceremonies in relation to this activity. Any such ceremonies will be instigated by BLCAC. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4).<br>**(12)** Woodside has assessed BLCAC's claim for regular updates during the project. Woodside engages in ongoing consultation throughout the life of an EP. Section 9.8 has been updated to capture the planned updates to BLCAC. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4).<br>**(13)** Woodside has assessed the claims raised by BLCAC. Woodside's methods for handling gender specific information are captured in Section 5.5.2 of this EP. Section 9.8 has been updated to capture the potential for BLCAC to engage in ongoing consultation regarding women-only information. Any such consultation will be instigated by BLCAC. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it |

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| | | will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4).<br>**(14)** Section 9.8 has been updated to capture the potential further engagement with EMAC identified by BLCAC. Any such consultation will be instigated by EMAC. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4).<br>**(15)** The Oil Pollution Emergency Plan is in Appendix E.<br>Woodside has assessed the objections and claims raised by BLCAC. Additional measures and controls have been put in place. Woodside considers the measures and controls are appropriate. |
| **Eastern Maar Aboriginal Corporation (EMAC)**<br>EMAC is established under the Native Title Act 1993 by the Eastern Maar people to represent the Eastern Maar people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values. | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with EMAC for the purposes of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>**Sufficient Information:**<br>• Woodside sought direction on EMAC's preferred method of consultation. This resulted in a face-to-face meeting with EMAC nominated representatives. This meeting included Woodside presenting information in a format and style that was readily accessible and appropriate.<br>• Provided Consultation Information Sheets and Consultation Summary Sheets developed by Indigenous staff to EMAC. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity with controls in a digestible, plain English format.<br>• Articulated planned and unplanned environmental risks and impacts, with proposed controls to manage potential impacts to ALARP and acceptable levels.<br>• Confirmed the purpose of consultation and set out in detail what was being sought through consultation.<br>• Asked for the consultation and information sheets to be distributed to members and individuals.<br>• Provided response to questions asked about the activity through consultation. Through these questions, EMAC have displayed an understanding of the activities under this EP. | | |

- Woodside has provided NOPSEMA's Brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing and environment plan".
- Advised that EMAC can request that particular information provided in the consultation not be published (to align with regulation 25(4)).

**Reasonable Period:**

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Woodside commenced consultation with EMAC in May 2023. Woodside has addressed and responded to EMAC queries over 18 months, demonstrating a "reasonable period" of consultation.

Woodside asked EMAC if it was aware of any other Traditional Custodians groups or individuals with whom Woodside should consult. Non were identified.

Woodside has provided a reasonable opportunity for input since May 2023, and a genuine two-way dialogue has occurred via a meeting and written exchanges to further understand the environment in which the activity will take place. EMAC has engaged in the detail of the activity asked related questions. The details of these engagement are described in the consultation summary below.

Woodside engaged on ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revisions process (see Section 9.10.4 of the EP).

Woodside considered that measures and controls described in the EP address the potential impact from the proposed activity on EMAC's functions, interests or activities.

**Summary of information provided and record of consultation:**

- On 19 May 2023, Woodside emailed EMAC advising of the proposed activity (Record of Consultation, reference 2.40) and provided a Consultation Information Sheet.
- On 7 June 2023, Woodside emailed EMAC to follow-up on the proposed activity and requested feedback.
- On 7 July 2023, Woodside phoned EMAC but there was no answer. Woodside left a message that informed EMAC that the purpose of the call was to discuss consultation and the activity. Woodside asked EMAC to return its call.
- On 7 July 2023, Woodside emailed EMAC to follow-up on the proposed activity and provided a Consultation Information Sheet.
- On 13 July 2023, Woodside emailed EMAC to follow-up on the proposed activity and proposed a virtual meeting.
- On 20 July 2023, Woodside emailed EMAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that EMAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 24 July 2023, Woodside called EMAC and discussed Minerva Decommissioning. EMAC advised the requirement for consultation would be discussed internally and EMAC would response to Woodside's request for feedback..
- On 10 August 2023, Woodside emailed EMAC to follow-up and requested availability for a virtual meeting.
- On 28 August 2023, Woodside emailed EMAC to follow-up and requested availability for a virtual meeting.
- On 7 September 2023, Woodside emailed EMAC a proposal to support a Sea Country ethnographic assessment with EMAC including funding for an anthropologist and EMAC's associated costs.
- On 30 October 2023, Woodside emailed EMAC to follow-up on the Sea Country ethnographic assessment proposal.
- On 30 October 2023, Woodside emailed EMAC to follow-up on the Sea Country ethnographic assessment and re-confirm Woodside's offer to pay costs.
- On 6 November 2023, Woodside emailed EMAC outlining the intention of the Sea Country mapping proposal as a mechanism for EMAC to advise Woodside on how activities might impact EMAC's rights and interests.

- On 9 January 2024, Woodside emailed an alternative contact at EMAC with the proposal to support a Sea Country ethnographic assessment with EMAC (previously sent to EMAC on 7 September). No response was received.
- On 8 February 2024 EMAC and Woodside exchanged text messages regarding a potential meeting on 15 February 2024.
- On 13 and 14 February 2024 Woodside and EMAC exchanged emails in relating to meeting on 15 February.
- On 15 February 2024, Woodside met with EMAC. At the meeting Woodside:
  - Described the proposed activities for this EP including the role of decommissioning in the project lifecycle, and an overview of the facilities and types of vessels used.
  - Explained the General Direction 831 given by NOPSEMA to have the Minerva P&A activities and subsea removal completed by 30 June 2025.
  - Outlined the project schedule and interactions with blue whales and southern wright whales, outlined the whale protection mitigation plan and noise controls in place.
  - Displayed and spoke to the EMBA for the proposed activity.
  - Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks were not expected to occur and were unlikely
  - Described the approach to cultural heritage and Sea Country
  - Woodside specifically asked the following questions:
    - How could these activities impact your cultural values, interests, and activities – does protecting the environment do enough to protect your cultural values?
    - What are your concerns about the proposed activities and what do you think we should do about them?
    - Is there anything you would like included in the EPs before submission?
    - Is there anyone else Woodside should consult with about the activities?
    - Advised that Woodside would continue to take feedback from EMAC for the life of the EP
    - Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should EMAC wish to provide feedback directly to the Regulator
    - Asked if EMAC have any questions or feedback.
  - At the 15 February 2024 meeting EMAC provided the following feedback:
    - EMAC sought to understand the process relating to monitoring for leaks.
    - **(1)** Expressed interest in noise impacts on whales and eels and requested information on noise modelling. (1) Woodside explained that it had taken measures to reduce noise and had marine mammal observers on vessels.
    - **(2)** Asked whether Woodside would fund an independent assessment of the project. (2) Woodside said it had funded PBCs to do this for other projects.
    - Stated that EMAC was not asked for approval prior to the installation of this project, and didn't receive any benefit from the project and extraction of the resource.
    - **(3)** Asked whether Woodside has an incident management team and if EMAC could be part of this. (3) Woodside explained that it is committed to contacting Traditional Owners under its spill response plan.
    - Asked why NOPSEMA did not consult with EMAC on the removal of hardware before issuing the general direction.
    - Stated that timeframes set by NOPSEMA are challenging and do not provide sufficient time to consult with members and families.
- On 21 February 2024 Woodside emailed EMAC thanking EMAC for making time to meet, and reminding the corporation that it can make comments through NOPSEMA or request further consultation with Woodside.
- On 15 May 2024, Woodside emailed EMAC to pass on suggestions raised by BLCAC (See BLCAC meeting notes from 7 May 2024) about:
  - women of EMAC and BLCAC connecting

- shared ceremonies before and during activities
- involvement of an EMAC observer
- hiring of a marine biologist.

- On 23 May 2024, Woodside called EMAC to follow-up on its email sent 15 May 2024. EMAC did not take the call and did not call back.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| **(1)** Expressed interest in noise impacts on whales and eels and requested information on noise modelling.<br>**(2)** Requested funding to undertake an independent assessment of the project.<br>**(3)** Asked whether Woodside has an incident management team and if EMAC can be part of this.<br>Woodside has addressed objections and claims as noted above. | **(1)** Woodside notes EMAC's interests in whales and eels and the impacts of noise. Provided information on noise level monitoring, mitigation measures including rig positioning to reduce impact, and training and qualifications of marine mammal observers. No further information on these topics was requested.<br>**(2)** Woodside advised that funding is available to support an independent assessment.<br>**(3)** Advised that incident management team includes AMOSC and Department of Transport. Woodside's spill response plan includes notifying Traditional Owners.<br><br>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4). | **(1)** Woodside updated Section 4.6.1.5 to reflect EMAC's interests in culturally significant species and locations, and assessed potential impacts on these, including controls in Sections 7 and 8. Woodside considers the measures and controls are appropriate.<br>**(2)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with EMAC as part of ongoing consultation (Sections 5.7 and 9.8 of the EP). Based on the engagement to date, no additional measures or controls are required.<br>**(3)** The Oil Pollution Emergency Plan in Appendix E includes notifying stakeholders who may be impacted by a hydrocarbon release. Based on the engagement to date, no additional measures or controls are required.<br>Woodside has assessed the objections or claims raised by EMAC. Additional controls and measures have been put in place. Woodside considers the measures and controls are appropriate. |

**Gunditj Mirring Traditional Owners Aboriginal Corporation (GMTOAC)**

GMTOAC is established under the Native Title Act 1993 by the Gunditjmara people to represent the Gunditjmara people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with GMTOAC for the purposes of regulation 25 is complete.

In accordance with regulation 25(2) Woodside has provided GMTOAC with sufficient information to allow GMTOAC to make an informed assessment of the possible consequences of the activity on the functions, interests or activities of GMTOAC. In accordance with regulation 25(3), Woodside has allowed GMTOAC a reasonable period for consultation. In all of the circumstances, Woodside has also provided GMTOAC a reasonable opportunity to consult and Woodside has consulted in good faith and in a reasonable manner.

Woodside has complied with regulation 25 as set out in summary as follows:

**Methodology**

GMTOAC is the representative body as both the Prescribed Body Corporate under the *Native Title Act 1993* (Cth) and the Registered Aboriginal Party under the *Aboriginal Heritage Act 2006* (Vic).

- Woodside has decisional choice on how it consults, and Woodside aims to consult in a way that is respectful, appropriate and adapted to the nature of the interests of relevant persons (Tipakalippa). Nominated representative corporations (such as Prescribed Bodies Corporate established under the Native Title Act) have a designated role of representing the views of their own members. They have established methods for engaging with their own members.
- Woodside consults in a manner consistent with the United Nations Declaration of the Rights of Indigenous Peoples which is for consultation to take place through the Indigenous Peoples' chosen representative entity.
- In this case, GMTOAC is the representative entity. During the consultation process, Woodside expressly asked GMTOAC to confirm that appropriate way to consult with them. GMTOAC specifically reached out to its membership inviting them to consult with Woodside. In addition, Woodside presented at a Consultation Day organised by GMTOAC that was designed specifically to enable its membership to consult with Woodside (and other titleholders). In addition, Woodside has offered to present to the GMTOAC Board, its membership, its office holders and other interested parties. Woodside has also provided materials and information to GMTOAC for the purposes of GMTOAC providing that information to its membership.
- Woodside therefore disagrees with GMTOAC's assertion that consultation has not occurred with GMTOAC or its members. Woodside will not undermine the purpose and authority of nominated representative corporations by circumventing the process and going straight to members. Consistently with the UNDRIP, Woodside has consulted with the nominated representative corporation by consulting the corporation and enabling the corporation to involve its own members by providing consultation information and information about meetings to the nominated representative corporation to provide to its members in accordance with the corporation's own processes.
- In accordance with its consultation methodology, Woodside contacted GMTOAC as the representative body for the Gunditjmara native title group and has been consulting with GMTOAC in this capacity since 17 May 2023.

**Sufficient Information:**

- In a letter dated 7 June 2024 from EJA, it was asserted that GMTOAC has only been provided with limited and partial information. Woodside does not agree with this assertion.
- During consultation, Woodside has provided to GMTOAC information describing the proposed decommissioning activities, the location of the activities, the timing of the activities, the risks and impacts Woodside has assessed in relation to the activities and the controls in place to manage these to As Low As Reasonably Practicable and an Acceptable Level.
- The information was provided in various formats including consultation information sheets, brief written summaries, the detailed environment plan, maps, timelines, diagrams, PowerPoint presentations and written responses to questions raised during presentations, as well as in face-to-face presentations and meetings. In February 2024, at GMTOAC's consultation day, Woodside also made cultural heritage, environment, well delivery and decommissioning specialists available to provide information and answer questions from GMTOAC.
- Woodside disagrees with GMTOAC's assertion that consultation has not commenced and instead, there have only been information sessions. This is because Woodside has provided information to GMTOAC, has engaged in genuine two-way dialogue regarding that information, has answered questions and queries relating to the information and has made specialists available to GMTOAC to provide further information as required by GMTOAC.

A brief summary of information provided is as follows:

- During consultation, Woodside provided to GMTOAC, Consultation Information Sheets and Consultation Summary Sheets that were developed by Indigenous staff. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity with controls in language designed to be clear and easily understood.
- Woodside provided PowerPoint presentations on the proposed activities and presented to GMTOAC on those presentations during which Woodside answered questions and provided additional information.
- In a virtual face to face meeting with GMTOAC on 29 June 2023, Woodside presented information in a format and style that was bespoke for GMTOAC and that Woodside had designed to be readily accessible and appropriate for the GMTOAC consultation. During this meeting, in addition to providing information on the activity, Woodside provided information about the consultation process, the purpose of consultation and the reasons for consulting with GMTOAC.
- In an email on 18 July 2023, Woodside provided GMTOAC information about NOPSEMA's consultation guidelines.
- Woodside accepted an invitation from GMTOAC to participate in the GMTOAC 'Offshore Oil and Gas Consultation Day' with its members on 17 February 2024. GMTOAC expressly advertised the consultation day to its members via Facebook on at least three separate occasions and its bi-monthly newsletter. In the social media post GMTOAC said to its members, "*Help shape the feedback on these proposed activities*". Woodside notes that the agenda for the event was titled – 'Gunditjmara Offshore Oil and Gas Consultation Day'. Woodside attended the consultation day in good faith and made cultural heritage, environment, well delivery and decommissioning specialists available to answer questions from GMTOAC and its members. In its letter dated 25 June 2024, EJA describes this as "only a limited introduction and partial introduction" to the activities and that it was an "information session". Woodside disagrees and confirms that this was a Consultation Day to which all GMTOAC members were invited. Woodside presented at the Consultation Day and attended with specialists to answer any questions and provide any additional information GMTOAC may have required for consultation.
- Woodside provided responses to questions asked about the activity during consultation. It was evident to Woodside that GMTOAC had an understanding of the activities, risks and impacts because the questions GMTOAC asked displayed an understanding of the activities as well as the risks and impacts of the activities proposed to be undertaken under the EP.

**Reasonable Period:**

- Woodside has allowed GMTOAC a reasonable period for consultation – Woodside has engaged in consultation with GMTOAC for 18 months. Woodside does not agree with GMTOAC's assertions that consultation has not yet commenced or that some consultation meetings have merely been information sessions.
- Woodside also notes that, during consultation, it has been respectful of GMTOAC's need to observe and take time for sorry business, convene Board meetings, absorb and digest information and other requests for additional time. It has also factored in time for GMTOAC and its members to obtain technical, legal and other advice it says it needs in order to consult.

A summary of the time period in which consultation has been undertaken is as follows:

- Consultation commenced on 17 May 2023 when Woodside published advertisements in national, state and relevant local newspapers (The Australian, Herald Sun, Warrnambool Standard, Colac Herald and Cobden Times) notifying of the proposed activities and inviting feedback. The advertisements were specifically aimed at print media with readership in Victoria which is the State closest to where the offshore activities will occur in Commonwealth waters.
- Woodside first engaged in consultation with GMTOAC on 19 May 2023 in an email that was sent to GMTOAC's preferred contact address (see Record of Consultation 2.41). This email confirmed that Woodside's purpose was to consult with GMTOAC about the activity. The email included consultation information sheets and asked GMTOAC to provide feedback by 16 June 2023.
- Woodside and GMTOAC then engaged in various exchanges of emails.
- Woodside followed-up on 7 June 2023 and offered to explain the consultation process in more detail.
- Woodside met with GMTOAC virtually on 29 June 2023. During this meeting Woodside explained the consultation process and asked if GMTOAC would like anything included in the EP while it was being prepared for submission.

- Following a request from GMTOAC, on 1 September 2023 Woodside provided updates about the EP submission date and repeated its offer to provide further information.
- Woodside attended and presented to GMTOAC's "Offshore Oil and Gas Consultation Day" on 17 February 2024. GMTOAC described this event as a "consultation day" in its invitation to Woodside (SI Report, 7 December 2023). GMTOAC also advertised this day to its members as "consultation" (See SI Report GMTOAC social media posts - 11 January 2024, 6 February 2024, 13 February 2024). The agenda for the meeting was titled – 'Gunditjmara Offshore Oil and Gas Consultation Day'.
- Woodside advised GMTOAC on 13 March 2024 that consultation in the course of preparing the EP was complete and that it would accept ongoing feedback for the life of the EP.
- Over an approximately 18-month period, Woodside continued to address and respond to GMTOAC's queries.

**Reasonable Opportunity:**

GMTOAC makes a number of assertions regarding whether its members have been consulted and more broadly, whether consultation has actually commenced:

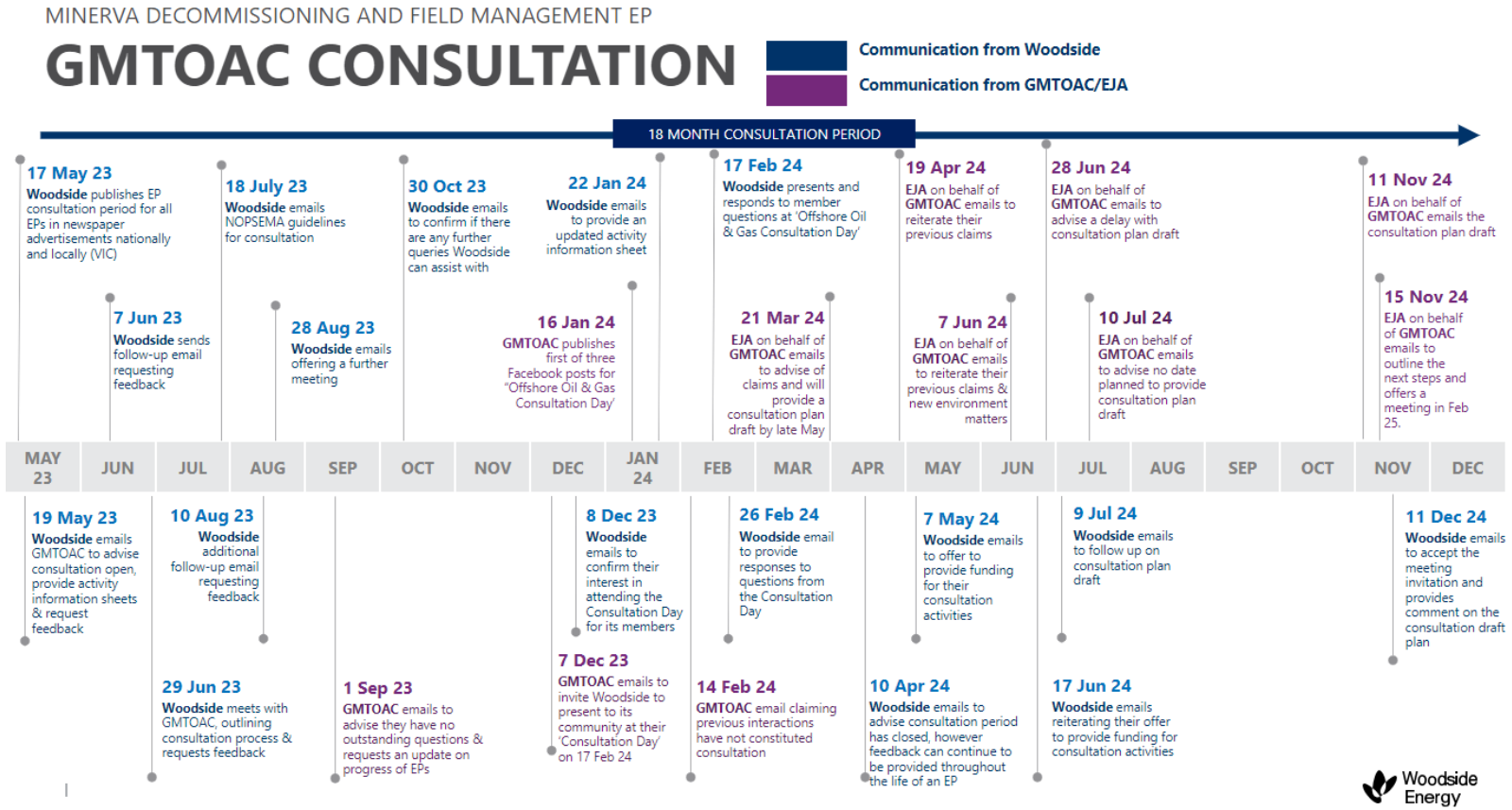
- *Members not consulted* – GMTOAC suggests that Woodside has not provided an opportunity for GMTOAC members to be consulted. Woodside does not agree with this position – please see notes above under the heading "Methodology" as well as notes below. In its letter dated 25 June 2024, EJA characterises some of the exchanges between Woodside and EJA as "administrative in nature" and that they "do not constitute consultation". Woodside disagrees with this assertion and notes that the voluminous exchange of emails and correspondence demonstrates Woodside's openness and availability to consult and provide information or answer questions on the activity in order to assist and enable GMTOAC to assess the impacts on its functions, interests or activities (see for example, questions answered in letter from Woodside dated 10 April 2024). Woodside also confirms that it has offered to provide financial assistance to GMTOAC, should that be required in relation to consultation.
- *Consultation has not commenced* – GMTOAC suggests that consultation has not commenced. Woodside disagrees with this assertion for a number of reasons.
    - Firstly, Woodside has been consulting with GMTOAC for a period of 18 months – see notes under the heading "Reasonable Period" as well as figure below. In addition, GMTOAC, via EJA has confirmed that Woodside has requested consultation on the EP and that Woodside has indeed met with GMTOAC to discuss the EP (see letter from EJA dated 25 June 2024 SI Report). Woodside engages in consultation in good faith and in a reasonable manner. If a person is approached for consultation and that person does not wish to engage in consultation, there is no requirement for consultation to proceed (a person cannot be forced to consult). Further, a titleholder can offer to consult but is not required to keep attempting to consult in circumstances where a person deliberately choses to refuse to engage or where a person suggests that it will only consult on a protocol, a consultation plan or a set of terms and conditions that it then refuses to disclose to a titleholder. A titleholder is not required to wait indefinitely for a person to agree to consultation or to engage in consultation (especially in circumstances where a titleholder has provided adequate time and opportunity for a person to engage in consultation). In circumstances where a titleholder has continued to enquire and invite input on how a person wishes to be consulted, and the titleholder follows a person's requests, a person cannot then suggest that consultation must be appropriate and adapted and that it has not been.
    - Secondly, Woodside has consulted in accordance with reasonable input from GMTOAC, has remained open to consulting with GMTOAC and has repeatedly provided opportunities and meetings to consult with GMTOAC and its membership.

  Some of the opportunities are as follows:

- Throughout consultation, Woodside asked GMTOAC to provide input on what its preferred method of consultation is. Woodside also offered to speak to GMTOAC members, GMTOAC's Board, office holders and other interested parties that GMTOAC asked Woodside to consult.
- Woodside repeatedly invited GTMOAC to distribute consultation information to its members.
- At the commencement of consultation, Woodside repeatedly asked GMTOAC if it was aware of any Traditional Custodians groups or individuals with whom Woodside should consult. GMTOAC did not specify any individuals for Woodside to consult.
- In an email on 18 July 2023, Woodside provided GMTOAC information about NOPSEMA's consultation guidelines and again asked if there were any other Traditional Custodian groups or individuals with whom Woodside should consult. Woodside also invited GMTOAC to forward its communications with GMTOAC and consultation information to GMTOAC's members and other Traditional Custodian groups or individuals GMTOAC believes should receive the information and should be consulted.
- Woodside accepted an invitation from GMTOAC to participate in the GMTOAC 'Offshore Oil and Gas Consultation Day' with its members on 17 February 2024. GMTOAC advertised the consultation day to its members via Facebook on at least three different occasions. In the social media post GMTOAC said to its members, "*Help shape the*

*feedback on these proposed activities".* Woodside notes the agenda for the meeting was titled – 'Gunditjmara Offshore Oil and Gas Consultation Day'. Woodside attended the consultation day in good faith and made cultural heritage, environment, well delivery and decommissioning specialists available to answer questions from GMTOAC and its members.

- From around May 2023 until around February 2024, Woodside and GMTOAC engaged in genuine two-way dialogue via a meeting and written exchanges. GMTOAC has engaged in the detail of the information and asked relevant and informed questions. The details of these engagements are described in the consultation summary below. From around March 2024, Woodside noticed a change in the consultation engagements and narrative from GMTOAC.
- Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revisions process (see Section 9.10.4 of the EP).



**Other information**

Woodside confirms that relevant information provided by or relevant to GMTOAC has been assessed by Woodside during consultation. In a letter dated 25 June 2024, EJA has suggested that the EP does not consider GMTOAC's cultural or other interests. Woodside disagrees with this assertion. Woodside has developed a robust understanding of the environment, including cultural features and heritage values, relevant to the EP through an examination of publicly available information, studies and its consultation with GMTOAC. Where appropriate, information has been incorporated into the EP.

It is noteworthy that when consultation commenced in May 2023, the consultation between Woodside and GMTOAC was personable, amicable, constructive and open. In around March 2024, Woodside was notified that GMTOAC was represented by Environment Justice Australia (EJA) lawyers and that communications with GMTOAC were to be made through EJA. From this point, Woodside noticed a change in the approach to consultation. For example, the communication style changed, the relationship became less amicable, the approach to consultation and engagements became adversarial and there was a lack of cooperation towards consultation with Woodside. For example, since Woodside began consultation with GMTOAC in May 2023, 18 months ago, Woodside believes it has consulted in accordance with the way GMTOAC had told Woodside to consult. Despite engaging cooperatively in consultation and discussions, GMTOAC via EJA informed Woodside on 21 March 2024, 10 months after Woodside's initial contact with GMTOAC, that consultation had not even commenced and that a consultation plan setting out how GMTOAC would engage in consultation would be provided to Woodside by late May 2024..

Woodside notes that GMTOAC published a newsletter with the heading 'Member News' in August 2024, that is publicly available on the GMTOAC website (www.gunditjmirring.com/news). The newsletter states that a working draft of the 'Gunditjmara Consultation Protocol' was approved by the GMTOAC Board at its meeting on 5 July 2024. The newsletter states, "Discussions and planning are currently underway with lawyers at EJA to determine the best way to release the Protocols to offshore petroleum proponents. EJA will advise on this in the near future. In the meantime, GMTOAC has been advised to NOT share the Protocols with any proponents or NOPSEMA." Woodside refers to this in the absence of receiving any other consultation plan from GMTOAC until 11 November 2024. On 9 September 2024, EJA informed Woodside that the plan was expected to be adopted during a full group meeting of Gunditjmara native title holders in late October 2024.

As the proposed Consultation Plan was received after consultation for this EP was completed, Woodside has not agreed to the plan in its current form. The plan also contravenes the Regulations Woodside is working within. For example, GMTOAC's proposed Consultation Plan assumes GMTOAC to be the decision maker instead of NOPSEMA which is inconsistent with the Regulations. The Regulations stipulate that the decision maker is the regulator, NOPSEMA.

Further, the Regulations state that if a person is approached for consultation and that person does not wish to engage in consultation, there is no requirement for consultation to proceed (a person cannot be forced to consult). As long as titleholders provide sufficient information, allow a reasonable period of time for consultation and provide reasonable opportunity for consulted persons to make an informed assessment of the possible consequences of the activities on their functions, interests and activities. It must be pragmatic and capable of performance. Woodside asserts that consultation has been in accordance with reasonable input from GMTOAC, has remained open to consulting with GMTOAC and has repeatedly provided opportunities and meetings to consult with GMTOAC and its membership.

For the sake of clarity, Woodside confirms that the consultation process does not require consent or agreement from the person being consulted – the consultation regulations do not require titleholders to obtain, through consultation, free prior and informed consent of people being consulted, in order to undertake an activity.

**Summary of information provided and record of consultation:**

- On 19 May 2023, Woodside emailed GMTOAC to advise of the proposed activity (Record of Consultation, reference 2.41) and provided a Consultation Information Sheet.
- On 7 June 2023, GMTOAC emailed Woodside and expressed an interest in consultation and requested a virtual meeting on 21 June 2023.
- On 7 June 2023, Woodside emailed GMTOAC and confirmed availability on 21 June 2023 and requested feedback on the most appropriate form of consultation.

- On 13 June 2023, GMTOAC emailed Woodside a meeting invitation and confirmed information required during the consultation.
- Between 19 and 23 June 2023, Woodside and GMTOAC exchanged emails to set up an online meeting.
- On 29 June 2023, Woodside met with GMTOAC.

  At the meeting Woodside:
  - Described the EP framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general content of EPs.
  - Displayed a map of activities open for feedback to be discussed in the meeting.
  - Described the proposed activities for this EP including types of vessels involved and decommissioning activities.
  - Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks were not expected to occur and were unlikely.
  - Displayed and spoke to the EMBA for the proposed activity.
  - Described an oil spill response approach and the use of key response techniques should this unexpected event occur.
  - Woodside specifically asked the following questions:
    - How could these activities impact your cultural values, interests, and activities – does protecting the environment do enough to protect your cultural values?
    - What are your concerns about the proposed activities and what do you think we should do about them?
    - Is there anything you would like included in the EPs before submission?
    - Is there anyone else Woodside should consult with about the activities?
  - Advised that Woodside would continue to take feedback from GMTOAC for the life of the EP.
  - Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should GMTOAC wish to provide feedback directly to the Regulator.
  - Asked if GMTOAC had any questions or feedback. GMTOAC said it had no questions or feedback at the present. GMTOAC representatives stated they would speak to the CEO for guidance on future steps and that it had a few requests from other companies that it had to manage.
- On 3 July 2023, Woodside emailed GMTOAC to follow-up on the meeting held on 29 June. Woodside shared presentation materials and requested feedback on next steps.
- On 18 July 2023, Woodside emailed GMTOAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that GMTOAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 10 August 2023, Woodside emailed GMTOAC to follow-up on the proposed activity and request feedback.
- On 28 August 2023, Woodside emailed GMTOAC and requested availability to discuss the proposed activity.
- On 1 September 2023, GMTOAC emailed Woodside and advised it had no outstanding questions and requested an update on the progress of the Minerva EPs.
- On 1 September 2023, Woodside emailed GMTOAC the status of the EPs and planned submission dates.
- On 30 October 2023, Woodside emailed GMTOAC to follow-up on the proposed activity and request feedback.
- On 30 October 2023, GMTOAC emailed Woodside an out-of-office reply, with alternative contact details.
- On 30 October 2023, Woodside emailed GMTOAC via the alternative contact to follow-up on the proposed activity and request feedback.
- On 7 December 2023, GMTOAC emailed Woodside details of a joint industry community consultation day to be held on 17 February 2024 and invited Woodside to book a timeslot.
- On 8 December 2023, Woodside emailed GMTOAC confirming its interest to attend the consultation day on 17 February 2024.

- On 10 January 2024, Woodside phoned GMTOAC to introduce the new Woodside focal point. Phone reception was poor and a follow-up email was sent.
- On 10 January 2024, Woodside emailed GMTOAC to follow-up on the phone conversation and introduce the new Woodside focal contact. Woodside said it was keen to book a timeslot to speak on 17 February 2024 and that it would be happy to pay standard meeting fees.
- On 11 January 2024, GMTOAC emailed Woodside thanking it for reaching out and proposing a slot to speak at the community event on 17 February 2023.
- On 11 January 2024, Woodside emailed GMTOAC confirming interest in the event and informing GMTOAC that it would book travel and accommodation.
- On 16 January 2024, GMTOAC advertised the 17 February 2024 event on its Facebook page. The advertisement described the event as an "Offshore Oil and Gas Consultation Day", encouraging its members to be involved and informed, and to register via its website. The advertisement also noted travel allowance and sitting fees for eligible attendees. The same advertisement was also included in its bi-monthly member newsletter.
- On 17 January 2024, Woodside emailed GMTOAC confirming attendees for the upcoming community event.
- On 17 January 2024, GMTOAC emailed Woodside thanking it for sending through meeting attendees.
- On 22 January 2024, Woodside emailed GMTOAC providing an update on planned activities and associated environmental management measures, and a revised Consultation Information Sheet. The email requested feedback in relation to the revised activities and potential impacts on cultural values.
- On 6 February 2024, GMTOAC reposted on Facebook its advertisement for the Offshore Oil and Gas Consultation Day on 17 February 2024.
- On 8 February 2024, Woodside emailed GMTOAC and requested a cost estimate for the meeting on the 17 February 2024.
- On 13 February 2024, GMTOAC reposted on Facebook its advertisement for the Offshore Oil and Gas Consultation Day on 17 February 2024.
- On 14 February 2024, GMTOAC emailed Woodside a letter (dated 5 February 2024) outlining the following:
    - **(1)** Activities related to this EP were proposed to take place in waters that comprise Sea Country of the Gunditjmara people, represented by GMTOAC. These waters are significant breeding grounds and habitats for cultural significant species that hold intangible heritage and submerged tangible heritage including:
        - Deen Mar Island which holds spiritual significance.
        - Kooyang (short finned eel) which are central to the functioning of the Budi Bim World Heritage Area.
        - Karntubul (whales) which hold spiritual significance.
        - The Bonney Upwelling feeding ground for cultural significant species.
    - **(2)** GMTOAC does not view interactions that have taken place to date between GMTOAC and Woodside to constitute consultation for the EP.
    - **(3)** GMTOAC is a representative body which operates through an inclusive governance model, whereby all members are invited to, and given opportunity to, provide input on matters affecting Country.
    - **(4)** Consultation must be undertaken in such a way as to enable each member to participate, including that they receive sufficient information to allow them to make an informed assessment of Woodside's proposed activities on their functions, interests and activities. or activities. GMTOAC members would expect this to be done via a properly notified and conducted meeting.
    - **(5)** Each member expects to be given a reasonable period of time to consider information before providing feedback.
    - **(6)** Woodside's presentation on 17 February 2024 is an information session only and will not constitute consultation on this EP. in and of itself.
- On 15 February 2024, Woodside emailed GMTOAC thanking it for the letter, the upcoming opportunity to present to GMTOAC members and the advice on the cultural significance of waters in the locality of the proposed activity.
- On 16 February 2024, Woodside took part in a paid public tour at the Budj Bim Cultural Landscape World Heritage Area on Gunditjmara Country. The tour was conducted by Budj Bim Cultural Landscape Tourism and included proponents of other projects conducting work in the Otway region. Woodside understands GMTOAC's legal representatives Environmental Justice Australia (EJA) also participated in the tour.

- In the second edition of its bi-monthly newsletter, GMTOAC advertised its Oil and Gas Consultation Day on Saturday 17 February 2024. The advertisement encouraged GMTOAC members to be involved and informed, and to register via its website. The advertisement also noted travel allowance and sitting fees for eligible attendees. The digital newsletter is available on GMTOAC's website and does not identify a date of publication.
- On 17 February 2024, Woodside met with GMTOAC. The meeting agenda had the title 'Gunditjmara Offshore Oil and Gas Consultation Day'.

  During the meeting Woodside:
  - Described the proposed activities for this EP including the role of decommissioning in the project lifecycle, and an overview of the facilities and types of vessels used.
  - Explained the General Direction 831 given by NOPSEMA to have the Minerva P&A activities and subsea removal completed by 30 June 2025.
  - **(1)** Outlined the project schedule and interactions with Blue whales and Southern Wright whales, outlined the whale protection mitigation plan and noise controls in place.
  - Displayed and spoke to the EMBA for the proposed activity.
  - Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks were not expected to occur and were unlikely.
  - **(1)** Described approach to cultural heritage and Sea Country
  - Woodside asked the following questions:
    - How could these activities impact your cultural values, interests, and activities?
    - What are your concerns about the proposed activities and what do you think we should do about them?
    - Is there anything you would like included in the EPs before submission?
    - Is there anyone else Woodside should consult with about the activities?
  - Advised that Woodside would continue to take feedback from GMTOAC for the life of the EP.
  - Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should GMTOAC wish to provide feedback directly to the Regulator.
  - Asked if GMTOAC have any questions or feedback.

  At the 17 February 2024 meeting GMTOAC provided the following feedback:
  - Asked questions relating to whether gas shortages and whether there's any gas remaining in the field/wells and whether seismic is associated with this activity.
  - Asked about hours of operation, use of concrete and steel plates in decommissioning activities, pipeline length and weight and vessel type.
  - **(7)** Asked if Woodside had considered eco-friendly alternatives to concrete as a well barrier.
  - **(1)** Asked about environmental mitigations including the use of spotter planes as whale mitigation controls, and oil response planning.
  - **(1)** Stated that eels migrate into areas in the project locality and emphasised the cultural significance of eels to the Gunditjmara people.
  - **(8)** Asked about the resource extraction and financial benefit from the project, employment opportunities and indigenous employment.
  - **(9)** Asked about the purpose and location of the activity, any trauma to the seabed.
  - **(8)** Asked about social benefits in relation to Sea Country.
  - **(10)** Asked about whether the EP addresses cumulative impact of activities.
  - **(11)** Provided feedback that it is good that Woodside are considering that impact on eels and are adhering to the principles of Free, Prior and Informed Consent.
- On 22 February 2024, Woodside received from NOPSEMA a copy of a letter from GMTOAC to NOPSEMA, dated 5 February 2024, the subject of which made reference to multiple Titleholders and Environment Plans, which included "Minerva Plug and Abandonment and Field Maintenance – Woodside Energy". The letter referred to Annexures, which were not provided to Woodside. The letter included the following information:

- **(1)** The EPs propose activity in the Otway Basin in waters that comprise Sea Country of the Gunditjmara people. These waters are significant breeding grounds and habitats for culturally significant species to the Gunditjmara people and hold intangible heritage as well as submerged tangible heritage. Notably:
  - Deen Mar Island (also known as Lady Julia Percy Island) and its surrounds hold deep spiritual significance to Gunditjmara people;
  - Kooyang (short-finned eel) migrate out of the Budj Bim World Heritage Area in Gunditjmara Country through the Otway Basin, up to the Coral Sea. Kooyang hold an important place in the culture of Gunditjmara people and are central to the functioning of the Budj Bim World Heritage Area – one of the oldest aquaculture systems in the world;
  - Karntubul (whales) found in Gunditjmara Sea Country hold deep cultural significance, featuring in Dreaming stories, ceremony, song and dance traditions of the Gunditjmara;
  - The Bonney Upwelling is a dominant ecological feature of Gunditjmara Sea Country, creating vital feeding grounds for culturally significant species. It is extremely important for marine and coastal ecosystems within Gunditjmara Sea Country.
- On the basis of these cultural ties, GMTOAC and its members are relevant people.
- **(3)** GMTOAC operates on a full-participation model of representation, whereby all members are given notice of, and the opportunity to participate in, decision-making including consultation with project proponents.
- **(4,5)** GMTOAC is concerned that it has not received sufficient information or been provided with adequate time to participate in consultation with Woodside.
- GMTOAC advised Woodside of the inadequacy of consultation during a meeting with Woodside Energy held on 29 June 2023.
- **(3,4)** Woodside (and the other listed proponents) have not provided GMTOAC members the opportunity to be consulted directly or provided necessary information to participate in consultation.
- **(12)** Therefore GMTOAC believes Woodside has not complied with the Regulations.
- **(13)** Multiple companies have contacted GMTOAC over the past 14 months, seeking to consult about projects affecting, Gunditjmara Sea Country in the Otway Basin which has put a strain on GMTOAC's resources. These companies should stagger consultation.
- **(1, 5, 13)** Companies provide unrealistic timelines for consultation. It is critical that Gunditimara people are given a reasonable time to understand the projects as waters and species involved hold great significance for them.
- **(6)** GTMOAC has proposed a community meeting for 17 February 2024 during which Woodside is invited to present to members. GTMOAC does not consider this meeting consultation but will enable community members to decide if and how they wish to be consulted about each of the proposals and to enter into dialogue with relevant proponents about the next steps in the consultation process.
- **(2, 12)** GMTOAC does not consider consultation has taken place with all of its members and as such, NOPSEMA must not accept these EPs until proper consultation occurs.

- On 23 February 2024, EJA posted on Facebook and Instagram relating to its attendance at the GMTOAC consultation day. EJA said, it was "assisting Traditional Owners in relation to the rapid growth of offshore oil and gas projects in the Otway Basin" and that "EJA lawyers are working hard to make sure that these companies do consultation properly and to support Traditional Owners in their fight to protect Sea Country"
- On 26 February 2024, Woodside emailed GMTOAC thanking it for the opportunity to present on 17 February, requesting a copy of any video recording of the session, and providing answers to questions taken on notice, namely:
  - **(7)** Cement is the most effective material for permanent well abandonment. Alternative materials may not be as strong or durable as cement, and can result in a less effective long -term barrier.
  - **(8)** In relation to social benefits, Woodside acquired the assets in 2022 as part of the merger with BHP Petroleum. Woodside understood some benefits were provided through the Indigenous Land Use Agreement associated with the project, but the previous owner BHP would be the appropriate entity to contact regarding this.
  - **(10)** Cumulative impacts for noise, light and the presence of vessels are considered in the EP. Cumulative environmental impacts must be assessed as being as low as reasonably practicable (ALARP) and an acceptable level in the EP.

- On 13 March 2024, Woodside sent an email and a letter responding to GMTOAC's letters of 5 February 2024 (to NOPSEMA) and 14 February 2024. Woodside:
  - **(1)** Summarised the cultural values information received from GMTOAC, and how those cultural values relate to and will be managed in the Minerva EPs.
  - **(2, 5, 12)** Advised that Woodside disagreed with GMTOAC's assertation that consultation had not commenced, and provided a chronology of consultation activities that had taken place since 19 May 2023 and advised that consultation is complete for these EPs.
  - **(2, 3, 4 ,5)** Advised that Woodside disagreed with GMTOAC's assertation that GMTOAC had not been provided with sufficient information or reasonable time for GMTOAC, GMTOAC representatives or GMTOAC members to make an informed assessment of the possible consequences of the activities on their functions, interests or activities.
  - Advised that feedback could continue to be taken for the life of an EP.
  - **(2, 3, 12)** Confirmed that Woodside had sought direction from GMTOAC about the manner of consultation most appropriate from GMTOAC, and whether there were other groups or individuals with whom Woodside should consult.
  - Noted Woodside was not aware that representatives of Environmental Justice Australia (EJA) would be present at the GMTOAC meeting on 17 February 2024 and was concerned to be fielding questions from EJA representatives at the meeting. Woodside is uncertain as to whether it requested a copy of any video recording of the 17 February 2024 meeting.
  - The letter included Attachment 1, **(1)** detailing Gunditjmara Sea Country Values and corresponding environmental management approaches for the Minerva EPs; and Attachment 2, **(4)** a chronological summary of correspondence between Woodside and GMTOAC.
- On 21 March 2024, GMTOAC's legal representative emailed Woodside a letter referring to this EP and the Minerva Decommissioning and Field Management EP. The letter stated among other things:
  - **(3)** GMTOAC understood that based on correspondence between Woodside Energy and GMTOAC, that Woodside considered GMTOAC and all individual members of GMTOAC to be 'relevant persons' under the Regulations.
  - **(2,3)** As 'relevant persons' and where the communally-held interests of Gunditjmara people may be affected by Woodside activities on Gunditjmara Sea Country, GMTOAC and all of GMTOAC's members must be given a reasonable opportunity to participate in consultation and that consultation must be appropriate and adapted to the nature of the interests of the Gunditjmara people. Corresponding or meeting with GMTOAC program staff alone is clearly insufficient to meet the proponents' obligation to consult with all relevant persons.
  - **(4, 5, 13)** Further, GMTOAC was concerned that it, as a representative body, had also not received sufficient information or been provided with adequate time to participate in consultation with Woodside. This was particularly so in circumstances where multiple proponents had not sought to coordinate or stagger consultation to ensure adequate opportunity for consultation.
  - **(14)** GMTOAC needed to take independent technical advice on the impact of the proposed activities on Gunditjmara Sea Country, individually and cumulatively.
  - **(4, 6)** The information session organised by GMTOAC on 17 February 2024 was only a very limited and partial introduction to the nature, risks and impacts of relevant activities on the interests of GMTOAC and its members and was an information session only to enable GMTOAC and its members to consider whether they wished to be consulted further about various proposals.
  - **(15)** GMTOAC intended to provide Woodside with a consultation plan by late May 2024 which would be finalised after GMTOAC obtained technical advice.
  - **(16)** GMTOAC was concerned about projects that were more impactful on Sea Country that involved seismic survey or drilling activity, as well as the cumulative impacts and risks of all activities.
- On 10 April 2024, Woodside emailed GMTOAC via its legal representative a letter which contained:
  - **(1, 2, 3, 4, 5, 12)** An attached copy of Woodside's letter of 13 March 2024 that confirmed consultation between Woodside, GMTOAC and its members was complete as demonstrated by a chronology of consultation that had taken place.
  - **(16)** Confirmation that the proposed activities did not involve seismic activity or drilling of new wells.
  - **(14, 15)** Acknowledgement by Woodside that GMTOAC intended to take independent technical advice and to provide Woodside with a consultation plan by late May 2024.

- Confirmation that Woodside would accept feedback for the life of the EP.

- On 19 April 2024, GMTOAC via EJA emailed Woodside a letter stating among other things:
  - GMTOAC acknowledged previous correspondence sent by Woodside on 13 March 2024 and 10 April 2024.
  - **(2)** GMTOAC maintained its position that it did not view interactions that had taken place between its members and Woodside as consultation.
  - **(3, 4, 6)** Consultation for the purposes of GMTOAC's membership required more than emails and a meeting between Woodside and GMTOAC staff who do not have authority to participate in consultation on behalf of the group on highly consequential matters. All offshore petroleum activities are potentially highly consequential to GMTOAC's interests and those of its members. The purpose of an information session on 17 February 2024 was to enable GMTOAC's membership to consider whether they wished to be consulted further about Woodside's proposed activities.
  - **(14)** GMTOAC needed to take independent technical legal advice about the impact of the proposed activities on Gunditjmara Sea Country, individually and cumulatively.
  - **(15)** GMTOAC intended to provide Woodside with a consultation plan by the end of May 2024 which would reflect the Corporation's position on parameters and minimum standards for consultation with GMTOAC and its members.
  - **(17)** GMTOAC rejected that consultation has occurred in accordance with the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP) provisions. **(17)** Woodside referred to the UNDRIP in its letter of 13 March 2024.
  - **(1, 13)** GMTOAC was dealing with multiple, concurrent proposals for activities on or at risk of impacting upon Gunditjmara Sea Country.
  - **(5)** Woodside had imposed an unrealistic timeframe for consultation.
  - **(13)** GMTOAC believed Woodside's assertion that it was not obliged to coordinate or stagger consultation with proponents of other activities was misconceived.
- On 2 May 2024, NOPSEMA emailed Woodside in relation to a letter it received from GMTOAC's legal representative which referred to Woodside's Minerva EPs. The letter included these points:
  - **(3)** GMTOAC considered all individual members of GMTOAC to be 'relevant persons'.
  - **(2)** GMTOAC did not view the interactions that had taken place between it and Woodside to constitute consultation.
  - **(14)** GMTOAC needed to take appropriate, independent technical advice on the impact of the activities on Gunditjimara Sea Country.
  - **(4)** Information provided by Woodside had been limited and partial.
  - **(15)** GMTOAC intended to provide Woodside with a consultation plan by late May 2024.
- On 7 May 2024, Woodside emailed GMTOAC's legal representative a letter stating:
  - **(2, 3, 4, 5)** Woodside had provided sufficient information, a reasonable period and a reasonable opportunity for consultation with GMTOAC and its members as required by regulation 25.
  - **(14)** Woodside supported GMTOAC'S intention to obtain independent technical advice on the impact of proposed activities. Woodside offered to provide reasonable financial support to GMTOAC for this purpose.
  - **(15)** Woodside looked forward to receiving GMTOAC's consultation plan and providing feedback on the plan and how the parties can work together on further consultation activities. Woodside was willing to provide reasonable financial or other support to GMTOAC for these further consultation activities.
  - Feedback could continue to be provided for the life of the EP including after consultation had closed.
- On 7 May 2024, GMTOAC's legal representative emailed Woodside acknowledging it had received Woodside's letter.
- On 29 May 2024, GMTOAC's legal representative emailed Woodside a letter. The letter included these points:
  - **(14)** GMTOAC continued to take steps to obtain technical advice about the impacts of the activities.

- **(15)** GMTOAC previously advised it would provide Woodside with a consultation plan by late May 2024. GMTOAC now advised that the consultation plan will not be provided to Woodside earlier than its next Board meeting on 28 June 2024. GMTOAC continued to progress preparation of its preferred consultation plan.

- On 30 May 2024, Woodside emailed GMTOAC a letter. The letter included these points:
  - **(15)** Woodside thanked GMTOAC for its update about the timing of its proposed consultation plan. Woodside looked forward to receiving and reviewing the plan and working with GMTOAC on ongoing consultation activities.
  - **(14, 15)** Woodside reiterated its previous offer of financial or other support regarding GMTOAC's proposed consultation plan and intent to access independent technical support.
- On 7 June 2024, GMTOAC's legal representative emailed Woodside a letter. The letter included these points:
  - **(2)** GMTOAC maintained its position that it did not view interactions that had taken place between its members and Woodside as consultation. GMTOAC's members needed to be consulted, this required more than emails and a meeting between Woodside and GMTOAC staff members or officers. The purpose of an information session on 17 February 2024 was to enable GMTOAC's membership to consider whether they wished to be consulted further about Woodside's proposed activities**.(14)** GMTOAC needed to take independent technical legal advice about the impact of proposed activities on Gunditjmara Sea Country, individually and cumulatively.**(15)** GMTOAC would provide Woodside Energy with a consultation plan no earlier than its next Board meeting on 28 June 2024**.(12)** Consultation required under Regulations had not taken place**.(12)** While Woodside asserted that feedback could continue to be provided during the life of an EP, the Regulations require that proponents must consult with all relevant persons in the course of developing an EP.
  - (**18)** GMTOAC and its members held concerns about potential impacts and risks of Woodside's activities to Gunditjmara Sea Country and to that Country's intrinsic environmental and cultural features. This concern had been heightened with the recent news of another company's undersea gas pipeline rupture in the Gippsland Basin.
  - **(1, 10, 18)** GMTOAC was concerned that Woodside's EPs did not adequately address cultural, marine and cumulative impacts and risks including impacts and risks in the Otway Basin.
- On 17 June 2024, Woodside emailed GMTOAC's legal representative a response to its letter of 7 June 2024. The letter stated among other things:
  - **(15)** Woodside looked forward to receiving and reviewing GMTOAC's consultation plan and could meet GMTOAC in advance of the consultation plan being provided to Woodside if that would be of assistance to GMTOAC.
  - **(1, 18)** Woodside had developed a robust understanding of the environment, including cultural features and heritage values through examination of publicly available information, studies and consultation with relevant people.
  - **(2, 3, 4, 5)** Woodside had provided sufficient information, a reasonable period of time and reasonable opportunity for GMTOAC and its members to participate in consultation.
- On 25 June 2024, GMTOAC's legal representative wrote to NOPSEMA. The letter contained information relating to consultation by Woodside and other proponents about offshore petroleum environment plans. Matters relating to Woodside include:
  - **(2)** GMTOAC asserted that the interactions that had taken place between its members and proponents did not constitute consultation.
  - **(15)** GMTOAC would provide a consultation plan to all proponents no earlier than 5 July 2024.
  - **(14)** GMTOAC had sought and continued to seek independent technical advice from experts. Some of that advice had been received and further advice was expected.
  - GMTOAC requested NOPSEMA provide it with copies of all EPs listed in paragraph 3 of its letter which were EPs currently under assessment by NOPSEMA which relate to activities and projects on or with potential to impact Gunditjmara Sea Country
  - **(6)** Woodside had met with GMTOAC's members once regarding its Minerva P&A and Decommissioning EPs, during the information day (17 February 2024).
  - **(2)** Woodside's emails to GMTOAC had been administrative in nature and did not constitute consultation.
- **(15)** On 28 June 2024, GMTOAC's legal representative emailed Woodside. The email stated that GMTOAC would provide Woodside with its consultation plan no earlier than its next Board meeting which had been rescheduled from 28 June 2024 to 5 July 2024 due to Sorry Business.

- **(15)** On 9 July 2024, Woodside emailed GMTOAC's legal representative to follow-up on its last correspondence advising the GMTOAC Board meeting had been moved to 5 July 2024. Woodside enquired when the consultation plan would be made available to Woodside.
- **(15)** On 10 July 2024, GMTOAC's legal representative replied to Woodside's email of 9 July 2024 and said it would respond to Woodside and other proponents about the consultation plan after it had obtained instructions from GMTOAC.
- In August 2024, GMTOAC published its 'Member News' newsletter. Page 5 of the newsletter stated a working draft of the Gunditjmara Consultation Protocol had been approved by the GMTOAC Board at its 5 July 2024 meeting but that GMTOAC had been advised not to share the Consultation Protocol with proponents or NOPSEMA.
- On 9 September 2024, GMTOAC's legal representative emailed Woodside a letter stating:
  - **(15)** GMTOAC was finalising its consultation protocol (Consultation Plan).
  - **(15)** It was expected that the Consultation Plan would be adopted at a full group meeting of native title holders in late October 2024.
  - **(19)** GMTOAC was not separately or additionally resourced for the purposes of its involvement in consultation on offshore petroleum activities and proposed EPs.
  - **(2)** GMTOAC reiterated that consultation required under the Regulations had not taken place between Woodside, GMTOAC and its members.
  - **(20)** GMTOAC requested Woodside withdraw this EP and the Minerva P&A EP from submission to NOPSEMA and provide GMTOAC with the most recent version of the proposed EPs.
- On 12 September 2024, Woodside emailed GMTOAC a letter via its legal representative. Among other things, the letter:
  - **(2, 12)** Confirmed Woodside had undertaken consultation with GMTOAC consistent with the Commonwealth Environment Regulations.
  - **(4, 5)** Woodside had provided sufficient information and a reasonable period for consultation.
  - **(19)** Woodside had provided various forms of support for consultation including offering to provide reasonable financial assistance.
  - **(2)** Woodside had consulted in good faith and in a reasonable manner.
  - **(15)** Woodside noted that GMTOAC expected to finalise its consultation plan in late October, some five months later than GMTOAC had initially advised.
  - **(15)** A titleholder's obligation to consult cannot be one that is incapable of being complied with within a reasonable time.
  - **(15)** Woodside would treat GMTOAC's consultation plan and feedback received as part of ongoing consultation.
  - **(20)** Woodside was not required to provide GMTOAC with the most recent versions of the Minerva Environment Plans that had been submitted to NOPSEMA, nor was it required to withdraw them.
- On 20 September 2024, GMTOAC's legal representative emailed Woodside stating it would respond in due course once obtaining instructions from its client.
- On 3 October 2024, GMTOAC's legal representative emailed Woodside a letter stating:
  - EJA continued to act for GMTOAC in matters concerning consultation on this EP and another currently under assessment by NOPSEMA.
  - GMTOAC had noted Woodside's correspondence of 12 September 2024, was mindful Woodside had a statutory deadline and reiterated GMTOAC was taking active and genuine steps to prepare itself and its members for consultation on this EP and another currently under assessment by NOPSEMA.
  - **(14, 20)** GMTOAC was taking independent, technical advice on this EP and another currently under assessment by NOPSEMA as part of its preparation for consultation with stakeholders and requested Woodside provide current versions.
  - **(15)** Should the full group meeting of GMTOAC native title holders choose to adopt the Consultation Plan in late October 2024, provision of these materials would facilitate efficient and effective consultation.
- On 11 October 2024, Woodside emailed GMTOAC's legal representative a letter. In the letter Woodside:
  - Provided a summary of previous correspondence exchanged between Woodside and GMTOAC.
  - **(2)** Confirmed consultation had taken place and had commenced on 19 May 2023.

- **(2)** Confirmed Woodside had made multiple offers to meet, had sought GMTOAC's direction as to the manner of consultation and who should be consulted and had engaged in accordance with that protocol.
- **(4)** Noted Woodside had provided information to GMTOAC in multiple formats, met and presented to GMTOAC twice and made specialists available to share information and answer questions.
- **(2, 6)** Noted the meeting with GMTOAC in February 2024 was described by GMTOAC as 'consultation' in social media posts and the event agenda provided by GMTOAC to Woodside.
- **(14, 19)** Confirmed Woodside had offered on multiple occasions to provide financial or other support to enable GMTOAC to obtain independent technical advice.
- **(2, 12)** Confirmed that consultation between GMTOAC and GMTOAC members was complete for the purposes of preparing the EP and that Woodside had written to GMTOAC on multiple occasions to advise this.
- Confirmed Woodside had provided:
  - **(4)** Sufficient information.
  - **(5)** Allowed a reasonable period of time for consultation.
  - Given GMTOAC a reasonable opportunity to make an informed assessment of the possible consequences of Woodside's activities on GMTOAC's functions, interests and activities.
- Noted that it was GMTOAC's prerogative not to provide feedback during consultation for an EP. The implications of not providing feedback were addressed in the Federal Court case of Munkara v Santos NA Barossa Pty Ltd (No 3). (SI Report, reference 3.25).
- **(15)** Noted GMTOAC was continuing to take steps to finalise a Consultation Plan but reiterated that this was not a prerequisite for consultation. Consultation had occurred in parallel with discussions about this plan.
- **(1)** Thanked GMTOAC for information shared about cultural values and confirmed this information had been incorporated into EPs.
- **(20)** Advised that this EP would be substantively the same as the Minerva Decommissioning and Field Management EP which had been publicly available on NOPSEMA's website since March 2024.
- **(5)** Reiterated that the Minerva project is subject to a general direction which required the project to be completed by 30 June 2025. Consultation had been carefully scheduled to be completed in preparation of the EPs and subsequent submission to NOPSEMA.
- Woodside was open to receiving comments and feedback during the life of the EPs, including after consultation had closed, during assessment and after acceptance by NOPSEMA.

- On 14 October 2024, GMTOAC's legal representative emailed Woodside to acknowledge receipt of its letter on 11 October 2024.
- **(15)** On 11 November 2024 GMTOAC's legal representative emailed Woodside the Gunditjmara Consultation & Negotiation Protocol and advised it would provide Woodside with "next steps" by close of business 15 November 2024.
- On 15 November 2024, GMTOAC's legal representative emailed Woodside a letter. The letter:
  - **(15)** Requested Woodside provide a response to GMTOAC's Consultation Plan by 6 December 2024.
  - **(21)** Invited Woodside to meet Gunditjmara Native Title Holders in February 2025.
  - **(4)** Noted EJA anticipated GMTOAC may instruct it to request more specific information about the activity.
  - **(6)** Asserted Woodside's meeting with GMTOAC on 17 February 2024 did not progress consultations.
  - **(14)** Noted GMTOAC had received technical advice on 12 November 2024 and had not had an opportunity to discuss this advice with the full group of Gunditjmara Native Title holders.
  - **(19)** Noted GMTOAC is under resourced.

- **(13)** Noted five proponents have approached GMTOAC under multiple EPs.
- **(2, 12)** Asserted that GMTOAC maintains that consultation in accordance with the Regulations has not been met.

- **(22)** On 2 December 2024, GMTOAC's legal representative emailed Woodside requesting geographic information about Woodside's activities in the Otway Basin.
- On 11 December 2024, Woodside emailed GMTOAC a response to its letter of 11 November 2024. In the letter Woodside:
  - **(2, 12)** Confirmed that consultation for this EP was complete and that Woodside had consulted with GMTOAC in accordance with regulations.
  - **(2, 4, 5, 12)** Confirmed that Woodside had provided GMTOAC with sufficient information, a reasonable period and reasonable opportunity to consult.
  - **(2, 12)** Provided a summary chronology of the consultation with GMTOAC that had taken place since May 2023.
  - **(1)** Confirmed that GMTOAC had provided input and shared information in relation to its cultural values and that these have been incorporated into the EP.
  - **(2, 12)** Confirmed that Woodside had made numerous offers to support GMTOAC to enable consultation.
  - **(22)** Responded to GMTOAC's request on 2 December 2024 for geographic information. Woodside provided links to information previously provided to GMTOAC and material on the NOPSEMA website.
  - **(2, 12)** Noted that GMTOAC had legal support from EJA which had assisted GMTOAC through the consultation process.
  - **(15)** Stated that while Woodside acknowledged GMTOAC's time and effort in developing its proposed consultation plan, GMTOAC had provided this to Woodside after consultation had been completed.
  - **(15)** Stated that any comments from Woodside about the consultation plan did not mean consultation was still in progress.
  - Reminded GMTOAC there is no requirement for Woodside to enter into a consultation plan in order to comply with Regulation 25.
  - **(15)** Advised that Woodside cannot agree to the proposed consultation plan in its current state because:
    - The plan appears to apply to all consultations, including those outside or beyond the scope of Regulation 25.
    - The plan does not include a reasonable timeframe and does not indicate how consultation might reasonably be discharged by the titleholder.
    - Under the Regulations NOPSEMA, (not GMOTAC) is the decision maker about whether consultation has occurred.
    - The plan does not provide an estimate of rates, costs or the period for consultation.
  - **(21)** That Woodside would be pleased to accept the invitation to attend consultation in February 2025 as part of ongoing engagement with GMTOAC and is willing to pay reasonable costs for attendance at this meeting, however:
    - Consultation under Regulation 25 is complete.
    - By February 2025, work associated with the decommissioning EP will have commenced and activities under this EP may be taking place. Woodside is willing to pay reasonable costs for attendance at this meeting.

| **Summary of Feedback, Objection or Claim** or other information | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
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| **(1)** GMTOAC has stated cultural activities related to this EP are proposed to take place in waters that comprise Sea Country of the Gunditjmara people that includes significant breeding grounds and habitats for cultural significant species including the short finned eel and whales, and locations that hold | **(1)** Woodside notes GMTOAC's interest in culturally significant species and locations. Woodside has provided a response to GMTOAC on 13 March 2024 regarding how Woodside will capture the information received from GMTOAC in the Environment Plan. | **(1)** Woodside has assessed the claims raised by GMTOAC and updated Section 4.6.1 to reflect GMTOAC's interests in culturally significant species and locations. Woodside has assessed potential |

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| | intangible heritage and submerged tangible heritage including Deen Mar Island and the Bonney Upwelling. | | impacts on these and put in place additional controls in Sections 7 and 8. Woodside considers the measures and controls are appropriate. |
| **(2)** | GMTOAC does not view interactions that have taken place to date to constitute consultation<br>[* NB this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(2)** Woodside rejects GMTOAC's claim that interactions that have taken place to date do not constitute consultation. Consultation under Reg 25 is demonstrated by:<br>• Woodside advertising the activity in national and Victorian newspapers on 17 May 2023 (See Record of Consultation 2.3) inviting relevant people to comment and providing details about how to find further information and give feedback.<br>• Woodside's initial email to GMTOAC about the activity (See Record of Consultation 2.41). In the email Woodside:<br>o Clearly stated it was consulting with GMTOAC about the activity.<br>o Said it was seeking to understand the nature of the interests that GMTOAC and its members may have in the EMBA<br>o Asked whether there were any other individuals, groups or organisations that Woodside should talk to<br>o Asked GMTOAC to advise of its preferred method of consultation and any support GMTOAC may require.<br>o Invited GMTOAC to forward the email and the attached information sheets to GMTOAC members and other interested people<br>o Offered to speak to GMTOAC members, its board, office holders and other interested parties.<br>o A subsequent exchange of emails on 7 June 2023 when Woodside offered to discuss the consultation process in detail.<br>o A virtual meeting with GMTOAC on 29 June 2023 in which Woodside presented information in a format and style that was readily accessible and appropriate. During this meeting Woodside provided information about the consultation process and why it was consulting with GMTOAC.<br>o Woodside's email on 18 July 2023 which provided GMTOAC information about NOPSEMA and its published documents on | **(2)** Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations. Woodside's methodology for consultation with First Nations relevant persons is addressed in Section 5.5.2 of the EP.<br>Woodside's consultation with GMTOAC is outlined in this Appendix F, Table 2. Woodside looks forward to GMTOAC's consultation plan and where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4). Woodside considers the measures are appropriate and no additional measures or controls are required. |

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| | consultation and again asked if there were any other Traditional Custodian groups or individuals with whom Woodside should consult. Woodside also again invited GMTOAC to forward the correspondence and information to its members and any other Traditional Custodian groups or individuals GMTOAC believes should be consulted.<br>o Woodside's provision of Consultation Information Sheets and Consultation Summary Sheets developed by Indigenous staff to GMTOAC. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity with controls in digestible, plain English format.<br>o Woodside's communication of planned and unplanned environmental risks and impacts, with proposed controls to manage potential impacts to ALARP and acceptable levels.<br>o Asked for the consultation and information sheets to be distributed to GMTOAC members and individuals.<br>o Woodside attended GMTOAC's "Offshore Oil and Gas Consultation Day" on 17 February 2024, delivered a presentation to attendees and answered questions from attendees about the activity (See claim number 6).<br>o Woodside looks forward to receiving GMTOAC's consultation plan (see claim 15). Woodside will assess feedback facilitated by the plan and where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4). | |
| **(3)** GMTOAC is a representative body with an inclusive governance model meaning all members provide input on matters affecting Country.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(3)** Woodside contacted GMTOAC because it is the representative body for the Gunditjmara native title group.<br>• Woodside's initial email to GMTOAC about the activity (See Record of Consultation 2.41) invited GMTOAC to forward consultation information to its members and offered to speak with them. This offer was repeated in subsequent emails to GMTOAC.<br>• Woodside presented to GMTOAC's "Offshore Oil and Gas Consultation Day" on 17 February 2024 which was advertised by GMTOAC via social media to its members. | **(3)** Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations. Woodside's methodology for consultation with First Nations relevant persons is addressed in Section 5.5.2 of the EP.<br>Woodside invited GMTOAC to forward consultation information |

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| | | to its members and offered to speak with them.<br>Woodside's consultation with GMTOAC is outlined in this Appendix F, Table 2.<br>Woodside looks forward to GMTOAC's consultation plan and where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4).<br>Woodside considers the measures are appropriate and no additional measures or controls are required. |
| **(4)** Woodside has not provided GMTOAC members with sufficient information.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(4)** Woodside rejects GMTOAC's claim that it has not provided sufficient information about this EP:<br>Woodside has been consulting with GMTOAC since 19 May 2023. During the past 17 months Woodside has<br>• Provided information to GMTOAC via written correspondence, information sheets, PowerPoint presentations, maps, timelines, diagrams and meetings.<br>• Provided comprehensive answers to questions from GMTOAC about the activity.<br>• Repeatedly sought direction on GMTOAC's preferred manner of consultation and who should be consulted.<br>• Has repeatedly invited GMTOAC to share information with its members.<br>• Gave an overview of the activity during a meeting with GMTOAC representatives on 29 June 2023. During this meeting Woodside provided information about the consultation process, decommissioning activities, planned and unplanned impacts and EMBA. Woodside followed-up with GMTOAC after this meeting and provided a copy of its PowerPoint slides. | **(4)** Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations by providing sufficient information to GMTOAC.<br>Woodside will continue to engage with GMTOAC as part of ongoing consultation (Section 9.8 of the EP). No additional measures or controls are required. |

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| | • Made Woodside stakeholder engagement, cultural heritage, environmental and decommissioning specialists available to members to answer questions and provide information during a meeting on 17 February 2024 (see claim 6). | |
| **(5)** Woodside has not provided GMTOAC members with sufficient time to provide feedback.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(5)** Woodside rejects GMTOAC's feedback that Woodside has not provided GMTOAC members with sufficient time to provide feedback:<br>• Woodside published advertisements in national, state and relevant local newspapers (The Australian, Herald Sun, Warrnambool Standard, Colac Herald and Cobden Times) on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Woodside commenced consultation with GMTOAC by email on 19 May 2023 (see Record of Consultation 2.41). This email clearly communicated that Woodside's purpose was to consult with GMTOAC about the activity. The email asked GMTOAC to provide feedback by 16 June 2023.<br>• Woodside provided updates about EP submission dates at GMTOAC's request on 1 September 2023 and repeated its offer to provide further information.<br>• Woodside addressed and responded to GMTOAC's queries over 17 months, demonstrating a "reasonable period" of consultation. | **(5)** Woodside has assessed the claim raised by GMTOAC. Woodside's methodology with regards to providing reasonable time for consultation is outlined in Section 5.4.2 and 5.5.2. Woodside has provided GMTOAC with reasonable time to participate in consultation as outlined in this Appendix F, Table 2. Woodside will continue to engage with GMTOAC as part of ongoing consultation (Section 9.8 of the EP). No additional measures or controls are required. |
| **(6)** Woodside's presentation to GMTOAC on 17 February 2024 was an information session only and did not constitute consultation.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(6)** Woodside rejects GMTOAC's claim that its presentation to GMTOAC on 17 February 2024 did not constitute consultation:<br>• On 7 December 2023 GMTOAC invited Woodside to present to the event, describing it as a "consultation day".<br>• GMTOAC advertised the event to its members via social media as an "Offshore Oil and Gas Consultation Day".<br>• Woodside referred to the event as "consultation" in subsequent email communication with GMTOAC about meeting fees and cost estimates. GMTOAC did not query the use of this word. GMTOAC's assertion that it was an information session only was first communicated to Woodside on 5 February 2024. | **(6)** No additional measures or controls are required. |

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| | • Woodside's presentation on 17 February 2024 did constitute consultation. During its presentation, Woodside:<br>o Provided an overview of the Minerva EP, facilities, types of equipment used, project schedule EMBA and whale protection mitigation plan.<br>o Asked how the activities could impact Gunditjmara's cultural values, whether Gunditijmara had concerns about the proposed activities, and if there was anything Woodside should consider in its EPs.<br>o During the meeting attendees asked questions and discussed the project with Woodside. | |
| **(7)** GMTOAC asked if Woodside had considered eco-friendly alternatives to cement as a well barrier. | **(7)** Woodside took GMTOAC's question on notice and responded on 26 February 2024 that cement is the most reliable and effective material for construction of downhole barriers. | **(7)** No additional measures or controls are required |
| **(8)** GMTOAC asked about any social, financial or employment benefits in relation to the activity. | **(8)** Woodside took GMTOAC's question regarding social benefits on notice, and responded on 26 February 2024 that social benefits may have been provided by the previous titleholder and that titleholder should be contacted if more information is required. | **(8)** No additional measures or controls are required. |
| **(9)** GMTOAC asked about the purpose and location of the activity and any trauma to the seabed. | **(9)** Woodside advised GMTOAC that the purpose of the activity was to remove existing infrastructure, provided maps showing the location of the activity, and described the activities in relation to seabed disturbance. | **(9)** Woodside will engage a maritime archaeologist to conduct a review of existing survey data to identify possible cultural features and prospective areas (EPO 3). Woodside has considered seabed disturbance in section 7.3 of the EP. Woodside considers this measure or control appropriate. |
| **(10)** GMTOAC asked about whether cumulative impact is assessed in EPs. | **(10)** Woodside addressed cumulative impacts in its response to GMTOAC on 26 February 2024. Woodside advised that this question has been raised in other projects and that Woodside are collaborating with other titleholders where possible. | **(10)** Woodside has included assessment of cumulative impacts from activities in Section 7 of the EP. No additional measures or controls are required. |

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| **(11)** GMTOAC provided feedback that it is good that Woodside is considering impact on eels and are adhering to the principles of Free, Prior and Informed Consent. | **(11)** Woodside acknowledges and accepts this feedback. | **(11)** No additional measures or controls are required. |
| **(12)** GMTOAC considers Woodside has not complied with regulations.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(12)** Woodside has discharged its obligations for consultation under Regulation 25 of the Environmental Regulations.<br>• Woodside has provided GMTOAC and its members with sufficient information and a reasonable period for the consultation. Woodside began consulting with GMTOAC in May 2023 and has continued consulting for 17 months. Woodside made multiple offers to consult, sought direction on GMTOAC's preferred manner of consultation and who should be consulted. Woodside met with GMTOAC on 29 June 2023 and 17 February 2024. | **(12)** Woodside's methodology for consultation with First Nations relevant persons is addressed in Section 5.5.2 of this EP.<br>• Woodside's consultation with GMTOAC is outlined in Appendix F Table 2<br>• No additional measures or controls are required. |
| **(13)** Multiple proponents (Including Woodside) have not sought to coordinate or stagger consultation to ensure adequate opportunity for consultation.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(13)** Woodside notes GMTOAC's assertion that Woodside has not sought to coordinate or stagger consultation with other proponent/ titleholders. Woodside is not obliged to coordinate or stagger consultation with proponents of other activities, nor other titleholders. Woodside notes GMTOAC's assertion that consultation requests from Woodside and other proponents/titleholders have placed strain on GMTOAC's resources and capacity. Woodside has made multiple offers to support GMTOAC in participation in consultation, including by email on 18 July 2023, and advising that Woodside would pay meeting fees, in email on 17 January 2024. Over a period of 17 months, Woodside has sought guidance from GMTOAC on when and how GMTOAC would like to be consulted, in order to meet the General Direction from NOPSEMA, to plug wells and remove all property no later than 30 June 2025, as referred to in the slide pack for the meeting with GMTOAC on 17 February 2024. | **(13)** Woodside's methodology for consultation with First Nations relevant persons is addressed in Section 5.5.2 of this EP.<br>No additional measures or controls are required. |
| **(14)** GMTOAC needs to take independent technical advice on the impact of proposed offshore petroleum activities on Gunditjmara Sea Country.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(14)** Woodside supports GMTOAC's intent to take independent technical advice on the impact of proposed offshore petroleum activities on Gunditimara Sea Country and offered on 7 May 2024 to provide reasonable financial support to GMTOAC for this purpose. To date, GMTOAC have not responded to Woodside's offer to provide financial or other support for this technical advice. Woodside understands from the letter sent to Woodside by EJA on | **(14)** Should feedback be received after the EP has been accepted as a result of GMTOAC's independent technical advice, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process see Section |

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| | 25 June 2024 that GMTOAC has received some independent technical advice. | 9.10.4). No additional measures or controls are required. |
| **(15)** GMTOAC provided Woodside with a Gunditjmara Consultation & Negotiation Protocol on 11 November 2024. GMTOAC previously advised it would provide Woodside with the plan in May 2024.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(15)** Woodside received the proposed Consultation Plan on 11 November 2024, after consultation for this EP had closed. The plan had been delayed on multiple occasions. Woodside informed GMTOAC that as consultation for the EP was completed, it was not agree to the plan. Woodside also advised it could not agree to the plan in its current state as it includes items which contravene the Regulations. For example, the Regulations do not require consent. The regulations require title holders to provide sufficient information, allow a reasonable period of time for consultation and provide reasonable opportunity for consulted persons to make an informed assessment. Woodside has complied with these Regulations. | **(15)** Woodside has assessed GMTOAC's proposed Consultation Plan and while it sets out useful consultation protocols for GMTOAC (which Woodside has already acted within during consultation for the EP), it also includes items which contravene the Regulations. Woodside considers GMTOAC's provision of the plan as part of ongoing consultation. The contents of the plan do not require Woodside applying its Management of Change and Revision process (see Section 9.10.4). Woodside considers the measures are appropriate. |
| **(16)** GMTOAC is concerned with activities that are more impactful on Sea Country including those involving seismic survey or drilling activity. | **(16)** Woodside confirmed in its email to GMTOAC on 10 April 2024 that the activity does not include seismic activity or drilling of new wells. | **(16)** No additional measures or controls are required. |
| **(17)** GMTOAC rejects that consultation has occurred in accordance with the United Nations Declaration of the Rights of Indigenous Peoples (UNDRIP) provisions.<br>[* NB: this is "other information" and is not an objection or claim to be assessed under reg 24(b)] | **(17)** Woodside rejects GMTOAC's assertion that Woodside has not provided an opportunity for GMTOAC members to be consulted directly. In accordance with the United Nations Declaration of the Rights of Indigenous Peoples, and contrary to GMTOAC's assertion, consultation is to take place through the Indigenous peoples' chosen representative entity. In this case, GMTOAC is the representative entity. Therefore, Woodside will not circumvent these processes. | **(17)** Woodside has assessed the claim raised by GMTOAC. Woodside's consultation approach with First Nations relevant persons is set out in Section 5.5. Woodside's methodology for identification of relevant persons is set out in Section 5.5.2. Woodside has sought GMTOAC's direction with regards to how GMTOAC wishes to participate in consultation as outlined in this Appendix F, Table |

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| | | 2. No additional measures or controls are required. |
| **(18)** GMTOAC and its members hold concerns about potential impacts and risks of Woodside's activities to Gunditjmara Sea Country and to that Country's intrinsic environmental and cultural features. | **(18)** Woodside has developed robust understanding of the environment including cultural features and heritage values through examination of publicly available information, studies and consultation with relevant persons. | **(18)** Woodside's assessment of the environment including cultural features and heritage values is detailed in section 7 of the EP. Potential impacts and risks of Woodside's activities are detailed in section 8 of the EP. |
| **(19)** GMTOAC is not separately or additionally resourced for the purposes of its involvement in consultation on offshore petroleum activities and proposed EPs. | **(19)** Woodside has offered to provide reasonable financial support GMTOAC for consultation activities (see 15). Woodside has made multiple offers to support GMTOAC in its participation in consultation, including by email on 18 July 2023, and advising that Woodside would pay meeting fees, in email on 17 January 2024. | **(19)** No action required. |
| **(20)** GMTOAC requests Woodside withdraw this EP and the Minerva Decommissioning and Field Management EP from submission to NOPSEMA and provide GMTOAC with the most recent versions of the proposed EPs. | **(20)** Woodside is not required to provide versions of the EPs that have been submitted to NOPSEMA but not accepted to relevant persons. Woodside is not required to withdraw the Environment Plans from assessment. As per NOPSEMA's Consultation in the course of preparing an environment plan Guideline, "Regulation 25 establishes a duty on titleholders to carry out consultation in the course of preparing an Environment Plan. NOPSEMA's role is to assess whether or not the duty has been discharged, read particularly with regulation 34(g)."<br><br>Woodside continues to progress the assessment process for the Environment Plans. GMTOAC's request for further consultation does not preclude Woodside submitting the Environment Plans for assessment. Any information received from GMTOAC will be treated as ongoing consultation and assessed using the Management of Change process in the Environment Plans. | **(20)** No action required. |
| **(21)** GMTOAC has invited Woodside to meet Gunditjmara Native Title Holders in February 2025 | **(21)** Woodside has informed GMTOAC that it accepts the invitation to meet in February 2025 as part of ongoing engagement on the proviso that it is clearly understood that consultation under Regulation 25 is complete, consultation under Regulation 25 is not still in progress and any consultation | **(21)** No action required |

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| | Woodside undertakes would be ongoing consultation in accordance with Regulation 22. | |
| **(22)** On 2 December 2024, GMTOAC requested geographic information about Woodside's activities in the Otway Basin. | **(22)** This information is readily available from other sources including the published EP. Woodside provided links to publicly available information and materials previously provided during consultation to address this request. | **(22)** No action required |
| Woodside has addressed objections and claims as noted above. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4). | Woodside has assessed the objections or claims raised by GMTOAC. Additional controls and measures have been put in place. Woodside considers the measures and controls are appropriate. |

**Wadawurrung Traditional Owners Aboriginal Corporation (WTOAC)**

WTOAC is a Registered Aboriginal Party (RAP) recognised as per the Aboriginal Heritage Act 2006 (Vic.), whose function is to protect and manage the Aboriginal cultural heritage of the Wadawurrung Traditional Owners in the state of Victoria in Australia.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with WTOAC for the purposes of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

**Sufficient Information:**

- Woodside sought direction on WTOAC's preferred method of consultation. This resulted in a virtual meeting and a face-to-face meeting with WTOAC nominated representatives. This meeting included Woodside presenting information in a format and style that was readily accessible and appropriate.
- Provided Consultation Information Sheets and Consultation Summary Sheets developed by Indigenous staff to WTOAC. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity with controls in a digestible, plain English format.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls to manage potential impacts to ALARP and acceptable levels.
- Confirmed the purpose of consultation and set out in detail what was being sought through consultation.
- Asked for the consultation and information sheets to be distributed to members and individuals.
- Woodside has provided NOPSEMA's Brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing and environment plan".
- Provided response to questions asked about the activity through consultation. Through these questions, WTOAC have displayed an understanding of the activities under this EP.
- Advised that WTOAC can request that particular information provided in the consultation not be published (to align with regulation 25(4)).

**Reasonable Period:**

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Woodside commenced consultation with WTOAC in May 2023. Woodside has addressed and responded to WTOAC's queries over 18 months, demonstrating a "reasonable period" of consultation.
- Woodside asked WTOAC if it was aware of any other Traditional Custodians groups or individuals with whom Woodside should consult. WTOAC identified Eastern Maar as the Traditional Owners of the locality in which the proposed activity will take place.

- Woodside has provided a reasonable opportunity for input since May 2023, and a genuine two-way dialogue has occurred via a meeting and written exchanges to further understand the environment in which the activity will take place. WTOAC has engaged in the detail of the activity asked related questions. The details of these engagement are described in the consultation summary below.
- Woodside engaged on ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revisions process (see Section 9.10.4 of the EP).
- Woodside considered that measures and controls described in the EP address the potential impact from the proposed activity on WTOAC's functions, interests or activities.

**Summary of information provided and record of consultation:**

- On 19 May 2023, Woodside emailed WTOAC advising of the proposed activity (Record of Consultation, reference 2.42) and provided a Consultation Information Sheet.
- On 6 June 2023, WTOAC emailed Woodside requesting information on how much of Wadawurrung Country is impacted by proposed activities.
- On 10 June 2023, Woodside emailed WTOAC with information about the EMBA and its intersection with Wadawurrung Country.
- On 4 July 2023, Woodside emailed WTOAC following up on the proposed activity and requesting feedback.
- On 5 July 2023, WTOAC emailed Woodside requesting a meeting to discuss the proposed activities and proposing times in July 2023.
- On 7 July 2023, Woodside emailed WTOAC proposing a meeting on 13 July 2023.
- On 7 July 2023, WTOAC emailed Woodside confirming a time on 13 July 2023.
- On 7 July 2023, Woodside emailed WTOAC confirming the proposed time on 13 July 2023.
- On 7 July 2023, Woodside accepted a WTOAC online meeting invitation for 13 July 2023.
- **(1)** On 13 July 2023, Woodside met with WTOAC. At the meeting Woodside:
    - Described the EP framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of EPs.
    - Displayed a map of activities open for feedback to be discussed in the meeting.
    - Described the proposed activities for this EP including types of vessels involved and decommissioning activities.
    - Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks were not expected to occur and were unlikely.
    - Displayed and spoke to the EMBA for the proposed activity.
    - Described an oil spill response approach and the use of key response techniques should this unexpected event occur.
    - Woodside specifically asked the following questions:
        - How could these activities impact your cultural values, interests, and activities – does protecting the environment do enough to protect your cultural values?
        - What are your concerns about the proposed activities and what do you think we should do about them?
        - Is there anything you would like included in the EPs before submission?
        - Is there anyone else Woodside should consult with about the activities?
    - Advised that Woodside would continue to take feedback from WTOAC for the life of the EP.
    - Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should WTOAC wish to provide feedback directly to the Regulator.
        - At the 13 July 2023 meeting WTOAC asked the following questions and provided the following feedback:

- WTOAC raised a question about the accuracy of the map and noted ongoing discussions around whether a waterway is considered to be Wadawurrung Country.
- (1) WTOAC noted that WTOAC are looking at aquaculture activities that would likely be affected in a worst case scenario.
- (2) WTOAC provided feedback on the cultural importance of the coastline and stated that the proposed measures and controls are sufficient to protect WTOAC's interests.
- (3) WTOAC advised that they do not require any further consultation from Woodside unless otherwise advised.

- On 18 July 2023, Woodside emailed WTOAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that WTOAC advised Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 19 July 2023, Woodside emailed WTOAC following up from the meeting held on 13 June 2023 to share presentation materials and request feedback on next steps.
- On 23 July 2023, WTOAC emailed Woodside with thanks for the meeting and advised nothing else was required.
- On 24 July 2023, Woodside emailed WTOAC confirming that Woodside would note on consultation records that no further consultation with WTOAC was required.
- On 24 July 2023, WTOAC emailed Woodside confirming that no further consultation was required.
- On 24 July 2023, Woodside emailed WTOAC with thanks.
- On 5 January 2024, Woodside called WTOAC to provide an update on decommissioning timeframes and ongoing activities to minimise potential environmental impacts. Woodside asked whether WTOAC would like to provide any further feedback, to which WTOAC responded they have nothing further to add.
- On 15 January 2024, Woodside emailed WTOAC offering to arrange an in-person meeting should this be required.
- On 17 January 2024, WTOAC emailed Woodside with a new CEO contact.
- On 17 January 2024, Woodside emailed WTOAC's new CEO with introductions and a request to meet or talk about the activity if they would like to.
- On 23 January 2024, Woodside emailed WTOAC providing an update on planned activities and associated environmental management measures, and a revised Consultation Information Sheet. The email requested feedback in relation to the revised activities and potential impacts on cultural values.
- On 8 February 2024, WTOAC emailed Woodside requesting Woodside provide an update via a virtual meeting.
- On 8 February 2024, Woodside emailed WTOAC proposing 13 or 14 February for a meeting.
- On 9 February 2023, Woodside phone WTOAC and confirmed an in person meeting on 14 February 2024.
- On 14 February 2023, Woodside met with WTOAC. During the meeting Woodside:
  - Described the proposed activities for this EP including the role of decommissioning in the project lifecycle, and an overview of the facilities and types of vessels used.
  - Explained the General Direction 831 given by NOPSEMA to have the Minerva P&A activities and subsea removal completed by 30 June 2025.
  - Outlined the project schedule and interactions with Blue whales and Southern Wright whales, outlined the whale protection mitigation plan and noise controls in place.
  - Displayed and spoke to the EMBA for the proposed activity.
  - Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks were not expected to occur and were unlikely.
  - Described approach to cultural heritage and Sea Country.
  - Woodside specifically asked the following questions:
    - How could these activities impact your cultural values, interests, and activities – does protecting the environment do enough to protect your cultural values?
    - What are your concerns about the proposed activities and what do you think we should do about them?
    - Is there anything you would like included in the EPs before submission?

- Is there anyone else Woodside should consult with about the activities?
- Advised that Woodside would continue to take feedback from WTOAC for the life of the EP.
- Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should WTOAC wish to provide feedback directly to the Regulator
- Asked if WTOAC have any questions or feedback.

- At the 14 February 2024 meeting WTOAC provided the following feedback:
  - (4) WTOAC stated that the project was unlikely to have an impact on Wadawurrung country.
  - Asked whether there were any employment or business opportunities available.
  - (5) Stated that the work is on Eastern Maar country and suggested the cultural awareness training provided by EMAC may be appropriate. Woodside confirmed that consultation with EMAC is taking place.
- On 21 February 2024 Woodside emailed WTOAC thanking WTOAC for making time to meet and reminding the corporation that comments could still be made through NOPSEMA and they could request further consultation.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| **(1)** During a virtual engagement on 13 July, WTOAC advised Woodside that it was looking at aquaculture activities, in an area that may be affected by an unplanned impact such as an oil spill.<br>**(2)** WTOAC provided feedback that the coastline is culturally important, and that the proposed measures and controls are sufficient to protect WTOAC's interests.<br>**(3)** WTOAC advised on 13 July 2023 that they did not require further consultation unless advised [by WTOAC].<br>**(4)** WTOAC advised that given the location of the activities it is unlikely to impact Wadawurrung country. No further requests for meetings have been made.<br>**(5)** WTOAC stated that the work is on Eastern Maar country and suggested the cultural awareness training provided by EMAC may be appropriate.<br>Woodside has addressed objections and claims as noted above. | **(1)** Woodside notes WTOAC's potential interest in aquaculture activities. The OPEP described in Appendix E includes requirements to notify relevant cultural authorities whose interests may be affected in the event of a hydrocarbon release.<br>**(2)** Woodside accepts WTOAC's feedback that the coastline is culturally important, and that the proposed measures and controls are sufficient to protect WTOAC's interests.<br>**(3)** Woodside accepts WTOAC's feedback that they did not require further consultation.<br>**(4)** Woodside explained the concept of an EMBA and the potential impact. Woodside accepts WTOAC's feedback that the activities are unlikely to impact Wadawurrung country.<br>**(5)** Woodside accepts WTOAC feedback that the work is on Eastern Maar country. Woodside has consulted with EMAC as per this Table 2. No feedback regarding cultural awareness training has been received from EMAC.<br>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Existing controls considered sufficient, as described in Sections 7 and 8 and Appendix E. No additional measures or controls are required.<br>**(2)** Section 4.6.1.5 has been updated to capture WTOAC's feedback about the cultural importance of the coastline. Based on engagement to date, no additional measures or controls are required.<br>**(3)** No additional measures or controls are required.<br>**(4)** No additional measures or controls are required.<br>**(5)** No additional measures or controls are required.<br>Woodside has assessed the objections or claims raised by WTOAC. Additional controls and measures have been put in place. Woodside considers the measures and controls are appropriate. |

**Gunaikurnai Land and Waters Aboriginal Corporation (GLWAC)**

GLWAC is established under the Native Title Act 1993 by the Gunaikurnai people to represent the Gunaikurnai people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with GLAWAC for the purposes of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

**Sufficient Information:**

- Woodside sought direction on GLAWAC's preferred method of consultation.
- Provided Consultation Information Sheets and Consultation Summary Sheets developed by Indigenous staff to GLAWAC. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity with controls in a digestible, plain English format.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls to manage potential impacts to ALARP and acceptable levels.
- Confirmed the purpose of consultation and set out in detail what was being sought through consultation.
- Asked for the consultation and information sheets to be distributed to members and individuals.
- Woodside has provided NOPSEMA's Brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing and environment plan".
- Provided response to questions asked about the activity through consultation. Through these questions, GLAWAC has displayed an understanding of the activities under this EP.
- Advised that GLAWAC can request that particular information provided in the consultation not be published (to align with regulation 25(4)).

**Reasonable Period:**

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Woodside commenced consultation with GLAWAC in May 2023, demonstrating a "reasonable period" of consultation.
- Woodside asked GLAWAC if it was aware of any other Traditional Custodians groups or individuals with whom Woodside should consult. GLAWAC advised the Eastern Maar Aboriginal Corporation should be consulted.
- Woodside has provided a reasonable opportunity for input over an 18 month period (since May 2023).
- Woodside engaged on ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revisions process (see Section 9.10.4 of the EP).
- Woodside considered that measures and controls described in the EP address the potential impact from the proposed activity on GMTOAC's functions, interests or activities.

**Summary of information provided and record of consultation:**

- On 19 May 2023, Woodside emailed GLAWAC advising of the proposed activity (Record of Consultation, reference 2.43) and provided a Consultation Information Sheet.
- On 13 July 2023, Woodside emailed GLAWAC following up on the proposed activity and requesting feedback.
- On 13 July 2023, GLAWAC emailed Woodside an out-of-office response, providing an alternative contact.
- On 13 July 2023, Woodside emailed GLAWAC via the alternative contact following up on the proposed activity and requesting feedback.

- **(1)** On 14 July 2023, GLAWAC emailed Woodside advising that they do not have a cultural interest in the Port Campbell area, and suggested consultation with the Eastern Maar people would be required.
- On 17 July 2023, Woodside emailed GLAWAC providing further information on the EMBA and potential impact on GLAWAC country. Woodside asked GLAWAC whether any further consultation is required. Woodside advised that it is awaiting a response from the Eastern Maar people.
- On 21 July 2023, GLAWAC emailed Woodside providing information on Traditional Owner groups in Victoria.
  - (1) GLAWAC advised that they have no comment on the proposed activities.
  - (2) They advised that should an unplanned impact occur in the EMBA they would like to be consulted at that time.
- On 21 July 2023, Woodside emailed GLAWAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that GLAWAC advised Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult. Woodside confirmed receipt of the advice that further consultation with GLAWAC is not necessary, excepting if an unplanned impact was to occur.
- On 15 January 2024, Woodside emailed GLAWAC providing an alternative point of contact and offering to set up an in person meeting in February should this be required.
- On 18 January 2024, Woodside emailed GLAWAC providing an update on planned activities and associated environmental management measures, and a revised Consultation Information Sheet. The email requested feedback in relation to the revised activities and potential impacts on cultural values.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| **(1)** GLAWAC advised it does not have a cultural interest in the area impacted by the activity and that Woodside should consult with EMAC.<br>**(2)** GLAWAC advised Woodside of an expectation to be consulted should an unplanned impact, such as an oil spill, occur.<br>While feedback has been received, there were no objections or claims. | **(1)** Woodside accepts that GLAWAC does not have cultural interests in the area. On 17 July 2023, Woodside explained the EMBA and asked GLAWAC to confirm again if it had no cultural interests in the EMBA to which it responded that it had no comment. Woodside confirmed it is consulting with EMAC.<br>**(2)** Woodside noted this expectation and confirmed that consultation would take place should an unplanned impact occur. The OPEP described in Appendix E includes requirements to notify relevant cultural authorities whose interests may be affected in the event of a hydrocarbon release.<br>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4). | **(1)** Should GLAWAC provide feedback in the future, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4). No additional measures or controls are required.<br>**(2**) Existing controls considered sufficient, as described in Sections 7 and 8 and Appendix E. No additional measures or controls are required.<br>Based on engagement to date, no additional measures or controls are required. |
| ***Native Title Representative Bodies*** | | |
| **First Nations Legal and Research Services (FNLRS)**<br>Established in 2003 FNLRS is a Native Title service provider for Victorian Traditional Owners. As such, they are not a Prescribed or Registered Native Title Body Corporate but work with Traditional Owner groups who wish to pursue land justice outcomes in Victoria through formal recognition including through the provision of Community Liaison Officers, lawyers and researchers. | | |

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with FNLRS for the purposes of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

**Sufficient Information:**

- Provided Consultation Information Sheets and Consultation Summary Sheets developed by Indigenous staff to FNLRS. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity with controls in a digestible, plain English format.

**Reasonable Period:**

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Woodside commenced consultation with FNLRS in May 2023, demonstrating a "reasonable period" of consultation.
- Woodside has provided a reasonable opportunity for input over 18-months since May 2023.
- Woodside engaged on ongoing consultation, beyond that required by regulation 25, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revisions process (see Section 9.10.4 of the EP).
- Woodside considered that measures and controls described in the EP address the potential impact from the proposed activity on FNLRS's functions, interests or activities.

**Summary of information provided and record of consultation:**

- On 22 May 2023, Woodside emailed FNLRS advising of the proposed activity (Record of Consultation, reference 2.44) and provided a Consultation Information Sheet.
- On 2 June 2023, Woodside emailed FNLRS following up on the proposed activity and requesting feedback.
- **(1)** On 7 June 2023, FNLRS emailed Woodside confirming they have no feedback or questions in relation to the proposed activity.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| **(1)** FNLRS has advised Woodside it has no objections or claims.<br>While feedback has been received, there were no objections or claims. | Woodside accepts that FNLRS does not have any feedback, objections or claims for the activity.<br><br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.10.4). | **(1)** No additional measures or controls are required.<br><br>No additional measures or controls are required. |

***Local Government and Community Representative Groups or Organisations***

**Bass Coast Shire**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Bass Coast Shire for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.

- Consultation Information provided to Bass Coast Shire on 31 May 2023 based on their functions, interests or activities.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Bass Coast Shire with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Bass Coast Shire advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Bass Coast Shire advising of the proposed activity (Record of Consultation, reference 2.11.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Bass Coast Shire advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Bass Coast Shire advising of the proposed activity (Record of Consultation, reference 3.3.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Colac Otway Shire**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Colac Otway Shire for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Colac Otway Shire on 31 May 2023 based on their functions, interests or activities.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Colac Otway Shire with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Colac Otway Shire advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure Consultation on offshore petroleum environment plans: Information for the community.
- On 23 June 2023, Woodside sent a reminder email to Colac Otway Shire advising of the proposed activity (Record of Consultation, reference 2.11.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Colac Otway Shire advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Colac Otway Shire advising of the proposed activity (Record of Consultation, reference 3.3.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Corangamite Shire Council**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Corangamite Shire Council for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Consultation Information provided by email to Corangamite Shire Council on 14 April 2022 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting comments or feedback.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to Corangamite Shire Council over a 30-month period.

**Summary of information provided and record of consultation:**

- On 7 April 2022, Woodside emailed Corangamite Shire Council, introducing the proposed activities and requesting their insights on local stakeholder information since Woodside no longer had access to the Minerva Community Reference Group. Woodside requested meeting online or via phone.
- On 7 April 2022, Corangamite Shire Council emailed back, copying in another Corangamite Shire contact who was also involved in the Cooper Energy Community Reference Group. They offered to sit in on a meeting.
- On unconfirmed date between 7 and 14 April 2022, Woodside and Corangamite Shire Council met via phone.
- On 14 April 2022, Woodside thanked Corangamite Shire Council for the meeting, and attached a Consultation Information Sheet (Record of Consultation, reference 1.2) for them to circulate to Shire staff and Councillors.
- On 31 May 2023, Woodside emailed Corangamite Shire Council advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- **(1)** On 31 May 2023. Corangamite Shire Council provided an automatic response advising of new contact details for the site.
- On 19 June 2023, Woodside advised the new Shire contacts of the proposed activity and provided an additional Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Corangamite Shire Council advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.
- **(1)** On 12 January 2024, Corangamite Shire Council emailed Woodside with updated contact details and copied them in the reply.
- On 25 January 2024, Woodside sent a reminder email to Corangamite Shire Council advising of the proposed activity (Record of Consultation, reference 3.3.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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|---|---|---|
| **(1)** Corangamite Shire Council shared contact details for relevant staff.<br>Whilst feedback has been received, there were no objections or claims. | **(1)** Woodside has made note of the provided contact details.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required.<br>No additional measures or controls are required. |
| **Glenelg Shire** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Glenelg Shire for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to Glenelg Shire on 19 June 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the Glenelg Shire with the opportunity to provide feedback over a 16-month period.<br>**Summary of information provided and record of consultation:**<br>• On 19 June 2023, Woodside emailed Glenelg Shire advising of the proposed activity (Record of Consultation, 2.46) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 11 July 2023, Woodside sent a reminder email to Glenelg advising of the proposed activity (Record of Consultation, reference 2.46.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed Glenelg Shire advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.<br>• On 25 January 2024, Woodside sent a reminder email to Glenelg Shire advising of the proposed activity (Record of Consultation, reference 3.3.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **City of Greater Geelong** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the City of Greater Geelong for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: | | |

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to City of Greater Geelong on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to the City of Greater Geelong over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed the City of Greater Geelong Shire advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to City of Greater Geelong advising of the proposed activity (Record of Consultation, reference 2.11.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed the City of Greater Geelong advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to the City of Greater Geelong advising of the proposed activity (Record of Consultation, reference 3.3.1).
- On 12 February 2024, the City of Greater Geelong responded to Woodside and:
  - **(1)** Thanked it for the update.
  - Noted that it had discussed the information with internal stakeholders and circulated it to relevant emergency management networks.
- On 12 February 2024, Woodside thanked the City of Greater Geelong for its response and stated that feedback was welcome throughout the life of an EP.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| The City of Greater Geelong:<br>**(1)** Thanked Woodside for the update.<br>**(2)** Informed Woodside that the information had been discussed internally and shared with emergency management networks.<br>Whilst feedback has been received, there were no objections or claims. | **(1-2)** Woodside thanked the City of Greater Geelong for its response and stated that feedback was welcome throughout the life of an EP<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1-2)** Not required.<br>No additional measures or controls are required. |

**Mornington Peninsula Shire**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Mornington Peninsula Shire for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.

- Consultation Information provided to Mornington Peninsula Shire on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Mornington Peninsula Shire with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Mornington Peninsula Shire advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Mornington Peninsula Shire advising of the proposed activity (Record of Consultation, reference 2.11.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Mornington Peninsula Shire advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Mornington Peninsula Shire advising of the proposed activity (Record of Consultation, reference 3.3.1).

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Moyne Shire**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Moyne Shire for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Moyne Shire on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Moyne Shire with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Moyne Shire advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Moyne Shire advising of the proposed activity (Record of Consultation, reference 2.11.1) and provided a Consultation Information Sheet.

- On 12 January 2024, Woodside emailed Moyne Shire advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Moyne Shire advising of the proposed activity (Record of Consultation, reference 3.3.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Borough of Queenscliffe**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Borough of Queenscliffe for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Borough of Queenscliffe on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Borough of Queenscliffe with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Borough of Queenscliffe advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Borough of Queenscliffe advising of the proposed activity (Record of Consultation, reference 2.11.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Borough of Queenscliffe advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Borough of Queenscliffe advising of the proposed activity (Record of Consultation, reference 3.3.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**South Gippsland Shire**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with South Gippsland Shire for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to South Gippsland Shire on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has addressed and responded to South Gippsland Shire over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed South Gippsland Shire advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*
- On 14 June 2023, South Gippsland Shire emailed and:
  - **(1)** Thanked Woodside for the information and welcomed updates, stating that the information would be shared with Councillors and staff.
  - **(2)** Noted that Council is available for any meetings, if required.
  - **(3)** Stated that Council would help to provide links and connections to their community and relevant stakeholders.
- On 22 June 2023, Woodside responded thanking the Shire for its feedback and offering to meet if requested in the future. Woodside said it will continue to inform the Shire with any significant updates.
- On 12 January 2024, Woodside emailed South Gippsland Shire advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to South Gippsland Shire advising of the proposed activity (Record of Consultation, reference 3.3.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| The South Gippsland Shire:<br>**(1)** Welcomed updates and stated it will share them with Councillors and staff.<br>**(2)** Noted that the Council is available for meetings, if required.<br>**(3)** Stated that Council would help to provide links and connections to their community and relevant stakeholders.<br>Whilst feedback has been received, there were no objections or claims. | Woodside:<br>**(1)** Thanked the South Gippsland Shire for sharing the information with Shire Councillors and staff.<br>**(2)** Offered to meet if requested.<br>**(3)** Confirmed it will share significant updates to proposed activities under this EP with the South Gippsland Shire.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1, 2)** Not required.<br>**(3)** Woodside has assessed the relevance of local stakeholders in Appendix F and implemented a consultation program to advise relevant persons of the proposed activities and provide opportunity to raise objections or claims, referenced as PS 1.7 in this EP.<br>Woodside considers the measures and controls described within this EP address the potential impact from the |

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| | | proposed activities on the Shire's functions, interests or activities No additional measures or controls are required. |

**Surf Coast Shire**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Surf Coast Shire for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to the Surf Coast Shire on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent a follow-up email seeking feedback on the proposed activities.
- Woodside has addressed and responded to the Surf Coast Shire over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Surf Coast Shire advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- **(1)** On 2 June 2023, Surf Coast Shire responded to Woodside to advise of the Shire's position of no seismic testing or new oil and gas developments in the Otway Basin. The Shire:
  - Requested Woodside reply noting that it understands the Shire's position.
  - Outlined contact details for further information and committed to make contact with Woodside if it had any questions.
  - Stated its commitment to addressing climate change and the phase out of fossil fuels and advocates for more urgent climate action across all levels of government.
- On 23 June 2023, Woodside responded to Surf Coast Shire noting the Shire's position on seismic testing and new oil and gas developments. Woodside explained that this project was decommissioning not exploration or a development activity.
- On 12 January 2024, Woodside emailed Surf Coast Shire advising of the proposed activity (Record of Consultation, reference 3.4) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Surf Coast Shire advising of the proposed activity (Record of Consultation, reference 3.4.1)
- **(2)** On 29 January 2024, Surf Coast Shire responded thanking Woodside for the updates and to continue to do so.
- On 1 February 2024, Woodside responded thanking the Shire for their feedback and confirming it would be kept up to date with any changes in the Minerva activities

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| The Surf Coast Shire:<br>**(1)** Advised Woodside of its position on opposing seismic testing and any new developments in the Otway Basin. | Woodside:<br>**(1)** Acknowledged the Shire's position and clarified that this activity is not exploration or a development activity, but decommissioning. | **(1-2)** Not required.<br>No additional measures or controls are required |

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| Surf Coast Shire requested Woodside respond noting it understood this position.<br>**(2)** Requested it continued to be kept updated on development activities in the Otway Basin.<br>Whilst feedback has been received, there were no objections or claims. | **(2)** Confirmed that the Surf Coast Shire would be kept up to date with development activities.<br>Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | |
| **Warrnambool City Shire Council** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Warrnambool City / Shire Council for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to Warrnambool City Shire Council on 31 May 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the Warrnambool City Shire Council with the opportunity to provide feedback over a 16-month period.<br>**Summary of information provided and record of consultation:**<br>• On 31 May 2023, Woodside emailed Warrnambool City Shire Council advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to Warrnambool City Shire Council advising of the proposed activity (Record of Consultation, reference 2.11.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed Warrnambool City Shire Council advising of the proposed activity (Record of Consultation, reference 3.3) and provided an updated Consultation Information Sheet.<br>• On 25 January 2024, Woodside sent a reminder email to Warrnambool City Shire Council advising of the proposed activity (Record of Consultation, reference 3.3.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Apollo Bay Chamber of Commerce** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Apollo Bay Chamber of Commerce for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: | | |

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Apollo Bay Chamber of Commerce on 19 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure Consultation on offshore petroleum environment plans: Information for the community.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Apollo Bay Chamber of Commerce with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 19 June 2023, Woodside emailed Apollo Bay Chamber of Commerce advising of the proposed activity (Record of Consultation, reference 2.35) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 11 July 2023, Woodside sent a reminder email to Apollo Bay Chamber of Commerce advising of the proposed activity (Record of Consultation, reference 2.35.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Apollo Bay Chamber of Commerce advising of the proposed activity (Record of Consultation, reference 3.26) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Apollo Bay Chamber of Commerce advising of the proposed activity (Record of Consultation, reference 3.26.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Great Ocean Road Coast and Parks Authority**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Great Ocean Road Coast and Parks Authority for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Great Ocean Road Coast and Parks Authority on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has addressed and responded to the Great Ocean Road Coast and Parks Authority over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Great Ocean Road Coast and Parks Authority advising of the proposed activity (Record of Consultation, reference 2.12) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

- On 23 June 2023, Woodside sent a reminder email to Great Ocean Road Coast and Parks Authority advising of the proposed activity (Record of Consultation, reference 2.12.1) and provided a Consultation Information Sheet.
- **(1)** On 23 June 2023, Great Ocean Road Coast and Parks Authority emailed Woodside acknowledging previous emails and advising that they have been forwarded to their Environmental Directorate. The Authority asked about consultation timeframes.
- On 23 June 2023, Woodside responded and advised that consultation remains ongoing, but would appreciate feedback by 18 July 2023, so that it could be incorporated into the Minerva EP submission.
- On 23 June 2023, Great Ocean Road Coast and Parks Authority thanked Woodside for the response.
- On 12 January 2024, Woodside emailed Great Ocean Road Coast and Parks Authority advising of the proposed activity (Record of Consultation, reference 3.42) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Great Ocean Road Coast and Parks Authority advising of the proposed activity (Record of Consultation, reference 3.42.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| **(1)** Great Ocean Road Coast and Parks Authority advised that Woodside's emails had been sent to the Environmental Directorate and asked about timeframes for consultation.<br>Whilst feedback has been received, there were no objections or claims. | **(1)** Woodside reiterated that consultation was ongoing but immediate feedback would be appreciated by 18 July 2023.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required<br>No additional measures or controls are required. |

**Port Campbell Community Group**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Port Campbell Community Group for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Port Campbell Community Group on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Port Campbell Community Group with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Port Campbell Community Group advising of the proposed activity (Record of Consultation, reference 2.49) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

- On 23 June 2023, Woodside sent a reminder email to Port Campbell Community Group advising of the proposed activity (Record of Consultation, reference 2.49.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Port Campbell Community Group advising of the proposed activity (Record of Consultation, reference 3.49) and provided an updated Consultation Information Sheet
- On 14 January 2024, Woodside received a notification stating that delivery of the 12 January 2024 email had failed.
- On 17 January 2024, Woodside re-sent the email from 12 January 2024.
- On 19 January 2024, Woodside received a notification stating that delivery of the 17 January 2024 email had failed.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

***Other Non-Government Groups or Organisations***

**Environment Victoria**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Environment Victoria for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Environment Victoria on 2 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Environment Victoria with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 2 June 2023, Woodside emailed Environment Victoria advising of the proposed activity (Record of Consultation, reference 2.25) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Environment Victoria advising of the proposed activity (Record of Consultation, reference 2.25.1) and provided a Consultation Information Sheet.
- On 12January 2024, Woodside emailed Environment Victoria advising of the proposed activity (Record of Consultation, reference 3.14) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Environment Victoria advising of the proposed activity (Record of Consultation, reference 3.14.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Australian Coastal Society – Victorian Chapter** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Australian Coastal Society – Victorian Chapter for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to Australian Coastal Society – Victorian Chapter on 2 June 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the Australian Coastal Society — Victorian Chapter with the opportunity to provide feedback over a 16-month period.<br>**Summary of information provided and record of consultation:**<br>• On 2 June 2023, Woodside emailed Australian Coastal Society – Victorian Chapter advising of the proposed activity (Record of Consultation, reference 2.26) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to Australian Coastal Society – Victorian Chapter advising of the proposed activity (Record of Consultation, reference 2.26.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed Australian Coastal Society — Victorian Chapter advising of the proposed activity (Record of Consultation, reference 3.17) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to Australian Coastal Society – Victorian Chapter advising of the proposed activity (Record of Consultation, reference 3.17.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Marine Mammal Foundation** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Marine Mammal Foundation for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023. | | |

- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to the Marine Mammal Foundation on 2 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Marine Mammal Foundation with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 2 June 2023, Woodside emailed the Marine Mammal Foundation advising of the proposed activity (Record of Consultation, reference 2.27) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to the Marine Mammal Foundation advising of the proposed activity (Record of Consultation, reference 2.27.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Marine Mammal Foundation advising of the proposed activity (Record of Consultation, reference 3.15) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Marine Mammal Foundation advising of the proposed activity (Record of Consultation, reference 3.15.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Maritime Union of Australia (MUA)**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the MUA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to the MUA on 2 June 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the MUA with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 2 June 2023, Woodside emailed the MUA advising of the proposed activity (Record of Consultation, reference 2.28) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to the MUA advising of the proposed activity (Record of Consultation, reference 2.28.1) and provided a Consultation Information Sheet.

- On 12 January 2024, Woodside emailed the MUA advising of the proposed activity (Record of Consultation, reference 3.19) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to the MUA advising of the proposed activity (Record of Consultation, reference 3.19.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
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| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Friends of the Earth Australia**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Friends of the Earth Australia for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to the Friends of the Earth on 9 February 2023 based on their functions, interests or activities.
- Woodside has addressed and responded to Friends of the Earth over a 30-month period.

**Summary of information provided and record of consultation:**

- On 11 January 2023, Friends of the Earth emailed Woodside requesting a meeting as the new Offshore Gas Campaigner for Friends of the Earth, with a brief to concentrate on decommissioning.
- On 23 January 2023, Woodside responded requesting a suitable date/time for a video call in early February 2023.
- On 23 January 2023, Friends of the Earth emailed with a suitable time.
- On 30 January 2023, Woodside confirmed the time and advised an invite would be sent.
- On 8 February 2023, Woodside had a meeting with Friends of the Earth of Australia:
  - Friends of the Earth provided Woodside an overview of the organisation's functions, activities and interests.
  - Woodside provided an overview of its upcoming decommissioning activities, including activities proposed under this EP.
  - Friends of the Earth advised its desire:
    - (1) For recycling and highlighted it was advocating for large recycling facilities including the possibility of one in Victoria.
    - (2) To leave certain infrastructure *in-situ* because of the habitat it has created.
  - Friends of the Earth also expressed its views on:
    - (3) Dredging to minimise turbidity.
    - (4) Working with Traditional Custodians to be guided on their views.
  - Woodside provided an overview of its expanded approach to consultation on the EMBA for proposed activities, including risks and mitigations. Woodside emphasised its commitment to re-use, repurposing and recycling of decommissioning infrastructure.

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| • On 9 February 2023, Woodside emailed Friends of the Earth Australia thanking it for its time to meet with Woodside on 8 February 2023. Woodside summarised the proposed activities, including the activities proposed under this EP and provided a link to the Activity Update Consultation Information Sheet as well as Woodside's Consultation website which can be subscribed to.<br>• On 30 May 2023, Woodside had an email exchange with Friends of the Earth to arrange an update on Woodside's decommissioning activities, including the activities proposed under this EP.<br>• On 30 May 2023, Woodside spoke with Friends of the Earth Australia where it was reiterated its interests were focused on:<br>o (5) Marine life,<br>o (6) Social justice, and<br>o (7) Indigenous issues.<br>• On 6 June 2023, Woodside sent an email to Friends of the Earth Australia thanking it for the 30 May 2023 discussion and provided a copy of a number of Consultation Information Sheets, including the activities proposed under this EP and offered to arrange a meeting unrelated to this EP.<br>• On 15 January 2024, Woodside emailed Friends of the Earth advising of the proposed activity (Record of Consultation, reference 3.45) and provided an updated Consultation Information Sheet. | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| Friends of the Earth raised:<br>**(1)** Its desire for recycling.<br>**(2)** Its preference for leaving certain infrastructure *in-situ* because of the habitat it created.<br>**(3)** Its views on dredging to minimise turbidity.<br>**(4)** Working with Traditional Custodians to be guided on their views.<br>**(5)** Its interest is in marine life.<br>**(6)** Its interest in social justice.<br>**(7)** Its interest in Indigenous issues.<br>Whilst feedback has been received, there were no objections. | Woodside:<br>**(1)** Advised that decommissioned infrastructure is transported for onshore recycling or reuse opportunities when removed from the field. Woodside also advised its focus on establishing local content opportunities for onshore recycling.<br>**(2)** Noted views on leaving infrastructure *in situ.*<br>**(3)** Noted views on dredging and turbidity.<br>**(4)** Confirmed it consults with Traditional Owners in the course of preparing EPs and also engages in ongoing consultation subsequent to the approval of the EP.<br>**(5)** Provided an overview of its expanded approach to consultation on the EMBA for proposed activities, including risks and mitigations to marine life.<br>**(6, 7)** Invited Friends of the Earth to meet to further discuss their areas of interest, should they wish to.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required.<br>**(2)** Not required. Sections 7.9 of this EP addresses how any waste generated during the activity (such as recovered subsea infrastructure) will be managed through the Minerva Decommissioning Waste Management Hierarchy and Plan.<br>**(3)** Not required. Section 7.3 of this EP addresses sediment relocation, and notes that while Scallop Fishery dredges may interact with the Minerva subsea infrastructure, no scallop fishing has occurred in recent years in the Operational Area. Section 7.2 notes that while decommissioning activities can cause some turbidity, it is expected to be minor and localised.<br>**(4)** Not required. Section 5 of this EP outlines Woodside's consultation process, including with Traditional Owners. Appendix F includes a |

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| | | summary of consultation conducted to the date of the submission of this EP.<br>**(5-7)** Not required.<br>No additional measures or controls are required. |
| ***Research Institutes and Local Conservation Groups or Organisations*** | | |
| **Blue Whale Study** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Blue Whale Study for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:<br>• Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.<br>• Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.<br>• Consultation Information provided to the Blue Whale Study on 2 June 2023 based on their functions, interests or activities.<br>• Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• Woodside has sent follow-up emails seeking feedback on the proposed activities.<br>• Woodside has provided the Blue Whale Study with the opportunity to provide feedback over a 16-month period.<br>**Summary of information provided and record of consultation:**<br>• On 2 June 2023, Woodside emailed the Blue Whale Study advising of the proposed activity (Record of Consultation, reference 2.31) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to the Blue Whale Study advising of the proposed activity (Record of Consultation, reference 2.31.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed Blue Whale Study advising of the proposed activity (Record of Consultation, reference 3.23) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to Blue Whale Study advising of the proposed activity (Record of Consultation, reference 3.23.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Apollo Bay Landcare** | | |
| Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Apollo Bay Landcare for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: | | |

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Apollo Bay Landcare on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Apollo Bay Landcare with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Apollo Bay Landcare advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Apollo Bay Landcare advising of the proposed activity (Record of Consultation, reference 2.13.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Apollo Bay Landcare advising of the proposed activity (Record of Consultation, reference 3.46) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Apollo Bay Landcare advising of the proposed activity (Record of Consultation, reference 3.46.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Otway Climate Emergency Action Network (OCEAN)**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Otway Climate Emergency Action Network (OCEAN) for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Otway Climate Emergency Action Network on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Otway Climate Emergency Action Network with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed OCEAN advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.

- On 23 June 2023, Woodside sent a reminder email to OCEAN advising of the proposed activity (Record of Consultation, reference 2.13.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed OCEAN advising of the proposed activity (Record of Consultation, reference 3.46) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to OCEAN advising of the proposed activity (Record of Consultation, reference 3.46.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

**Otway Water**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Otway Water for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Otway Water on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Otway Water with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Otway Water advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Otway Water advising of the proposed activity (Record of Consultation, reference 2.13.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Otway Water advising of the proposed activity (Record of Consultation, reference 3.46) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Otway Water advising of the proposed activity (Record of Consultation, reference 3.46.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, | No additional measures or controls are required. |

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| | where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | |

**Warrnambool Coastcare Landcare Network**

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with the Warrnambool Coastcare Landcare Network for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet was publicly available on the BHP website in April 2022, and the updated Consultation Information Sheet has been publicly available on the Woodside website since May 2023.
- Woodside published advertisements in a national, state and relevant local newspapers on 17 May 2023 advising of the proposed activities and requesting feedback.
- Consultation Information provided to Warrnambool Coastcare Landcare Network on 31 May 2023 based on their functions, interests or activities.
- Woodside has provided a link to NOPSEMA's brochure Consultation on offshore petroleum environment plans: Information for the community.
- Woodside has sent follow-up emails seeking feedback on the proposed activities.
- Woodside has provided the Warrnambool Coastcare Landcare Network with the opportunity to provide feedback over a 16-month period.

**Summary of information provided and record of consultation:**

- On 31 May 2023, Woodside emailed Warrnambool Coastcare Landcare Network advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to Warrnambool Coastcare Landcare Network advising of the proposed activity (Record of Consultation, reference 2.13.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed Warrnambool Coastcare Landcare Network advising of the proposed activity (Record of Consultation, reference 3.46) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to Warrnambool Coastcare Landcare Network advising of the proposed activity (Record of Consultation, reference 3.46.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

## Table 3: Engagement Report with Persons or Organisations Assessed as Not Relevant

| ***Other Non-Government Groups or Organisations*** | | |
|---|---|---|
| **Greenpeace Australia Pacific (GAP)** | | |
| **Summary of information provided and record of consultation:**<br>• On 2 June 2023, Woodside emailed GAP advising of the proposed activity (Record of Consultation, reference 2.24) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure Consultation on offshore petroleum environment plans: Information for the community.<br>• On 26 June 2023, Woodside sent a reminder email to GAP advising of the proposed activity (Record of Consultation, reference 2.24.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed GAP advising of the proposed activity (Record of Consultation, reference 3.24) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to GAP advising of the proposed activity (Record of Consultation, reference 3.24.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Environment Plan Controls** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Australian Conservation Foundation (ACF)** | | |
| **Summary of information provided and record of consultation:**<br>• On 2 June 2023, Woodside emailed ACF advising of the proposed activity (Record of Consultation, reference 2.29) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure Consultation on offshore petroleum environment plans: Information for the community.<br>• On 23 June 2023, Woodside sent a reminder email to ACF advising of the proposed activity (Record of Consultation, reference 2.29.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed ACF advising of the proposed activity (Record of Consultation, reference 3.22) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to ACF advising of the proposed activity (Record of Consultation, reference 3.22.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Environment Plan Controls** |

| | | |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Australian Marine Conservation Society (AMCS)** | | |
| **Summary of information provided and record of consultation:**<br>• On 12 January 2024, Woodside emailed AMCS advising of the proposed activity (Record of Consultation, reference 3.50) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to AMCS advising of the proposed activity (Record of Consultation, reference 3.50.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Environment Plan Controls** |
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| ***Research Institutes and Local Conservation Groups or Organisations*** | | |
| **Commonwealth Scientific and Industrial Research Organisation (CSIRO)** | | |
| **Summary of information provided and record of consultation:**<br>• On 2 June 2023, Woodside emailed the CSIRO advising of the proposed activity (Record of Consultation, reference 2.32) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to the CSIRO advising of the proposed activity (Record of Consultation, reference 2.32.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed CSIRO advising of the proposed activity (Record of Consultation, reference 3.21) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to CSIRO advising of the proposed activity (Record of Consultation, reference 3.21.1) | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Environment Plan Controls** |

| | | |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |
| **Australian Institute of Marine Science (AIMS)** | | |
| **Summary of information provided and record of consultation:**<br>• On 2 June 2023, Woodside emailed AIMS advising of the proposed activity (Record of Consultation, reference 2.33) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 23 June 2023, Woodside sent a reminder email to AIMS advising of the proposed activity (Record of Consultation, reference 2.33.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed AIMS advising of the proposed activity (Record of Consultation, reference 3.25) and provided an updated Consultation Information Sheet<br>• On 25 January 2024, Woodside sent a reminder email to AIMS advising of the proposed activity (Record of Consultation, reference 3.25.1)<br>• On 12 February 2024, AIMS responded to Woodside and:<br>o (1) Confirmed AIMS will not be operating in the area at the time of the activities.<br>o (2) Advised it had consulted AIMS Pygmy Blue Whale experts who confirmed Woodside's proposed control measures looked adequate.<br>o (3) Sated it will also check with AIMS Warrnambool Blue Whale colleagues for any additional suggestions on the control measures.<br>• On 13 February 2024, Woodside replied and:<br>o Thanked AIMS for their response and for confirming there are no AIMS operations in the area at the specified time.<br>o Noted AIMS conclusion that Woodside's control measures looked adequate.<br>o Welcomed the engagement of AIMS staff in Warrnambool on the control measures and looked forward to any further feedback by 16 February 2024. | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Environment Plan Controls** |
| AIMS confirmed:<br>**(1)** There are no AIMS operational activities at the same time as Minerva planned activities.<br>**(2)** Woodside's control measures for Pygmy Blue Whales looked adequate<br>**(3)** They will share Woodside's information with Victorian Blue Whale expert counterparts in case there is any feedback on the control measures.<br>Whilst feedback has been received, there were no objections or claims. | Woodside:<br>**(1)** Noted AIMS' advice that there are no operational activities during the proposed activities for this EP.<br>**(2)** Acknowledged AIMS' feedback that Woodside control measures looked adequate.<br>**(3)** Stated that input from AIMS Blue Whale colleagues in Warrnambool was welcomed.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that | **(1-3)** Not required.<br>No additional measures or controls are required. |

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|---|---|---|
| | further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | |
| **Deakin University - School of Life and Environmental Sciences** | | |
| **Summary of information provided and record of consultation:**<br>• On 19 June 2023, Woodside emailed the Deakin University – School of Life and Environmental Sciences advising of the proposed activity (Record of Consultation, reference 2.36) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.<br>• On 12 July 2023, Woodside sent a reminder email to Deakin University – School of Life and Environmental Sciences advising of the proposed activity (Record of Consultation, reference 2.36.1) and provided a Consultation Information Sheet.<br>• On 12 January 2024, Woodside emailed Deakin University advising of the proposed activity (Record of Consultation, reference 3.28) and provided an updated Consultation Information Sheet.<br>• On 25 January 2024, Woodside sent a reminder email to Deakin University advising of the proposed activity (Record of Consultation, reference 3.28.1)<br>• **(1)** On 29 January 2024, Deakin University responded and introduced a new contact person.<br>• On 29 January 2024, Woodside responded, acknowledged the updated contact details and said it would be kept up to date with the latest Minerva activities. | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Environment Plan Controls** |
| **(1)** Deakin University — School of Life and Environmental Sciences introduced a new contact person.<br>Whilst feedback has been received, there were no objections or claims. | **(1)** Woodside has noted the updated contact and confirmed they would be kept informed of any updates to the Minerva activities.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | **(1)** Not required.<br>No additional measures or controls are required. |
| **Fisheries Research and Development Corporation (FRDC)** | | |
| **Summary of information provided and record of consultation:** | | |

- On 2 June 2023, Woodside emailed FRDC advising of the proposed activity (Record of Consultation, reference 2.30) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to FRDC advising of the proposed activity (Record of Consultation, reference 2.30.1) and provided a Consultation Information Sheet.
- On 12 January 2024, Woodside emailed FRDC advising of the proposed activity (Record of Consultation, reference 3.20) and provided an updated Consultation Information Sheet.
- On 25 January 2024, Woodside sent a reminder email to FRDC advising of the proposed activity (Record of Consultation, reference 3.20.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Environment Plan Controls |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

***Commonwealth Commercial Fisheries and Representative Bodies***

**Australian Southern Bluefin Tuna Industry Association (ASBTIA)**

**Summary of information provided and record of consultation:**

- On 14 April 2022, Woodside emailed ASBTIA advising of the proposed activity (Record of Consultation, reference 1.11) and provided a Consultation Information Sheet.
- On 2 June 2023, Woodside emailed ASBTIA advising of the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community*.
- On 23 June 2023, Woodside sent a reminder email to ASBTIA advising of the proposed activity (Record of Consultation, reference 2.21.1) and provided a Consultation Information Sheet.
- On 12 February 2024, Woodside emailed ASBTIA advising of the proposed activity (Record of Consultation, reference 3.6) and provided an updated Consultation Information Sheet
- On 25 January 2024, Woodside sent a reminder email to ASBTIA advising of the proposed activity (Record of Consultation, reference 3.6.1)

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| No feedback, objections or claims received despite follow up. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | Woodside has assessed the potential for interaction with Commonwealth- and State-managed commercial fisheries in Section 4.6.2 of this EP.<br>No additional measures or controls are required. |

| Tuna Australia |
| --- |
| **Summary of information provided and record of consultation:**<br>• On 14 April 2022, Woodside emailed Tuna Australia advising of the proposed activity (Record of Consultation, reference 1.11) and provided a Consultation Information Sheet.<br>• On 2 June 2023, Woodside emailed Tuna Australia advising of the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet and a link to NOPSEMA's brochure *Consultation on offshore petroleum environment plans: Information for the community.*<br>• On 2 June 2023, Woodside made a phone call to Tuna Australia and left a voicemail covering the following:<br>o Woodside called Tuna Australia on 2 June 2023 to follow up on phone call on 26 May 2023 unrelated to this EP.<br>o Woodside left a message requesting a call back and the opportunity to meet with Tuna Australia to discuss Woodside's portfolio of environment plan activities.<br>o Woodside requested the opportunity to discuss options to consult with Tuna Australia and potentially lessen the burden on Tuna Australia for providing feedback on Woodside's EPs.<br>o Woodside offered the opportunity to take Tuna Australia through the entire EP portfolio, inclusive of decommissioning, so Tuna Australia could better assess the volume of activities.<br>o Woodside reiterated that there was no expectation for Tuna Australia to provide a consultation report on each individual EP, and potentially there is an opportunity for Woodside and Tuna Australia to work together on a more strategic approach.<br>• On 5 June 2023, Tuna Australia emailed Woodside and:<br>o (1) Stated that they had previously supplied information on how it engages with energy companies and resupplied its Industry Position Statement.<br>o (2) Expressed that Tuna Australia did not believe Woodside's engagement style constitutes genuine consultation.<br>o (3) Advised it had a pathway for genuine consultation to occur if Woodside wished to engage.<br>• On 6 June 2023, Tuna Australia returned Woodside's call regarding an opportunity to meet to discuss a more strategic approach to consultation.<br>• On 8 June 2023, Tuna Australia returned Woodside's call and asked Woodside to call back on 14 June 2023.<br>• On 14 June 2023, Woodside returned Tuna Australia's phone call and left a message for Tuna Australia to call back.<br>• On 20 June 2023, Woodside and Tuna Australia held a meeting to discuss Tuna Australia's Industry Position Statement where:<br>o Woodside provided an overview of its activities and explained how recent case law and NOPSEMA guidance had resulted in Woodside undertaking consultation on the widest potential EMBA.<br>o Tuna Australia agreed to share with Woodside the name of any of the Offshore Sectors' titleholders that have entered into Tuna Australia's service agreement to date.<br>o (4) Tuna Australia also agreed to provide more detail on how Tuna Australia will distribute consultation materials to its membership/licence holders and the format of any report arising from the data collected.<br>o Woodside committed to review Tuna Australia's Service Agreement.<br>• On 26 June 2023, Woodside emailed Tuna Australia following the meeting held on 20 June 2023 and recapped what was discussed.<br>o Woodside thanked Tuna Australia for its time and stated it looked forward to continuing to work with Tuna Australia.<br>o Woodside directed Tuna Australia to contact the Woodside Feedback inbox for any further information.<br>• On 30 June 2023, Tuna Australia's CEO responded to Woodside's email of 26 June 2023. Tuna Australia: |

- Noted outcomes of the recent case law focussed on stakeholder engagement and ensuring energy companies meet regulatory requirements and NOPSEMA guidelines.
- Requested Woodside send the recent case law.
- Reached out to energy companies who have executed a services agreement with Tuna Australia and asked whether Tuna Australia could inform Woodside about their working relationship. One energy company confirmed it was happy for Tuna Australia to share its details.
- Advised how it contacts concession holders and what it provides to them.
- (4) Provided a Tuna Australia contact who manages engagement with energy companies to progress a service agreement with Tuna Australia.

- On 17 July 2023, Woodside emailed Tuna Australia and confirmed:
  - Woodside's legal team had reviewed the Tuna Australia document and requested some minor changes to be made.
  - Woodside asked Tuna Australia if a marked up version of the Service Agreement would be the simplest way for Tuna Australia to review.
  - Woodside attached a Supplier Questionnaire as part of its due diligence process and asked Tuna Australia to complete the form.
- On 18 July 2023, Tuna Australia emailed Woodside and confirmed:
  - Woodside should send a marked-up version of the Service Agreement for Tuna Australia to review.
  - Tuna Australia would fill out the Supplier Questionnaire and return in the next couple of days.
- On 18 July 2023, Woodside emailed Tuna Australia and sent a marked-up version of the Service Agreement for Tuna Australia to review.
- On 19 July 2023, Tuna Australia emailed Woodside and thanked it for sending through edits to Tuna Australia's services agreement and commented:
  - **(5)** Tuna Australia does not want any changes made to Schedule 2 of their Service Agreement and if Woodside has requirements outside of what Tuna Australia provides, then this will need to be discussed, agreed, and costed accordingly.
  - **(5)** Tuna Australia would like further details on the Annual service for the Woodside Master Existing document including the rationale for the payment proposed.
  - **(5)** Tuna Australia does not agree to a fixed price for the above bodies of work. Tuna Australia wants clarification on what the Annual service entails, and how the fixed priced value was arrived at.
  - **(5)** Regarding the fixed fee for delivery of a specific consultation service, Tuna Australia need to remain flexible to clients' needs and discuss additional works should they be required. Tuna Australia says it specified in the schedule that it would never proceed with more work or charge more money without approval, and this should suffice for Woodside.
  - **(5)** Tuna Australia does not agree on the current terms which have been changed in Item 2 of Schedule 1 and says it seeks a two-year agreement as per the agreement template.
- On 2 August 2023, Woodside emailed Tuna Australia, thanked them for their response re the Service Agreement and advised that Woodside's legal team will review, and Woodside will revert as soon as possible. Woodside asked Tuna Australia to please complete the Supplier Questionnaire which was sent on 17 July 2023.
- On 3 August 2023, Tuna Australia replied and sent the completed Supplier Questionnaire to Woodside.
- On 8 August 2023, Tuna Australia responded in regard to another EP stating that as per its recent discussions with Woodside, Tuna Australia could consult on the EP once it had a services agreement in place.
- On 23 August 2023, Tuna Australia emailed Woodside following up on Woodside's consultation requirements with the tuna longline industry regarding another EP. Tuna Australia asked for clarity on whether Woodside was planning to engage Tuna Australia to consult on behalf of the tuna longline industry on this and other upcoming EPs that Woodside was seeking feedback on.

- On 30 August 2023, Woodside emailed Tuna Australia and advised that Tuna Australia's feedback on the Service Agreement had been considered. Woodside asked for clarity on whether Tuna Australia would accept a section on ethical business practices. Once this had been accepted, Woodside could work through Tuna Australia's other points.
- **(5)** On 4 September 2023, Tuna Australia emailed Woodside and advised that it had seen the anti-bribery and corruption clauses included in the vendor registration process of other energy companies but had not seen it proposed inside an agreement before. Tuna Australia advised it was not against including them in the agreement, but asked if it was the best place for it.
- On 6 November 2023, Tuna Australia emailed Woodside regarding another EP and stated:
  - (6) It was prepared to assist Woodside to ensure a separate EP was comprehensive and extended to all relevant persons, and that Woodside was aware the AFMA webpage requesting concession owners and holders to be contacted was out of date.
  - (7) The proponent must address planned fishing effort and development of the fishery, and focussing on historical fishing effort as the basis for validating the EP was a flawed assessment.
  - (8) It was concerned recent consultation by energy companies had involved accessing mailing lists sourced from AFMA or elsewhere and some contact lists were outdated, inaccurate and not fit-for-purpose as they did not contact the required target audience, while Tuna Australia's database was up to date, accurate and actively managed and reviewed.
  - (9) It had offered to assist energy companies to genuinely and comprehensively meet consultation and reporting requirements and its view was that consultation not conducted through its services was highly likely to be incomplete.
  - (10) Tuna Australia could not support the other EP proposal as it believed Woodside had fallen short of genuine and comprehensive consultation.
  - (11) Woodside should advise if it wished to progress with a services agreement and work collaboratively.
- On 22 November 2023, Woodside responded thanking Tuna Australia for its email on a separate EP and advised:
  - As Tuna Australia was aware, offshore proponents consult relevant persons under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.
  - Woodside's consultation process identified relevant persons and provided them sufficient information and a reasonable period to make an informed assessment of the possible consequences of the proposed activity on their functions, interests and activities.
  - Woodside obtained contact details of individual Commonwealth fishing statutory fishing rights and fishing permit holders so that consultation was consistent with the Regulations. As noted on its website, AFMA's expectation was that petroleum operators consulted with fishing operators about all activities and projects which may affect day-to-day fishing activities.
  - In addition to consulting individual licence holders, Woodside consulted relevant fishing industry associations and representative bodies such as Tuna Australia and Commonwealth Fisheries Association, and referred to the AFMA website to help inform which associations and bodies were relevant.
  - While the management area for the Western Tuna and Billfish Fishery overlapped the Operational Area for the other EP, based on AFMA data, no recent fishing effort had occurred within the Operational Area for at least the past 10 years. Despite this, Woodside chose to consult licence holders in this fishery.
  - The Offshore Environment Regulations did not require entry into service agreements in order to meet EP consultation requirements.
  - Woodside has met its consultation obligations under the Regulations and given Tuna Australia sufficient time and information to provide input.
- On 5 December 2023, Tuna Australia responded and thanked Woodside for its advice. Tuna Australia noted:
  - **(12)** It was concerned Woodside was electing to cherry-pick on how to meet statutory requirements, for example by focussing on fishing effort and disregarding important information in the OPGGS Act 2006 and Regulations.
  - **(13)** To progress consultation, it wished to pause the process while it took advice.
  - **(9)** It could assist Woodside to develop an EP that was significantly improved and met regulatory requirements.

- On 20 December 2023, Woodside responded and thanked Tuna Australia for its response. Woodside advised:
  - Woodside met its legislative and regulatory requirements in the development and implementation of an EP.
  - Woodside would continue to consult Tuna Australia and individual Commonwealth licence holders for proposed activities where relevant and as appropriate.
  - Consultation was voluntary and Tuna Australia could decide whether it wished to engage in the process or not.
- On 21 December 2023, Tuna Australia responded and thanked Woodside for its response. Tuna Australia noted:
  - **(4,6,10)** The OPGGS Act 2006 clearly stated that when developing an EP, the proponent must demonstrate they could "carry on those activities in a manner that does not interfere with navigation, fishing or the conservation of the resources of the sea and seabed". It had provided its industry position statement and, as mentioned previously, it was prepared to provide services to Woodside to ensure the EP met legislative and regulatory requirements. Tuna Australia would ensure thorough and comprehensive consultation on the proposed EP to ensure activities did not have an adverse impact on the fishery and marine environment, and without this advice, any EP submitted to NOPSEMA would be incomplete, inadequate and would not meet regulatory requirements.
  - **(14)** Tuna Australia would welcome comment from NOPSEMA on the content required in an EP to meet regulatory requirements when considering potential impacts on Australian tuna fisheries, especially in the context of knowing that Tuna Australia can comprehensively provide this information through a services agreement and Woodside has chosen not to engage.
  - **(11)** Tuna Australia was now breaking for the festive season but urged Woodside to consider whether it would like to enter a services agreement and to advise accordingly in the week starting 8 January 2024.
- On 12 January 2024, Woodside emailed Tuna Australia advising of the proposed activity (Record of Consultation, reference 3.16) and provided an updated Consultation information Sheet.
- On 25 January 2024, Woodside sent a reminder email to Tuna Australia advising of the proposed activity (Record of Consultation, reference 3.16.1) and provided an updated Consultation Information Sheet
- On 5 February 2024, Tuna Australia emailed Woodside regarding another EP and provided feedback on Woodside's approach to consultation. It noted:
  - **(6,8)** Woodside had decided that rather than developing an ongoing working relationship with Tuna Australia, it would contact all tuna concession owners and holders by accessing the AFMA database.
  - **(8,15)** There were many AFMA permit registers depending on the fishery and the permit register changed regularly as entitlements were sold and traded. This meant Woodside would need to request a new permit register every time it submitted an EP or a variation to an EP. Woodside would need to reference when it sourced the permit registry to ensure NOPSEMA was assured the list was not outdated.
  - **(8,16)** After reviewing the FMA 1991 Act and Regulations, Tuna Australia believed Woodside had been provided permit register contact details in error. It was following up on the use of industry data with AFMA and had not ruled out legally challenging the provision of industry data sourced via AFMA.
- On 19 February 2024, Woodside responded to Tuna Australia and advised:
  - Woodside was willing to have a working relationship, however it noted Tuna Australia's position was to only do this via a fee-for-service agreement.
  - Woodside had previously engaged with Tuna Australia on a draft agreement; however it was not willing to make amendments to the draft agreement proposed by Woodside.
  - Outside a fee-for-service agreement, Woodside was willing to explore options on how best to consult Tuna Australia and licence holders.
  - As previously advised, Tuna Australia obtained contact details of individual Commonwealth statutory fishing rights and fishing permit holders so consultation was consistent with the Regulations. Consultation with fishery operators met the expectation of AFMA that petroleum operators consulted with fishing operators about all activities and projects which might affect day-to-day fishing activities.
  - Woodside regularly updated contact details of individual licence holders to facilitate consultation.

- Woodside noted Tuna Australia was engaging with AFMA on the provision of permit register contact details under the Fisheries Management Act 1991, and Regulations.

- On 19 February 2024, Tuna Australia responded and advised:
  - **(5)** The offer it previously received from Woodside to charter a report on fisheries was insulting.
  - **(4,9)** It could reach out to all tuna concession owners and holders relevant to proposed EPs ensuring improved outcomes to meet regulatory requirements. Other energy companies had executed a services agreement with Tuna Australia and were pleased with the engagement and detailed advice.
  - **(4,11)** It had proposed a simple process ensuring Woodside met consultation obligations while not placing disproportionate burden on other sectors, and if Woodside would like an updated services agreement, it should let Tuna Australia know.
- On 7 March 2024, Woodside responded and thanked Tuna Australia for its response and asked for the proposed updated services agreement. Woodside advised that it would like to ensure relevant clauses were appropriately considered including those on ethical business practices.
- **(3)** On 11 March 2024, Tuna Australia responded and provided a copy of the services agreement. Tuna Australia noted that late last year it was required to fill out a supplier questionnaire regarding ethical business practices and attached this form again.
- On 20 March 2024, Woodside emailed Tuna Australia and:
  - Reiterated it remains willing to have a working relationship with Tuna Australia and noted Tuna Australia is only interested in this through a fee-for-service agreement.
  - Noted that the latest provided version of a draft agreement appeared to not contain substantive changes, asking Tuna Australia to clarify which, if any, changes had been made.
  - Emphasised that consultation is voluntary, and that Tuna Australia may decide if they wish to partake or not.
  - Advised that Woodside does not need to enter a fee-for-service agreement with Tuna Australia to meet Environment Plan consultation requirements.
- On 25 March 2024, Tuna Australia responded and noted:
  - **(5)** Woodside's edits to the draft agreement attempts to change the process and outputs Tuna Australia developed with other energy companies.
  - **(5)** Woodside's offer of $1000 for an annual review of its Master Existing Environment was insulting. While Woodside says it remains willing to have a working relationship, it is failing to recognise the resourcing needed for consultation.
  - **(4, 9)** Other energy companies engage Tuna Australia's to meet their consultation requirements.
  - **(3, 9)** It remains at Woodside's disposal to meet consultation requirements, but this can only occur through service agreement. Any new service agreement has an 8% fee increase to cover CPI.
- On 3 April 2024. Woodside thanked Tuna Australia for email and responded:
  - Tuna Australia was not willing to revise to its Service Agreement to reflect Woodside requests on processes and outputs or to address any issues or concerns, including insertion of ethical business practices.
  - Woodside is not requesting a review of the Master Existing Environment.
  - Woodside notes Tuna Australia's position that a service agreement is needed for consultation and its fees have increased.
  - Woodside will continue to consult Tuna Australia where relevant and as appropriate for legislative and regulatory requirements to support EP development.
- On 5 April 2024, Tuna Australia thanked Woodside for its feedback and updated its position on a service agreement and it noted:
  - **(5)** Tuna Australia disagrees it wasn't willing to revise its Service Agreement.
  - Woodside has not attempted to work collaboratively or negotiate. It is committed to establishing a working relationship with Woodside.

- **(17)** It reviewed Woodside's proposed edits and it has made concessions/changes to the agreement. It has no concerns with ethical business practices and has accepted all insertions by Woodside, plus it has previously provided separate paperwork tied to bribery and corruption management.
- **(17)** All changes to definitions and routine amendments at beginning of document were accepted.
- **(17)** It removed references to annual changes to the Master Existing Environment and other changes to outputs it has described, noting it is open to tailoring some outputs to meet Woodside's specific needs.
- **(17)** It apologised for its modest fee increase due to cost-of-living pressures.
- **(17)** It hopes that any previous concerns related to Tuna Australia being unwilling to negotiate have now subsided with latest draft agreement provided. Woodside noted the updated version of service agreement and has it under review.

- On 17 April 2024, Woodside thanked Tuna Australia for amending the Service Agreement draft and asked about its availability for a Teams meeting to discuss the services Woodside would need to support EP consultation.
- On 18 April 2024, Woodside thanked Tuna Australia for sharing availability and locked in a time for 30 April 2024.
- On 17 April, Tuna Australia replied to Woodside and provided availability for a meeting.
- On 19 April 2024, Tuna Australia thanked Woodside for email tied to another decommissioning EP and noted the upcoming meeting on 30 April to discuss consultation requirements and a working relationship. It said it would address EP consultation matters pending outcome of the meeting.
- On 30 April 2024, Woodside and Tuna Australia met via Teams and discussed:
  - **(18)** Tuna Australia considers fishing effort will occur off the north west in the future.
  - Woodside agreed to identify activities which may trigger a fee for service arrangement with Tuna Australia.

| Summary of Feedback, Objection or Claim | Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response | Inclusion in Environment Plan |
|---|---|---|
| Tuna Australia:<br>**(1)** Advised it had previously supplied information on how it engages with energy companies and provided Woodside with an industry position statement.<br>**(2)** Advised it didn't believe Woodside's engagement is genuine consultation.<br>**(3)** Reiterated the need for a service agreement as the pathway to genuine consultation.<br>**(4)** Provided feedback it could no longer coordinate consultation with offshore energy activities on behalf of its members without a services agreement in place. Tuna Australia advised other energy companies had entered into the agreement.<br>**(5)** In response to minor proposed amendments from Woodside to the service agreement, did not want changes made to Schedule 2; requested further details on the annual service including rationale for the payment proposed; did not agree to a fixed price; | Woodside:<br>**(1)** Confirmed a meeting with Tuna Australia to discuss various EPs and the industry position statement.<br>**(2,3)** Advised consultation regulations do not require entry into service agreements in order to engage in consultation.<br>**(4)** Respects that, for a relevant person, consultation is voluntary. Woodside advised Tuna Australia the level of feedback provided by an organisation, if any, was at the person or organisation's discretion, and Woodside was open to suggestions from Tuna Australia on ways to improve efficiency and simplicity for feedback.<br>**(5)** Requested clarity on whether Tuna Australia would accept Section 15: Ethical Business Practices. Woodside advised Tuna Australia if the amendment was accepted, Woodside could work through Tuna | **(1-3)** Methodology for identifying relevant persons is at Table 5-2 of Section 5 and included in Table 1 of Appendix F.<br>**(4)** Consultation with Tuna Australia is complete as reflected in Table 2 of Appendix F.<br>**(6, 7)** Woodside has assessed the potential for interaction with Commonwealth managed commercial fisheries in Section 4.6.2 of this EP and identified relevant persons in Appendix F, Table 1 of this EP in accordance with regulation 25 of the Environment Regulations.<br>**(10)** Woodside considers that Tuna Australia has been given sufficient information and a reasonable period in which to make an informed assessment of the possible consequences of the activity on its functions, interests or activities, as described in Section 5.4 of this EP.<br>**(5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17)** Not required.<br>Woodside considers the measures and controls described within this EP address the potential impact from the |

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| and did not agree on the current terms which had been changed in Item 2 of Schedule 1 and sought a two-year agreement. Tuna Australia also advised it was not against including anti-bribery and corruption clauses in the agreement but asked if it was the best place for it.<br>**(6)** Was prepared to assist Woodside to ensure consultation for another EP was extended to all relevant persons<br>**(7)** Stated focusing on historical fishing effort was a flawed assessment.<br>**(8)** Had concerns about energy companies sourcing mailing lists from AFMA or elsewhere as some contact lists were outdated, inaccurate and not fit-for-purpose, compared to Tuna Australia's database which was up to date and accurate.<br>**(9)** Offered to assist energy companies to genuinely and comprehensively meet consultation and reporting requirements.<br>**(10)** Could not support the EP proposal as it believed Woodside had fallen short of genuine and comprehensive consultation.<br>**(11)** Stated Woodside should advise Tuna Australia if it wished to progress with a services agreement and work collaboratively.<br>**(12)** Was concerned Woodside was electing to cherry-pick on how to meet statutory requirements.<br>**(13)** Advised to progress consultation, it wished to pause the process to obtain advice.<br>**(14)** Welcomed comment from NOPSEMA on the content required for an EP to meet regulatory requirements.<br>**(15)** There were many AFMA permit registers depending on the fishery and the permit register changed regularly as entitlements were sold and traded.<br>**(16)** It had reviewed the FMA 1991 Act and Regulations and believed Woodside had been provided permit register contact details in error and | Australia's other points regarding the service agreement.<br>**(6)** Has developed a methodology for identifying relevant persons, in accordance with regulation 25 of the Environment Regulations that is consistent with NOPSEMA's guideline. Woodside advised Tuna Australia that Woodside's consultation process identified relevant persons and provided them with sufficient information and a reasonable period in which to provide feedback.<br>**(7)** Determined, and advised Tuna Australia, that although the Western Tuna and Billfish Fishery management area overlapped the Operational Area (for the unrelated EP), there had been no fishing effort in the Operational Area for at least the past 10 years. Despite this, Woodside chose to consult licence holders in the fishery.<br>**(8)** Obtains contact details of Commonwealth statutory fishing rights and fishing permit holders so that consultation is consistent with the Regulations, as per the expectation from AFMA that petroleum operators consulted with fishing operators about all activities and projects which may affect day-to-day fishing activities.<br>**(9)** Has developed a methodology for identifying relevant persons, in accordance with regulation 25 of the Environment Regulations that is consistent with NOPSEMA's guideline. Woodside advised Tuna Australia that in addition to consulting individual licence holders, Woodside consulted relevant fishing industry associations and representative bodies such as Tuna Australia and the Commonwealth Fisheries Association. Woodside also consulted DAFF – Fisheries for this EP.<br>**(10)** Considers it has met its consultation obligations under the Environment Regulations and given Tuna Australia sufficient time and information to obtain input and to assist Woodside to confirm current measures or identify additional measures.<br>**(11)** Noted, and advised Tuna Australia, that the Offshore Environment Regulations did not require | proposed activities on Tuna Australia's functions, interests or activities.<br>No additional measures or controls are required. |

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| was following up on the use of industry data with AFMA.<br>**(17)** Reviewed Woodside's proposed edits to the Service Agreement and updated it.<br>**(18)** Considers fishing effort will occur off the north west in the future. | entry into service agreements in order to meet EP consultation requirements.<br>**(12)** Considers it has met its legislative and regulatory requirements in the development and implementation of an EP.<br>**(13)** Noted Tuna Australia's wish to pause the consultation process and advised it would continue to consult Tuna Australia and Commonwealth licence holders for proposed activities where relevant and as appropriate, and that consultation was voluntary and Tuna Australia could decide whether it wished to engage in the process or not.<br>**(14)** Noted that Tuna Australia welcomed comment from NOPSEMA on the content required for an EP to meet regulatory requirements.<br>**(15)** Advised Tuna Australia that it regularly updated contact details of individual licence holders to facilitate consultation.<br>**(16)** Noted Tuna Australia was engaging AFMA on the provision of permit register contact details under the *Fisheries Management Act 1991*, and Regulations.<br>**(17)** Reviewed the Service Agreement and asked to set up a meeting to discuss how Tuna Australia could assist with EP consultation efforts.<br>**(18)** Agreed to identify activities that may trigger a fee-for-service arrangement with Tuna Australia.<br>Woodside has provided consultation information to Commonwealth fishing operators in the area, as well as relevant representative bodies and fishing industry associations. Woodside has consulted AFMA, DAFF - Fisheries, CFA, SIV, VFA, Tuna Australia, and individual relevant licence holders.<br>Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its | |

| | | |
|---|---|---|
| | Management of Change and Revision process (see Section 9.6.4). | |
| ***Traditional Custodians and Nominated Representative Corporations*** | | |
| **Flinders Island Aboriginal Association Inc (FIAAI)**<br>The Flinders Island Aboriginal Association Incorporated is an Aboriginal Community Controlled Organisation. Established in 1971 by a local Aboriginal group, FIAAI is governed by an Aboriginal Board of Management, elected by the local community. BLCAC suggested Woodside consult with FIAAI. | | |
| **Summary of information provided and record of consultation:**<br>• On 14 May 2024, Woodside emailed FIAAI advising of the proposed activity (Record of Consultation, reference 3.50.2) and provided an updated Consultation Information Sheet.<br>• On 23 May 2024, Woodside sent FIAAI an email to follow-up on information sent via email on 14 May 2024.<br>• On 23 May 2024, Woodside called FIAAI to confirm that the emails had been received and forwarded to the appropriate people. | | |
| **Summary of Feedback, Objection or Claim** | **Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response** | **Inclusion in Environment Plan** |
| No feedback, objections or claims received. | Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 9.6.4). | No additional measures or controls are required. |

## RECORD OF CONSULTATION

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# 1. CONSULTATION — APRIL-JUNE 2022

## 1.1 Consultation Fact Sheet

Petroleum

BHP

### Invitation for Feedback: Stakeholder Information Fact Sheet


### Minerva Plug & Abandonment and Field Maintenance Environment Plan

### Otway Basin, South East Australia

BHP Billiton Petroleum (Victoria) Pty Ltd (BHP) is planning to undertake subsea decommissioning activities at end of field life for the offshore Minerva gas field located in Production Licence (VIC/L22), and the Minerva subsea pipeline which runs from the Minerva wells to the boundary of the Victorian State Waters within Production licence VIC/PL33. The Minerva Petroleum Safety Zone (PSZ) (within VIC/L22) is located approximately 9 km south, south-west (SSW) of the township of Port Campbell, within water depths of approximately 60m.

Production of the Minerva field ceased in September 2019 and the producing wells (Minerva-3 and Minerva-4) were suspended. Additionally, the production pipeline was depressurised, and cleaned of hydrocarbons. A vessel-based campaign was conducted in Q1 2021 to disconnect flowlines from wells and install additional barrier plugs.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU).These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A). Once permanently plugged, wellheads will be cut below the seafloor and removed. Minerva 2 well has already been permanently plugged and abandoned.

All subsea infrastructure not removed during the P&A activity, including the suspended production pipeline, shall be suitably maintained to the satisfaction of the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) to ensure removal of the property is not precluded through to planned final decommissioning in 2025.

P&A activities are required to be completed no later than 30 June 2025.

BHP is preparing an Environment Plan (EP) for this activity for submission to NOPSEMA under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009. Given detailed project scheduling and MODU contracting is yet to be finalised, this EP will provide for the P&A scope to be undertaken from Q3 2023 to end June 2025. The EP will also cover maintenance activities from the date accepted by NOPSEMA until end June 2025, or until all decommissioning activities have been completed.

Whilst this EP will provide for the P&A activity to be undertaken within a 2-year window of opportunity, the anticipated duration of MODU-based infield operations is less than 2 months. Preparatory operations including pre-lay moorings, cleaning of wellheads and status check of valves are anticipated to be undertaken via an offshore support vessel approximately one month prior to the commencement of MODU-based activities. Preparatory operations are anticipated to take less than a week to complete.

BHP is the designated operator on behalf of the VIC/L22 and VIC/PL33 titleholders, BHP and Cooper Energy (MF) Pty. Ltd. This Stakeholder Fact Sheet relates to the submission of a new Environment Plan for the proposed petroleum activities in VIC/L22 and VIC/PL33, supporting the decommissioning and maintenance of subsea infrastructure in the Minerva Field.

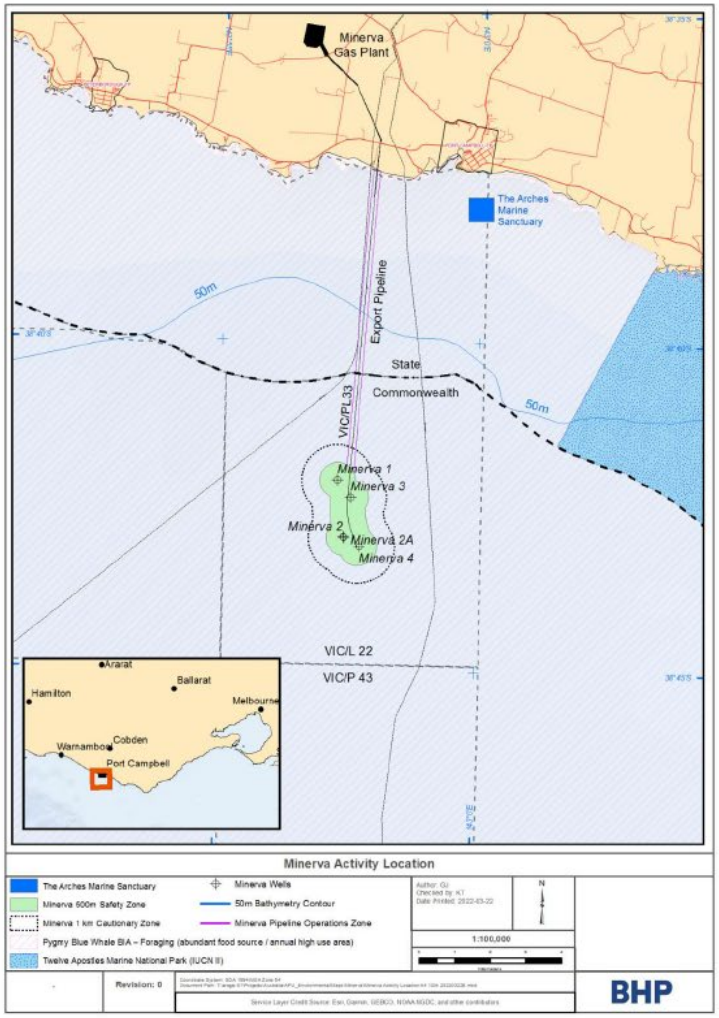
Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

1

## Location of Operational Area

The Operational Area defines the spatial boundary within which the proposed activities will take place. The Operational Area is temporary for the duration of activities and will comprise a 1 km radius 'Cautionary Zone' around each of the wells to account for the anchor spread from the MODU. The approximate distance from the Minerva-1 well (closest to land) the Minerva-4 well (farthest from land) to particular environmental values and sensitivities is presented in the following table.

| Value / Sensitivity | Approx. Distance from well centres (km) | |
|---|---|---|
| | Minerva-1 well | Minerva-4 well |
| Port Campbell | 9.5 | 11.0 |
| Peterborough | 14.1 | 15.9 |
| The Arches Marine Sanctuary | 8.5 | 10.0 |
| Twelve Apostles Marine National Park | 6.2 | 6.2 |



## Description of activity

| | Description | |
|---|---|---|
| Earliest expected commencement date and completion date | Earliest P&A start is Q3 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior to MODU mobilisation. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| Well locations | Latitude (South) | Longitude (East) |
| Minerva-1 | -38° 42' 06.885" | 142° 57' 17.278" |
| Minerva-2A | -38° 42' 59.190" | 142° 57' 25.742" |
| Minerva-3 | -38° 42 22.718" | 142° 57 32.997" |
| Minerva-4 | -38° 43 07.368" | 142° 57 44.023" |
| Petroleum licences | VIC/L22 and VIC/PL33 | |
| Activity duration (approx.) | P&A activity 60 days depending on weather conditions | |
| Water depth (approx.) | 50-60 m | |
| Vessels | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and offshore support vessels. | |
| Operational area | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• The existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

## Summary of potential environmental impacts and risks and mitigation measures

| Potential Impacts / Risks | Management and / or Mitigations Measures |
|---|---|
| **Planned Activities** | |
| Emissions: Light | • Lighting is minimised to that required for safety and navigational purposes. |
| Emissions: Underwater noise | • Measures will be in place for interacting with protected marine fauna as per the EPBC Regulations (Part 8) and consistent with relevant Conservation Management Plans. |
| Physical presence: Interactions with other marine users | • BHP's existing infrastructure is marked on nautical charts.<br>• Establishment of a 500-m safety exclusion zone around the MODU for the duration of the P&A activity.<br>• Consultation with relevant stakeholders (e.g. adjacent petroleum titleholders, commercial fishers and their representative organisations, and government departments and agencies) to inform decision making for the proposed activity and the development of the Environment Plan.<br>• BHP will notify relevant fishing industry representative organisations/associations and Government maritime safety agencies of the start and end dates for the activity, and MODU location details and exclusion / cautionary zones prior to commencement of the P&A activity. |
| Planned discharges to the marine environment | • Chemical use will be managed in accordance with BHP and contractor chemical selection and approval procedures.<br>• All routine marine discharges will be managed according to legislative and regulatory requirements and BHP's Environment Performance Standards where applicable. |
| Waste generation | • Waste generated aboard the MODU and support vessels will be managed in accordance with legislative requirements and a Waste Management Plan.<br>• Wastes will be managed and disposed of in a safe and environmental responsible manner that prevents accidental loss to the marine environment. |

| Potential Impacts / Risks | Management and / or Mitigations Measures |
|---|---|
| | • Wastes transported onshore will be sent to appropriate recycling or disposal facilities by a licenced waste contractor. |
| **Unplanned Risks** | |
| Invasive marine species | • BHP contracted vessels comply with Australian biosecurity requirements and guidance, and Australian ballast water requirements.<br>• Vessels will be assessed and managed in line with BHP procedures to prevent the introduction of invasive marine species. |
| Marine fauna interaction | • Measures will be in place for interacting with protected marine fauna as per the EPBC Regulations (Part 8) and consistent with relevant Conservation Management Plans. |
| Vessel collision | • Marine notifications will be made to relevant stakeholders, describing the location of the activity and exclusion / cautionary zones to prevent the risk of vessel collisions. |
| Unplanned releases including hydrocarbons | • All personnel undertaking activities will undergo relevant inductions and training.<br>• Procedures for lifts, equipment maintenance, inspections and bunding.<br>• All offshore activities will be managed in accordance with lifting and transfer procedures.<br>• Well barrier management shall be implemented, tested and monitored.<br>• Recovery of solid wastes lost overboard where safe and practicable to do so.<br>• Oil Pollution Emergency Plan (OPEP) and Operational and Scientific Monitoring Plan (OSMP) in place and tested.<br>• Appropriate vessel spill response plans, equipment and materials will be in place and maintained. |

## Protecting our people and the environment

Safety of our people and the communities in which we operate always comes first. Identifying, controlling and mitigating safety risks is managed through an overarching, consistent approach guided by BHP's Risk Management governance framework, with supporting processes and performance standards. All activities (routine and non-routine) will be performed in accordance with the industry leading standards established in BHP's Charter, HSEC Framework and Controls, BHP's Wells and Seismic Delivery Management System, Engineering Standards and Procedures, the Environment Plan, the NOPSEMA-accepted Well Operations Management Plan (WOMP) and NOPSEMA-accepted Vessel Safety Case.

Offshore petroleum activities are regulated through a robust and comprehensive environmental protection regime administered by NOPSEMA under the Commonwealth *Offshore Petroleum and Greenhouse Gas Storage Act 2006*. BHP undertakes risk assessments for all environmental aspects of a petroleum activity and stringently adheres to the regulatory regime.

The objective of the Environment Plan is to ensure that potential adverse impacts and risks to the environment associated with activities, during both routine and non-routine activities, are identified, and will be continuously reduced to as low as reasonably practicable (ALARP) and an acceptable level. BHP is committed to understanding the impacts of our activities on stakeholders with an interest in the Minerva field and seeks feedback as part of the development of the EP.

## Responding to emergencies

BHP's incident response plans are accepted by the regulator NOPSEMA. The Commonwealth Oil Pollution Emergency Plan (OPEP) is required by law under the Environmental Regulations and forms an appendix to the full EP. The OPEP outline responsibilities, specific procedures and identify resources available in the unlikely event of an oil pollution incident. BHP maintains a constant vigilance and readiness to prevent and/or respond to hydrocarbon loss of containment incidents. The readiness and competency of BHP to respond to incidents is maintained and tested by conducting activity-specific emergency response exercises.

Should you have any questions, concerns or grievances regarding these activities or any other BHP Petroleum activities, please call BHP WA Community Hotline on **1800 421 077** or send an email to **bhppetexternalaffairs@bhp.com**

**BHP believes in putting health and safety first, being environmentally responsible and supporting our communities.**

### 1.2 Email sent to Corangamite Shire Council — 14 April 2022

Hi (Individual 1)

Following our discussion last week, please find below information to be circulated to Shire staff and Councillors at your discretion to ensure folks understand that the described proposed activities are part of BHP's commitment to decommissioning the Minerva Field and are not connected to Cooper Energy's ongoing operation of the Minerva Gas Plant.

I have also attached a fact sheet that we are providing to stakeholders relevant to the planned offshore activities.
Please direct any enquiries or comments my way and I would be happy to follow up with a response.

Regards
(Individual 2)
0439 500 799

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Dear stakeholder

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |

| | |
|---|---|
| **Water depth (approx.)** | 50-60 m |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.
Regards,

**BHP**

### 1.3 Email sent to VR Fish — 14 April 2022

Dear VR Fish

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | |
|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. |
| | Coordinates (GDA94) |

| Well locations | Latitude (South) | Longitude (East) |
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| Minerva-1 | -38° 42' 06.885" | 142° 57' 17.278" |
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| Minerva-3 | -38° 42 22.718" | 142° 57 32.997" |
| Minerva-4 | -38° 43 07.368" | 142° 57 44.023" |
| Petroleum licences | VIC/L22 and VIC/PL33 | |
| Activity duration (approx.) | P&A activity 60 days depending on weather conditions | |
| Water depth (approx.) | 50-60 m | |
| Vessels | · Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>· Anchor handling vessels and support vessels. | |
| Operational area | · A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>· An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>· The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

BHP

#### 1.3.1 Email sent to VR Fish — 23 May 2022

Hi (Individual 3)

Just following up on our consultation email to see if VRFish wished to provide comment on proposed activities. Please let us know if you have specific comments or require additional information in order to provide feedback.

Regards
BHP

### 1.4 Email sent to Director of National Parks (DNP) — 14 April 2022

Dear Director of National Parks

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information

in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

#### 1.4.1 Email sent to Director of National Parks (DNP) — 17 June 2022

Dear DNP

Woodside Energy is following up on the below Invitation for Feedback, which was previously sent to you on 14 April 2022 by BHP Petroleum, which officially merged with Woodside on 1 June 2022.

We apologise if you have already provided a response, but we are just seeking to ensure you have been provided with an adequate opportunity to respond.
Regards

**(Individual 2)**
Corporate Affairs Adviser | Corporate Affairs

### 1.5 Email sent to DISR (*formerly Department of Industry, Science, Energy and Resources (DISER)*) — 14 April 2022

Dear DISER

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |

| | | |
|---|---|---|
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.6 Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) (formerly Department of Agriculture, Water and the Environment (DAWE*)) — 14 April 2022*

Dear DAWE

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
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| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Commercial Fishing Overview**

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

**Commonwealth fisheries**

BHP has identified seven Commonwealth fisheries that overlap the Operational Area and is consulting representative organisations on behalf of licence holders to confirm the relevancy of these

stakeholders and seek feedback on proposed activities. The identified fisheries and associated representative organisations are listed below:

- Bass Strait Central Zone Scallop Fishery - Bass Strait Scallop Industry Association
- Eastern Skipjack Tuna - Australian Southern Bluefin Tuna Industry Association and Commonwealth Fisheries Association
- Eastern Tuna and Billfish Fishery - Tuna Australia and Commonwealth Fisheries Association
- Small Pelagic Fishery (Western sub-area) - Commonwealth Fisheries Association and South East Trawl Fishing Industry Association
- Southern and Eastern Scalefish and Shark Fishery - Commonwealth Fisheries Association, South East Trawl Fishing Industry Association and Southern Shark Industry Alliance
- Southern Bluefin Tuna Fishery - Australian Southern Bluefin Tuna Industry Association and Commonwealth Fisheries Association
- Southern Squid Jig Fishery - Commonwealth Fisheries Association

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **Date Month 2022**.

Regards,

**BHP**

### 1.7 Email sent to Australian Marine Safety Authority (AMSA) — 14 April 2022

Dear (Individual 4)

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
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| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.8 Email sent to Australian Hydrographic Office (AHO) and Australian Maritime Safety Authority (AMSA) — 14 April 2022

Dear AHO and AMSA

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The

Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

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**Activity Overview**

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| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
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| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

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As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information

in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.9 Email sent to Australian Fisheries Management Authority (AFMA) — 14 April 2022

Dear AFMA

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

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**Activity Overview**

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| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |

| | |
|---|---|
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). |

**Commercial Fishing Overview**

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

**Commonwealth fisheries**

BHP has identified seven Commonwealth fisheries that overlap the Operational Area and is consulting representative organisations on behalf of licence holders to confirm the relevancy of these stakeholders and seek feedback on proposed activities. The identified fisheries and associated representative organisations are listed below:

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- Eastern Skipjack Tuna - Australian Southern Bluefin Tuna Industry Association and Commonwealth Fisheries Association
- Eastern Tuna and Billfish Fishery - Tuna Australia and Commonwealth Fisheries Association
- Small Pelagic Fishery (Western sub-area) - Commonwealth Fisheries Association and South East Trawl Fishing Industry Association
- Southern and Eastern Scalefish and Shark Fishery - Commonwealth Fisheries Association, South East Trawl Fishing Industry Association and Southern Shark Industry Alliance
- Southern Bluefin Tuna Fishery - Australian Southern Bluefin Tuna Industry Association and Commonwealth Fisheries Association
- Southern Squid Jig Fishery - Commonwealth Fisheries Association

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **Date Month 2022**.

Regards,

**BHP**

### 1.10 Email sent to Australian Border Force (ABF) — 14 April 2022

Dear Australian Border Force

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

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|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information

in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.11 Email sent to Commonwealth Fishery Representative Organisations — 14 April 2022

- Australian Southern Bluefin Tuna Industry Association (ASBTIA)
- Commonwealth Fisheries Association (CFA)
- Small Pelagic Fishery Industry Association (SPFIA)
- South East Trawl Fishing Industry Association (SETFIA)
- Southern Shark Industry Alliance (SSIA)
- Tuna Australia

Dear Commonwealth Fishery Representative Organisation

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

We have identified your organisation as being relevant to proposed activities (as per the assessment below) but please let us know if there are other organisations or individual stakeholders that should be consulted.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
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| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |

| | |
|---|---|
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions |
| **Water depth (approx.)** | 50-60 m |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). |

**Commercial Fishing Overview**

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

**Commonwealth fisheries**

BHP has identified seven Commonwealth fisheries that overlap the Operational Area and is consulting representative organisations on behalf of licence holders to confirm the relevancy of these stakeholders and seek feedback on proposed activities. The identified fisheries and associated representative organisations are listed below:

- Bass Strait Central Zone Scallop Fishery - Bass Strait Scallop Industry Association (via Commonwealth Fisheries Association)
- Eastern Skipjack Tuna - Australian Southern Bluefin Tuna Industry Association and Commonwealth Fisheries Association
- Eastern Tuna and Billfish Fishery - Tuna Australia and Commonwealth Fisheries Association
- Small Pelagic Fishery (Western sub-area) - Commonwealth Fisheries Association and South East Trawl Fishing Industry Association
- Southern and Eastern Scalefish and Shark Fishery - Commonwealth Fisheries Association, South East Trawl Fishing Industry Association and Southern Shark Industry Alliance
- Southern Bluefin Tuna Fishery - Australian Southern Bluefin Tuna Industry Association and Commonwealth Fisheries Association
- Southern Squid Jig Fishery - Commonwealth Fisheries Association

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information

in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.12 Email sent to Department of Energy, Environment and Climate Action (DEECA) – 14 April 2022

*(Formerly Department of Jobs, Precincts and Regions (DJPR) & Department of Environment, Land, Water and Planning (DELWP))*

Dear Department of Jobs, Precincts and Regions (DJPR): Earth Resources Regulation

BHP is contacting Earth Resources Regulation as the Department of the relevant State Minister for the purposes of preparing an Environment Plan for activities to be conducted in Commonwealth Waters, south of Port Campbell, Victoria.

We appreciate this email may need to be redirected to the appropriate team within ERR and we apologise for any inconvenience.

By way of context, BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |

| | |
|---|---|
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions |
| **Water depth (approx.)** | 50-60 m |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.13 Email sent to Australian Energy Producers (AEP) – 14 April 2022

*(Formerly called Australian Petroleum Production and Exploration Association (APPEA))*

Dear APPEA

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.14 Email sent to Cooper Energy – 14 April 2022

Dear Cooper Energy

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.15 Email sent to Beach Energy – 14 April 2022

Dear Beach Energy

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.16 Email sent to Department of Transport and Planning (DTP) – 14 April 2022

Dear Victorian Department of Transport

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
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| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |

| | |
|---|---|
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). |

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards,

**BHP**

### 1.17 Email sent to Seafood Industry Victoria (SIV) – 20 April 2022

Just a note of thanks for your support and patience wrt to BHP consulting fishers for planned activities in the Minerva Field.

For reference, the email below and attached fact sheet has now been sent to the contacts provided by SIV for relevant State-managed fisheries, as well as to the VFA for feedback.

We would also welcome feedback from SIV should you wish to comment.

Thanks again and let me know if you need any further information about planned activities.

Tony

---

Dear stakeholder

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi- submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

**Activity Overview**

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
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| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

**Commercial Fishing Overview**

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

**State fisheries**

BHP has identified five State fisheries that overlap the Operational Area and may be impacted by planned activities. BHP has consulted Seafood Industry Victoria to confirm the relevant contacts for each fishery listed below. However, please let us know if there are additional stakeholders that should be consulted.

- Abalone Fishery
- Giant Crab Fishery
- Rock Lobster Fishery
- Scallop Fishery
- Wrasse Fishery

We are also consulting the Apollo Bay Fishermen's Cooperative, which may benefit from this advice.

**Your Feedback**

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **13 May 2022**.

Regards

**BHP**

#### 1.17.1 Email sent to Seafood Industry Victoria (SIV) – 23 May 2022

Hi (Individual 5) and (Individual 6)

As previously communicated, consultation has been undertaken as per the agreed approach.

Just wondering if SIV wished to provide feedback on proposed activities in its own right?
Please let me know you would like to provide a comment and we will get back you with a response.

Regards
Tony

### 1.18 Email sent to State Fishery Stakeholders (through MJH Fisheries) and Apollo Bay Fishermen's Cooperation — 20 April 2022

As advised by SIV, the relevant State-managed fisheries were contacted through these organisations:

- **Abalone Fishery:** Abalone Victoria Central Zone
- **Giant Crab Fishery:** MJH Fisheries
- **Rock Lobster Fishery:** MJH Fisheries
- **Scallop Fishery:** AB Hunter Fishing
- **Wrasse Fishery:** MJH Fisheries

Dear stakeholder

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

## Activity Overview

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
| **Minerva-2A** | -38° 42' 59.190" | 142° 57' 25.742" |
| **Minerva-3** | -38° 42 22.718" | 142° 57 32.997" |
| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

# Commercial Fishing Overview

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

### State fisheries

BHP has identified five State fisheries that overlap the Operational Area and may be impacted by planned activities. BHP has consulted Seafood Industry Victoria to confirm the relevant contacts for each fishery listed below. However, please let us know if there are additional stakeholders that should be consulted.

- Abalone Fishery
- Giant Crab Fishery
- Rock Lobster Fishery
- Scallop Fishery

- Wrasse Fishery

We are also consulting the Apollo Bay Fishermen's Cooperative, which may benefit from this advice.

## Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **18 May 2022**.

Regards,

**BHP**

### 1.19 Email sent to VFA — 20 April 2022

Hi (Individual 7)

Thanks so much for following up on this request.

Can you please forward this email and attached information fact sheet to the appropriate contact within the VFA?

Also, can you please advise the VFA contact when responding to also cc the BHP Petroleum External Affairs mailbox (address copied here)?

Regards

(Individual 2)

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Dear Victorian Fisheries Authority

BHP is planning for the next stage of its ongoing safe and sustainable closure of the Minerva Field located in Commonwealth waters approximately 11 km south of Port Campbell, Victoria, Australia. The Field lies entirely offshore in the Production Licence VIC/L22 in the Otway Basin, in approximately 60 m of water.

Gas production from the Minerva fields ceased in 2019, following which BHP sold its interest in the onshore Minerva Gas Plat to Cooper Energy.

For this activity, BHP proposes to permanently plug and abandon (P&A) four wells using a moored semi-submersible mobile offshore drilling unit (MODU). These wells comprise two suspended gas production wells (Minerva-3 and Minerva-4) and two suspended exploration wells (Minerva-1 and Minerva-2A).

The P&A activities are required to be completed by no later than 30 June 2025. Future decommissioning activities will be covered under separate environmental approvals and relevant stakeholders will continue to be engaged as part of these work scopes.

## Activity Overview

| | | |
|---|---|---|
| **Earliest expected commencement date and completion date** | Earliest P&A start is Q4 2023 calendar year, subject to approvals, MODU and vessel availability, and weather constraints. Pre-lay of mooring equipment may commence prior. P&A complete no later than 30 June 2025. Subsea equipment suitably maintained until final decommissioning in 2025. | |
| | Coordinates (GDA94) | |
| **Well locations** | Latitude (South) | Longitude (East) |
| **Minerva-1** | -38° 42' 06.885" | 142° 57' 17.278" |
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| **Minerva-4** | -38° 43 07.368" | 142° 57 44.023" |
| **Petroleum licences** | VIC/L22 and VIC/PL33 | |
| **Activity duration (approx.)** | P&A activity 60 days depending on weather conditions | |
| **Water depth (approx.)** | 50-60 m | |
| **Vessels** | • Semi-submersible mobile offshore drilling unit (MODU) (moored).<br>• Anchor handling vessels and support vessels. | |
| **Operational area** | • A temporary 1 km radius 'Cautionary Zone' around each well – P&A only (VIC/L22).<br>• An existing permanent 500 m radius Petroleum Safety Zone (PSZ) around each well (VIC/L22).<br>• The Minerva Pipeline Operations Zone (VIC/PL33). | |

# Commercial Fishing Overview

Commercial fisheries have been identified as being relevant to the proposed activities on the basis of fishing licence overlap with the proposed Operational (activity) Area, as well as consideration of fishing effort data, fishing methods and water depth.

### State fisheries

BHP has identified five State fisheries that overlap the Operational Area and may be impacted by planned activities. BHP has consulted Seafood Industry Victoria to confirm the relevant contacts for each fishery listed below. However, please let us know if there are additional stakeholders that should be consulted.

- Abalone Fishery
- Giant Crab Fishery
- Rock Lobster Fishery
- Scallop Fishery

- Wrasse Fishery

We are also consulting the Apollo Bay Fishermen's Cooperative, which may benefit from this advice.

## Your Feedback

Your feedback on the proposed activity and our response will be provided to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA), as is required under the *Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.*

As a relevant stakeholder you are invited to provide comments. The Environment Plan will contain a summary of all comments received. However, BHP will not use or disclose your personal information in the Environment Plan. Full transcripts of all correspondence will be included in a separate sensitive information part of the Environment Plan provided to NOPSEMA.

Please provide comment as soon as practicable. Comments can be made by email, letter or by phone (refer to attached Fact Sheet for contact details) by close of business on **18 May 2022**.

Regards,

**BHP**

## 2. Consultation — May 2023

### 2.1 Consultation Information Sheet sent to relevant persons

Woodside Energy

CONSULTATION

# INFORMATION SHEET

May 2023

# ACTIVITY UPDATE – MINERVA DECOMMISSIONING ENVIRONMENT PLANS

## OTWAY BASIN, SOUTH EAST AUSTRALIA

### Overview

Woodside Energy (Victoria) Pty Ltd (Woodside) consults relevant persons in the course of preparing an Environment Plan (EP) to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that could be taken to lessen or avoid potential adverse effects of the proposed activity on the environment. This is the intended outcome of consultation.

Woodside's aim is to ensure the activity is carried out in a manner that is consistent with the principles of Ecologically Sustainable Development (ESD), by which the environmental impacts and risks of the activity are reduced to As Low As Reasonably Practicable (ALARP) and of an acceptable level. We want relevant persons whose functions, interests or activities may be affected by the proposed activity to have the opportunity to provide feedback on our proposed activity, in accordance with the intended outcome of consultation.

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field (previously operated by BHP Petroleum Pty Ltd (BHP)), located in Commonwealth waters in Petroleum Licence VIC-L22 and Pipeline Licence VIC-PL33, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria and in water depths of approximately ~50 – 60 m. The pipeline also tranverses State waters in Pipeline Licence VIC-PL33(V). Woodside plans to remove all subsea infrastructure and equipment from the seabed associated with the Minerva development in Commonwealth and State waters **(Figure 1).**

Regulatory approvals are being sought for the following activities:

### Minerva Plug and Abandonment (P&A) and Field Management EP

- Well P&A of two former production wells and two exploration wells by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

### Minerva Field Decommissioning EP

- Removal of the Minerva 10-inch gas pipeline bundle **(Figure 2)** in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth Waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

### Minerva (State Waters) Decommissioning EP

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State Waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from shore.

Decommissioning of the Minerva field is planned to be undertaken following acceptance of the EPs, with work anticipated to commence around early 2024, starting with P&A activities, subject to vessel availability and weather constraints. The P&A activities are expected to take approximately 2 months to complete, and infrastructure removal activities are expected to take between 1 – 2 months.

The P&A activities and subsea removal are required to be completed by 30 June 2025, as per NOPSEMA General Direction 831.

Following removal, Woodside proposes to dispose of infrastructure onshore in accordance with applicable requirements, assessing all options to reduce waste through reuse or recycling of recovered infrastructure.

The location of the Minerva infrastructure is summarised in **Table 1** and proposed decommissioning activities summarised in **Table 2**.

An EP for the P&A activities has previously been submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for assessment under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009*. The Minerva Field Decommissioning EP will be submitted to NOPSEMA and the Minerva (State Waters) Decommissioning EP will be submitted to the Department of Energy, Environment and Climate Action, Precincts and Regions (DEECA) under the *Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010*.

This Activity Update provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided.

Feedback from relevant persons as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

1 Minerva Decommissioning Environment Plans | May 2023

## Minerva decommissioning background

The offshore wells were drilled in late 2002 and the offshore and onshore pipeline was laid in 2003. The construction of the onshore Minerva Gas Plant was completed in December 2004, and the facilities were commissioned and commenced production in January 2005.

The Minerva field reached the end of its economic production life in September 2019. Immediately following the cessation of production, the Minerva wells were suspended and the subsea system was left in a preserved state (i.e. wells isolated and production system flushed of hydrocarbons) for final decommissioning. The onshore gas plant was sold for reuse to another Operator. A vessel-based campaign was conducted in Q1 2021 to disconnect flowlines from wells and install barrier plugs.

## Communications with mariners

**Well P&A:** The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the four wells within VIC-L22. A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.

**Facilities removal:** The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route. It is intended that a temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during removal activities.

Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area and remain clear of the exclusion zone.

It is anticipated that vessels will operate 24 hours per day for the duration of the activities. The duration of these activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

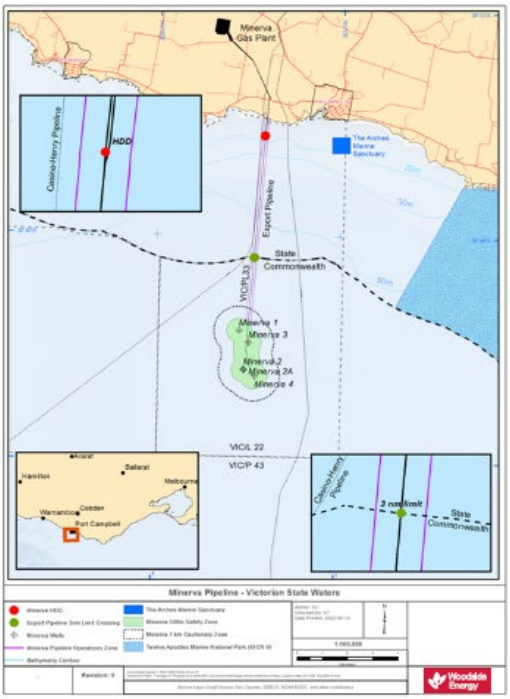



*Figure 1. Minerva Location Map*

## Decommissioning assessment

Woodside has undertaken an assessment to identify potential risks to the marine environment and relevant persons, considering timing, duration, location and potential impacts arising from the planned activities. A number of mitigation and management measures will be implemented and are summarised in **Table 3**. Further details will be provided in the EPs.

In preparing the EPs, Woodside's intent is to minimise environmental and social impacts associated with the proposed activities, and we are seeking comments and input from relevant persons to inform our decision making and for the intended outcome of consultation (see above).

## Joint Venture

Woodside is the Operator of Minerva field on behalf of the Joint Venture Partners. The participants are Woodside Energy (Victoria) Pty Ltd and Cooper Energy (MF) Pty Ltd.

**We welcome your feedback by 14 June 2023.**

*Figure 2. Minerva Pipeline Bundle Arrangement*

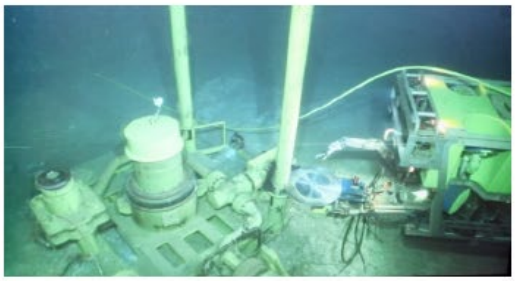


*Figure 3. Typical Subsea Cutting Activity*

*Figure 4. Typical Subsea Equipment Recovery Activity*

**Table 1. Activity summary**

| Minerva Decommissioning Activities | Well P&A | Facilities Removal (Commonwealth Waters) | Facilities Removal (State Waters) |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| Summary | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br><br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br><br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br><br>Note: the shore crossing will not be removed as part of this campaign. |
| Commencement date | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br><br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br><br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br><br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| Simultaneous Operations (SIMOPS) | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability. | | |
| Petroleum Title | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| Operational Area | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells. | |
| Exclusion zones | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities. | |
| Estimated duration | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| Location and water depth | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south south-west of Port Campbell in ~15 m to 53 m water depth |

| Minerva Decommissioning Activities | Well P&A | Facilities Removal (Commonwealth Waters) | Facilities Removal (State Waters) |
|---|---|---|---|
| Infrastructure | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |
| Vessels | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels. | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required. |
| Distance to nearest marine park/mature reserve | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Table 2. Equipment locations (coordinates are GDA94)**

| Subsea Infrastructure | Latitude (South) | Longitude (East) |
|---|---|---|
| Minerva-1 well | -38° 42' 0.6.885" | 142° 57' 17.278" |
| Minerva-2A well | -38° 42' 59.190" | 142° 57' 25.742" |
| Minerva-3 well | -38° 42' 22.718" | 142° 57' 32.997" |
| Minerva-4 well | -38° 43' 0.7368" | 142° 57' 44.023" |
| Pipeline start | -38° 71' 89.530" | 142° 96' 14.700" |
| Pipeline Commonwealth/State boundary point | -38° 40' 29.11" | 142° 57' 39.42" |
| Pipeline end | -38° 62' 96.930" | 142° 96' 48.470" |

# ENVIRONMENT THAT MAY BE AFFECTED (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from both the direct and indirect activities that are the subject of the EPs. The worst-case credible spill scenario for these EPs is loss of well containment during the well P&A activities.

The EMBA does not represent the predicted impact of the highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release.

This means that in the highly unlikely event that a hydrocarbon release does occur, the entire EMBA will not be affected and the specific and minimal part of the EMBA that is affected will only be known at the time of the release.

There are two potential EMBAs for this EP, reflecting the activities and the different locations that the activity could occur.

Each of the EMBAs are presented in **Figure 5** below and summarised as:

- **Loss of Well Containment EMBA:** Primary activity of the Well P&A EP – P&A of 4 production/exploration wells by a MODU.
- **Vessel Spill Marine Diesel Oil (MDO) EMBA:** Primary activity for the Minerva Decommissioning EP and the Minerva (State Waters) Decommissioning EP– Recovery of subsea infrastructure using a CSV.

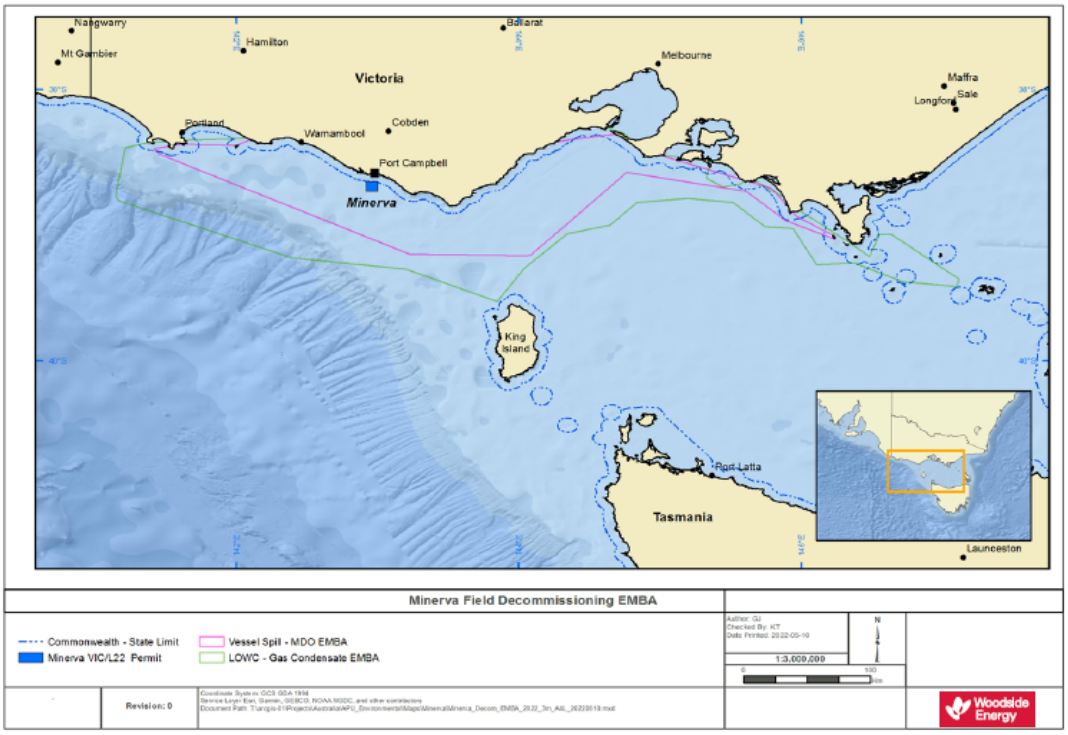



*Figure 5. Environment that may be affected (EMBA) for the proposed decommissioning activities.*

### Mitigation and management measures

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from the decommissioning activities considering timing, duration, location.

A number of mitigation and management measures for the P&A and decommissioning of the Minerva field are outlined in **Table 3**. Further details will be provided in the EPs.

**Table 3. Summary of key risks and/or impacts and management measures for the Minerva decommissioning activities. Key risks and/or impacts and management measure apply to activities occurring within the Operational Area.**

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| **Planned** | | | |
| Physical presence and interactions with other marine users | • The activities will be undertaken using a range of project vessels, namely a MODU and CSV, along with general support vessels. A 1,000 m exclusion zone will apply around the MODU and a 500 m exclusion zone around the CSV. There is an existing 500 m Petroleum Safety Zone (PSZ) around the wellheads.<br>• Presence of vessels in the safety and exclusion zones has the potential to result in interaction with third-party marine users. | • Interference with commercial shipping.<br>• Interference with commercial fishing activity.<br>• Displacement of recreational fishing activity.<br>• Interaction with existing oil and gas infrastructure. | • 1500 m operational area maintained around the wells and 1000 m along the pipeline corridor until removal.<br>• 1,000 m exclusion zone established around the MODU and 500 m exclusion zone around CSV.<br>• Activity support vessel(s) to communicate with third-party vessels to assist in maintaining the exclusion zones.<br>• Consultation with relevant persons for the consultation outcomes. |
| Physical presence – disturbance to benthic habitat from MODU anchoring, P&A and removal activities and ROV operations. | Seabed disturbance may result from:<br>• Removal of excess marine growth from infrastructure prior to removal using high-pressure water jetting.<br>• Infrastructure deburial and short-term wet parking of infrastructure may be required.<br>• MODU mooring and transponder installation for MODU positioning.<br>• Cutting and recovery of infrastructure on the seabed.<br>• Temporary equipment laydown or ROV operations.<br>• Post decommissioning sediment sampling. | • P&A and subsea removal activities including infrastructure deburial, marine growth removal, cutting and recovery of infrastructure, MODU mooring installation, ROV operations and temporary laydown of equipment may result in localised, temporary physical disturbance to benthic habitat and indirect disturbance to benthic habitats from sedimentation.<br>• Seabed disturbance as a result of these activities could occur within a localised radius of the Minerva wells and subsea infrastructure locations. Near this area, it is possible that benthic communities may be reduced or altered, leading to a highly localised impact to epifauna and infauna benthic communities. | • Use controlled recovery techniques to limit seabed disturbance.<br>• Subsea infrastructure to be marked on navigational charts until removal.<br>• Project specific mooring design analysis for anchored MODU to reduce the likelihood of anchor drag leading to seabed disturbance.<br>• All infrastructure and temporary wet parked equipment will be removed from the seabed on completion of the P&A and removal activities. |
| Routine Discharges: MODU and Project Vessels | • Sewage and greywater will be discharged from MODU and project vessels.<br>• Bilge water, deck drainage, brine and cooling water may also be discharged. | • The main impact associated with ocean disposal of sewage and other organic wastes is eutrophication. Eutrophication occurs when the addition of nutrients, such as nitrates and phosphates, causes adverse changes to the ecosystem including short-term, localised impacts to water quality.<br>• No significant impacts are expected to water quality from planned discharges because of the minor quantities involved, the expected localised mixing zone, and the high level of dilution into the open water marine environment of the Operational Area.<br>• Similarly, although some marine fauna may transit the Operational Area, potential for impacts remains low due to the localised nature of discharges and rapid dilution. | • All routine marine discharges will be managed according to legislative and regulatory requirements. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Discharges: Decommissioning Activities | • During infrastructure removal, residual fluid remaining in infrastructure will be drained to the surrounding environment. Fluid includes treated seawater with residual hydrocarbon (less than 5ppm) and other minor volumes of chemicals such as monoethylene glycol (MEG), biocide and water based hydraulic fluid.<br>• Chemical use may be required to remove marine growth and calcium/scale buildup.<br>• Routine P&A discharges including well kill and well clean up brine, water-based drilling fluids, cement and cementing fluids, residual wellbore fluids including residual hydrocarbon.<br>• Routine discharges of subsea control fluid, treated seawater and residual wellbore fluids during subsea tree preparation for P&A.<br>• Potential non-routine discharge of unused bulk product. | • Localised short-term impacts to water quality from the release of seawater ballast and residual chemicals and hydrocarbons. | • All chemicals intended or likely to be discharged into the marine environment reduced to ALARP using the Woodside chemical assessment process.<br>• Fluids contaminated with hydrocarbons will be treated to meet specified discharge limits prior to discharge or contained. If discharge specifications are not met the fluid will be returned to shore.<br>• During well kill activities, formation water and any wellbore fluids that are not able to flared, will be processed through a water filtration treatment package prior to discharge to the environment.<br>• No bulk cement, bentonite or barite will be discharged without a documented environmental assessment. |
| Light Emissions | • Project vessels and MODU will use external lighting to navigate and conduct safe operations at night.<br>• Vessel lighting will also be used to communicate the vessel's presence to other marine users (i.e. navigation/ warning lights).<br>• Light emissions may be generated by flaring during well P&A if required. Flaring is only expected to occur for short durations (hours). | Light emissions may affect fauna (such as marine turtles and birds) in two main ways:<br>1. Behaviour: artificial lighting has the potential to create a constant level of light at night that can override natural levels and cycles.<br>2. Orientation: if an artificial light source is brighter than a natural source, the artificial light may override natural cues, leading to disorientation.<br>• During the decommissioning activities, there is potential a small number of seabirds and migratory shorebirds may be attracted to lighting on the MODU and project vessels. The Operational Area overlaps 10 seabird species foraging Biologically Important Areas (BIA). Potential impacts are expected to be limited to localised behavioural disturbance to isolated individuals, with no significant impact to seabird foraging.<br>• The Operational Area does not overlap any critical habitat for marine turtle species. Localised behavioural impacts to individual foraging marine turtles from light emissions generated during the activity are considered negligible, with no impact predicted at a community or population level. | • Lighting limited to the minimum required for navigational and safety requirements, except for emergency events.<br>• Flaring restricted to a duration necessary to perform the activity for well bleed-off.<br>• Implementation of a Seabird Management Plan and relevant controls in the National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds (2020). |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Noise Emissions | • MODU and project vessels will generate noise both in the air and underwater due to the operation of thruster engines, propellers, and the use of cutting tools, or positioning equipment subsea. | Underwater noise may affect marine fauna, including marine mammals in three main ways:<br>1. By causing direct physical effects, including injury or hearing impairment. Hearing impairment may be temporary or permanent.<br>2. Through disturbance leading to behavioural changes or displacement from important areas. The occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation.<br>3. By masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey).<br>• Predicted noise levels from the MODU and project vessels may have short term behavioural impacts to Pygmy Blue Whales (PBW) and Southern Right Whales (SRW) transiting within or utilising a BIA.<br>• Marine turtle presence is expected to be infrequent, and potential impacts from predicted noise levels are not considered to be ecologically significant at a population level.<br>• Fish, sharks and rays may demonstrate avoidance or attraction behaviour to the noise generated by the activity. However, potential impacts from predicted noise levels are not considered to be ecologically significant at a population level.<br>• Woodside has proposed controls that when implemented will ensure activities will not have physical and/or observable biologically significant behavioural disturbance (including breeding, foraging and resting on migration) on these species. Noise levels are expected to be localised, with possible effects limited to, at worst, short-term avoidance behaviour. | • Compliance with legislative and regulatory requirements for interactions with marine fauna to prevent adverse interactions.<br>• Decommissioning activities will be undertaken outside the Pygmy Blue Whale peak foraging season (January to March)<br>• Implementation of a Blue Whale and Southern Right Whale Adaptive Management Plan which details adaptive management measures for vessels operating on DP to reduce the risk of displacement of blue whale and southern right whales during the petroleum activities.<br>• It is intended that two dedicated trained Marine Mammal Observers will be stationed aboard project vessels to implement adaptive management measures (e.g. application of standoff distances, management of support vessel movements and resupply activities) upon detection of cetaceans within certain distances of decommissioning activities.<br>• Whale sightings to be reported to support greater environmental knowledge. |
| Atmospheric Emissions | • Atmospheric emissions will be generated by the MODU and project vessels from internal combustion engines and incineration activities.<br>• Atmospheric emissions will be generated from venting of residual gas and contingent flaring from the MODU during P&A activities. | • Emissions from MODU and project vessels could result in temporary, localised reductions in air quality in the immediate vicinity of the vessels.<br>• Venting or flaring of hydrocarbon gas may result in a short-lived localised gas plume and a minor contribution to greenhouse gas emissions. | • Compliance with legislative and regulatory requirements for marine air pollution.<br>• Flaring and venting of hydrocarbons is restricted to a duration necessary to perform the P&A activity. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| **Unplanned** | | | |
| Unplanned Hydrocarbon Release – Loss of Well Containment during P&A | • Accidental loss of wellbore fluids and hydrocarbons to the marine environment due to loss of well containment may occur, caused by failure of well barriers during the P&A activity. | • A loss of well containment and resulting blowout event is considered to be a highly unlikely event as it has occurred only very infrequently in the industry, and never in the Company's history.<br>• Modelling a loss of well containment was undertaken with the outcome, EMBA illustrated in **Figure 5.**<br>• Minerva condensate is a light, non-persistent natured hydrocarbon with a high tendency to evaporate.<br>• A release of gas condensate from a loss of well control has the potential to impact an array of receptors. Potential impacts across the whole EMBA were assessed including relevant ecological and socio-economic receptors. Given the limited volumes, low wax content and non-persistent nature of condensate, potential impacts are not expected to persist. The residual risk has been assessed to be tolerable. | **Preventing loss of well containment**<br>• Wells to be permanently plugged in compliance with an accepted Well Operating Management Plan including implementation of barriers to prevent a loss of well containment.<br>• Checks completed during well P&A operations to establish minimum acceptable standard of well integrity.<br>• An approved Source Control Emergency Response Plan will be prepared prior to P&A, including feasibility and specific considerations for relief well.<br>• Subsea blow out preventer specification, installation and testing compliant with internal Woodside Standards and international requirements.<br>**Spill Response arrangements**<br>• Arrangements supporting the Oil Pollution Emergency Preparation (OPEP) document (OPEP)/Emergency Response Manual (ERM) will be tested to ensure the OPEP can be implemented as planned.<br>• Emergency response activities would be implemented in line with the OPEP/ERM. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Unplanned Hydrocarbon Release – Vessel Collision | • Project vessels will use marine diesel fuel.<br>• In the unlikely event of a vessel collision involving a project vessel or third-party vessels during the activity, there is potential for a release of marine diesel fuel if the collision has enough force to penetrate the vessel hull in the exact location of the fuel tank. | • In the highly unlikely event of a vessel collision causing a release of hydrocarbons, impacts to water quality and marine ecosystems could occur.<br>• Modelling of a surface release of marine diesel was undertaken at a representative location within the Operational Area<br>• Marine diesel is a relatively volatile, non-persistent natured hydrocarbon with up to 41% evaporating within the first 24 hours.<br>• A release of marine diesel from a vessel collision has the potential to impact an array of receptors. Potential impacts across the whole EMBA were assessed including relevant ecological and socio-economic receptors. Potential impacts are considered moderate to significant but are unlikely to persist due to the nature of the marine diesel. The residual risk has been assessed to be tolerable. | **Preventing Vessel Collision**<br>• Comply with regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements.<br>• Consult with relevant persons so that other marine users are informed and aware, reducing the likelihood of a collision.<br>• Establish temporary exclusion zones around vessels which are communicated to marine users to reduce the likelihood of collision.<br>• Develop a management plan for simultaneous operations where multiple campaigns occur concurrently in the same Operational Area.<br>**Spill Response Arrangements**<br>• Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP)/Emergency Response Manual (ERM) will be tested to ensure the OPEP can be implemented as planned.<br>• Emergency response activities would be implemented in line with the OPEP/ERM. |
| Chemical and Hydrocarbon Spills (Deck Spills and Bunkering) | • Accidental loss of chemicals or hydrocarbons to the marine environment during bunkering/ refuelling may occur caused by partial or total failure of a bulk transfer hose or fittings due to operational stress or other integrity issues.<br>• Accidental spills of chemicals or hydrocarbons from MODU or project vessel deck activities and equipment. | • Accidental loss of such chemicals from the MODU or vessels to the marine environment could occur as a result of failure of bulk transfer hoses or fittings during bunkering, spillage during handling, inadequate bunding and/ or storage, inadequate method of securing or tank/ pipework failure, leak from equipment or rupture or failure of ROV hydraulic hoses whilst underwater.<br>• Spills from bunkering/refueling or deck activities could result in short term, localised impacts to water quality or marine fauna in the immediate area surrounding the spill. | • Compliance with legislative and regulatory requirements for the prevention of marine pollution.<br>• Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process<br>• Liquid chemical and fuel storage areas bunded or secondarily contained when they are not being handled or temporarily moved.<br>• Maintain and locate spill kits in close proximity to hydrocarbon storage and deck areas for use to contain and recover deck spills<br>• Appropriate bunkering equipment kept and maintained, and contractors to follow procedures and requirements for bunkering and refuelling to reduce the likelihood of a spill. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Unplanned Discharge of Solid Hazardous/ Non-Hazardous Waste/ Equipment | • Accidental, unplanned loss of hazardous or non-hazardous solid wastes/equipment to the marine environment may occur if dropped or blown overboard. | • The potential impacts of hazardous or non-hazardous solid wastes and equipment accidentally discharged to the marine environment include contamination of the environment as well as secondary impacts relating to potential contact of marine fauna with wastes.<br>• The temporary or permanent loss of waste materials/ equipment into the marine environment is not likely to have a significant environmental impact, based on the location of the Operational Area, the types, size and frequency of wastes that could occur, and species present. | • Compliance with legislative and regulatory requirements for the prevention of marine pollution and handling of hazardous wastes.<br>• Implement a Waste Management Plan.<br>• Solid waste/equipment dropped to the marine environment will be recovered where safe and practicable to do so.<br>• Where retrieval is not practicable and/ or safe, material items (property) lost to the marine environment will undergo an impact assessment and will be added to the inventory for the title. |
| Unplanned Interaction with Marina Fauna | • Accidental collision between project vessels and protected marine fauna. | • Vessel movements have the potential to result in accidental collisions between the vessel (hull and propellers) and marine fauna.<br>• The risk of vessel collision with marine mammals is present year-round but is seasonally elevated for species such as Pygmy Blue Whales during foraging periods and southern right whales when resting on migration (May – October). Given the short duration of activities within the Operational Area, and the slow speeds at which project vessels operate collisions with cetaceans are considered highly unlikely. | • Compliance with legislative and regulatory requirements for interactions with marine fauna to reduce the likelihood of a collision occurring. |
| Disturbance to Seabed from Dropped Objects and Unplanned Anchor Drag | • Accidental, unplanned dropping of objects overboard from project vessels during recovery operations.<br>• High energy weather conditions, occurring while the MODU is on station, can lead to excessive loads on the mooring lines, resulting in failure (either anchor(s) dragging or mooring lines parting). | • In the unlikely event of an object being dropped or mooring failure, potential environment effects should be limited to minor physical damage to seabed and benthic communities in a localised area. | • MODU and project vessel inductions include control measures and training for crew in dropped object prevention.<br>• Lost waste/ dropped objects will be recovered where safe and practicable to do so.<br>• Procedures for lifts, bulk transfers and cargo loading if an unplanned object release does occur.<br>• Project-specific Mooring Design Analysis and mooring system testing undertaken to reduce the likelihood of mooring failure or anchor drag. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Accidental Introduction of Invasive Marine Species (IMS) | • Vessels transiting to the Operational Area may be subject to marine fouling whereby organisms attach to the vessel hull.<br>• Organisms can also be drawn into ballast tanks during onboarding of ballast water.<br>• IMS could also be present as biofouling on submersible equipment. | • There is potential for the transfer of IMS between the project vessels while in its current location within the Operational Area. | • Ballast water and biofouling will be managed according to regulatory requirements, including the Australian Ballast Water Management Requirements, and the Australian Biofouling Management Requirements, as applicable.<br>• Woodside's IMS risk assessment process will be applied to the MODU, project vessels and submersible equipment entering the Operational Area. |
| **Indirect** | | | |
| Waste Generation | • Removal of the Minerva subsea infrastructure will result in the generation of waste products. | • Generation of waste products that require appropriate management. | • Waste generated on the MODU and project vessels, including recovered infrastructure will be managed in accordance with legislative requirements.<br>• Recovered infrastructure will be transported onshore by a licensed waste contractor for disposal including recycling and reuse opportunities.<br>• Infrastructure and resource recovery strategy that ensures waste is handled and disposed of in accordance with applicable legislation, monitors and tracks waste and sets KPIs for recycling and reuse of decommissioned infrastructure. |

**Feedback**

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before **14 June 2023** via:

**E: Feedback@woodside.com**

**Toll free: 1800 442 977**

You can subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com/sustainability/consultation-activities.

Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.

Please note that your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the *Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

www.woodside.com

Woodside Energy

## 2.2 Summary Consultation Information Sheet

Woodside Energy

CONSULTATION

# SUMMARY INFORMATION SHEET

May 2023

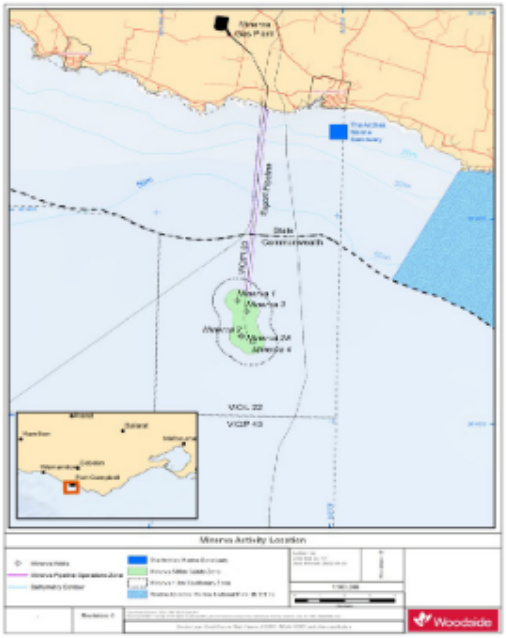
# MINERVA DECOMMISSIONING

This is a summary of the activity in plain English. More detailed information can be found in Activity Update - Minerva Decommissioning Environment Plans.

## Overview

Woodside is planning to remove all subsea infrastructure and equipment from the seabed for the Minerva Field, located in 50-60 m of water approximately 11 km south-southwest of Port Campbell, Victoria

A map of the location is shown below.




## Background

The Minerva Gas Plant commenced production in 2005 and ceased in 2019. At that time, the Minerva wells were isolated and the production system flushed of hydrocarbons. In 2021, the flowlines were disconnected from the wells and barrier plugs installed.

## Work Method

The work can be considered in three parts:

- **Minerva plug and abandonment and field management**
  Four wells are proposed to be permanently plugged with cement using a moored Mobile Offshore Drilling Unit (MODU) and the well infrastructure above the mudline is proposed to be removed. Other vessels may provide support for this activity. The field will be monitored and inspected, as required, until the equipment is removed. A temporary 1000 m exclusion zone will apply around the MODU and other project vessels. This work is estimated to take up to 60 days and must be completed by mid 2025.
- **Minerva Field decommissioning in Commonwealth Waters**
  The gas pipeline bundle and other subsea infrastructure is proposed to be removed. Hydraulic shears will be used to cut the flowline and equipment will be recovered to a Construction Support Vessel (CSV) by crane. This work is estimated to take up to 30 days and must be completed by mid 2025. Figure 1, Figure 2 and Figure 3 show some of the structures and equipment used to remove them.
- **Minerva Field decommissioning in State Waters**
  The gas pipeline bundle is proposed to be removed in State Waters, using hydraulic shears and supported by divers, where required. This work is proposed to be done at the same time as decommissioning in Commonwealth Waters.

Figure 1. Minerva Pipeline Bundle Arrangement

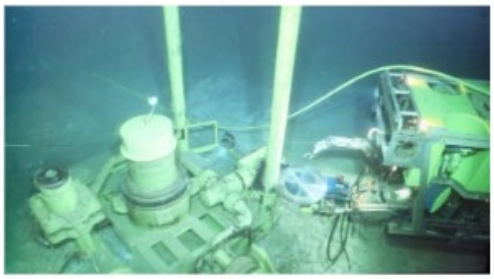


Figure 2. Typical Subsea Cutting Activity

Figure 3. Typical Subsea Equipment Recovery Activity

## Environmental Impacts and Management

This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as reasonably practical.

Planned Activities are activities that Woodside knows will happen as part of this work program. For example, Planned Activities include other marine users being temporarily stopped from accessing the work area, and the marine vessels and drill rig used for the work may disturb the seabed, generate underwater noise, light emissions, atmospheric emissions, and routine discharges (such as sewage, waste, and deck drainage), and other authorised waste.

Unplanned Activities are not planned as part of the work program, but may be the result of an accident, incident, or emergency situation. It is highly unlikely that there will be an Unplanned Activity. Unplanned Activities might include a spill of fuel or oil, a release from a well, a spill on the deck of a vessel (such as during refuelling), unplanned seabed disturbance, accidental collision with marine animals, waste entering the environment and accidental introduction of invasive species from outside the region. Management measures will be in place to reduce the probability and impacts of these unplanned activities to as low as practical.

A table showing all planned and unplanned activities, potential impacts, and management measures for each is included in the Information Sheet.

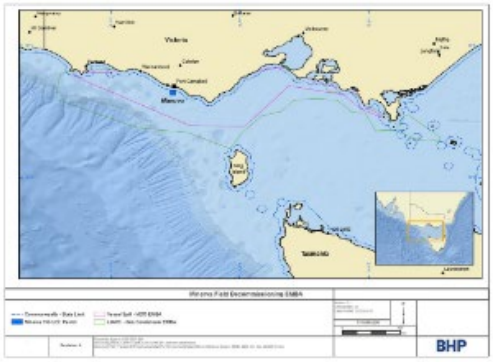
## Environment that may be affected

The total area over which unplanned events could have environmental impacts is shown in the maps below. This is referred to as the environment that may be affected (EMBA. In the highly unlikely event such as a fuel spill from a vessel collision or an oil release from one of the wells while drilling, the entire EMBA will not be affected. The part of the EMBA that is affected will only be known at the time of the event.

There are two potential EMBAs for the Minerva decommissioning, in the event of:

- Loss of Well Containment during the plugging and abandonment of four production/exploration wells in the Minerva Field by a MODU
- Vessel Spill Marine Diesel Oil (MDO) during the recovery of subsea infrastructure in the Minerva Field using a CSV.

Figure 4 shows the two potential EMBAs.




## Conclusion

Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

There are always potential risks with surveys like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside complies with these laws and has systems in place to keep following these laws and rules for each project it undertakes.

If you would like information about Woodside's work to study and care for the environment, you can find it at https://www.woodside.com/sustainability/environment.

## Providing Feedback

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or any concerns, you can tell Woodside by calling 1800 442 977 or send an email to Feedback@woodside.com.au.

If you would prefer to speak to the government directly, they can be contacted on +61 (0)8 6188 8700 or send an email to communications@nopsema.gov.au.

## Further Information

You can find the details Consultation Information Sheet for proposed activity on our website:
https://www.woodside.com/sustainability/consultation-activities.

## 2.3 Newspaper Advertisements in The Australian, Herald Sun, Warrnambool Standard, Colac Herald and Cobden Times (17 May 2023)

# ENVIRONMENT PLAN NOTICE

Woodside Energy (Victoria) Pty Ltd (ACN 006 923 879) is proposing to conduct decommissioning activities in Commonwealth waters, as described below:

**Minerva Field Decommissioning Environment Plan (EP) and Minerva (State Waters) Decommissioning EP**

| | | | |
|---|---|---|---|
| **Activity summary:** | Removal of subsea infrastructure above the mudline, including 10-inch gas pipeline bundle in Commonwealth and State waters | | |
| **Location:** | Approximately 9 km south south-west of Port Campbell, Victoria | | |
| **Commencement timing:** | Anticipated around second half of 2024, pending approvals, vessel availability and weather constraints | | |
| **Estimated duration:** | Approximately 2 months | | |
| **Consultation commenced** | May 2023 | **First EP submission to NOPSEMA** | Not yet submitted |

**Minerva Plug and Abandonment and Field Management Environment Plan**

| | | | |
|---|---|---|---|
| **Activity summary:** | The permanent plugging, abandonment and removal of the four Minerva wells by placing cement plugs in the wells to prevent hydrocarbon release and ongoing field management until decommissioning is completed | | |
| **Location:** | Approximately 9 km south south-west of Port Campbell, Victoria | | |
| **Commencement timing:** | Anticipated around early 2024, pending approvals, vessel availability and weather constraints | | |
| **Estimated duration:** | Approximately 45–60 days | | |
| **Consultation commenced** | April 2022 | **First EP submission to NOPSEMA** | June 2022 |

**Figure 1:** Describes the Operational Areas and the Environment That May Be Affected (EMBA) based on a composite of many different paths and furthest distance where a highly unlikely, unplanned event such as a hydrocarbon release could have an impact based on weather and ocean conditions.

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the relevant EP.

Impacts associated with routine decommissioning activities include the physical presence of a Mobile Offshore Drilling Unit (MODU) and vessels, interaction with other marine users, decommissioning discharges (cement/chemicals/residual hydrocarbons), seabed disturbance, emissions from flaring/venting and other vessel impacts (noise, light, air emissions and marine discharges). Impacts that could occur due to an unplanned event include hydrocarbon releases (crude/gas, marine diesel or other vessel fuels), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

**Figure 1** illustrates indicative EMBAs to support persons or organisations understanding of whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's consultation information sheets.

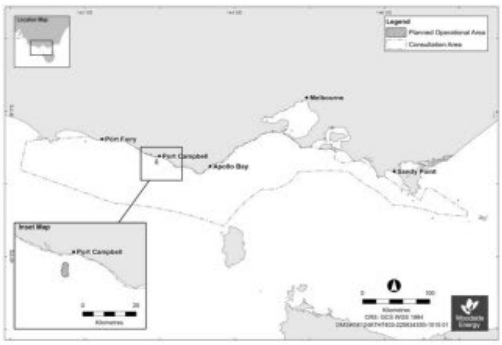



**Figure 1 Minerva Field**

**Consultation Participation and Feedback**

Woodside is seeking to consult with relevant persons to inform the preparation of EPs for the Minerva decommissioning activities. Consultation is designed to notify and obtain input from relevant persons to assist Woodside identify measures to lessen or avoid potential adverse effects of the proposed activity on the environment.

Consultation will inform the development of each EP in accordance with environmental regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) and support other regulatory submissions associated with the planned activities.

Detailed consultation information sheets are available at:
**www.woodside.com/sustainability/consultation-activities** if you would like additional information about Minerva decommissioning activities. You can also subscribe via our website to receive future information on proposed activities.

If you would like to comment on the proposed activities outlined above, please contact Woodside before **14 June 2023** via:

E: **Feedback@woodside.com**

Toll free: **1800 442 977**



# Sudan's brutal war spirals into chaos

**KHARTOUM:** One month since Sudan's conflict erupted, its capital is a desolate war zone where terrorised families huddle at home as gun battles rage, while the western Darfur region has descended into deadly chaos.

Residents of Khartoum have endured weeks of desperate food shortages, power blackouts, communications outages and runaway inflation.

The capital of five million people, long a place of relative stability, is a shell of its former self.

Charred aircraft lie on the airport tarmac, foreign embassies are shut and hospitals, banks, shops and wheat silos have been ransacked by looters.

Violence also renewed in El Geneina, the capital of West Darfur state, leaving hundreds killed and the health system in "total collapse", medics said.

Fighting has continued this week, with loud explosions heard across Khartoum and thick smoke in the sky while warplanes drew anti-aircraft fire.

"The situation is becoming worse by the day," said a 32-year-old resident of southern Khartoum who did not wish to be named because of safety concerns.

"People are getting more and more scared because the two sides ... are becoming more and more violent."

Another witness reported "clashes with various types of weapons" in Omdurman, the capital's twin city.

Battles erupted on April 15 between army chief Abdel Fattah al-Burhan and his former deputy, Mohamed Hamdan Dagalo, who leads the paramilitary Rapid Support Forces.

What remains of the government has retreated to Port Sudan about 850km away, the hub for mass evacuations.

The UN says more than 700,000 people have been internally displaced by the fighting, and nearly 200,000 have fled for neighbouring countries.

There are fears for the stability of the wider region.

"We're left on the street, in the sun," complained Hamdien Mohammed, who escaped the Khartoum area for Port Sudan. "We want the organisations to evacuate us from Sudan, because the country is totally devastated. There's no food, network ... nothing."

About 1000 people have been killed, mainly in and around Khartoum as well as the ravaged state of West Darfur, according to medics.

Violence at the weekend in El Geneina killed at least 280, according to the Sudanese doctors' union.

"There was still heavy shelling on Sunday that hit my home, damaging a part of it and injuring one of my sisters," one El Geneina resident said. "Other houses around us were completely destroyed."

After a month of war, General Burhan declared he was freezing the assets of the RSF which, analysts say, has interests in Sudan's gold mines.

General Burhan dismissed the central bank governor and the police director-general, while General Dagalo threatened in an audio recording that the army chief would be "brought to justice and hanged" publicly.

Neither side has been able to establish dominance on the battlefield, and experts have forecast a protracted conflict.

The army, backed by Egypt, has the advantage of air power while General Dagalo is, according to experts, supported by the United Arab Emirates and foreign fighters.

General Dagalo commands troops that stemmed from the notorious Janjaweed militia, accused of atrocities in a war that began in Darfur two decades ago. The scorched-earth campaign killed up to 300,000 people and uprooted more than 2.7 million, the UN said. Many were still living in Darfur's displacement camps as war returned to the region.

Multiple truce deals in the current conflict have been violated.

Sudan has a long history of military coups, but hopes had risen after mass protests led to the ouster of Islamist-backed strongman Omar al-Bashir in 2019, followed by a shaky transition towards civilian rule.

As Washington and other foreign powers lifted sanctions, Sudan was slowly reintegrating into the international community, before the generals derailed that transition with another coup in 2021.

The security breakdown has extended beyond Khartoum and Darfur to other regions. Ethnic violence last week killed more than 50 people in West Kordofan and White Nile states.

The fighting has deepened the humanitarian crisis in Sudan, where one in three people already relied on humanitarian assistance before the war.

Since then, aid agencies have been looted and at least 18 of their workers killed.

Diplomatic centres have also been targeted. Jordan on Monday issued a condemnation after its Khartoum embassy building "was stormed and attacked".

Across the Red Sea, in the Saudi Arabian city of Jeddah, envoys from both sides have been negotiating.

By May 11, they had signed a commitment to respect humanitarian principles and allow in badly needed aid.

Doctors Without Borders said food shortages in Darfur displacement camps meant "people have gone from three meals a day to just one".

**AFP**

**A man carries a child as refugees from Sudan cross into Ethiopia to escape the violence** AFP


## Rome opens fresh probe into missing Vatican teen

ELLA IDE
ROME

Rome prosecutors have opened a fresh investigation into the disappearance of a teenager 40 years ago, and are calling for full collaboration from The Vatican.

Emanuela Orlandi, the 15-year-old daughter of a Vatican employee, was last seen leaving a music class in Rome on June 22, 1983. Decades of speculation followed over what happened to her, with suggestions that mobsters, the secret services or a Vatican conspiracy were to blame, theories that sparked a Netflix series.

The Orlandi family's lawyer Laura Sgro said overnight on Monday that she had learned of the fresh probe through Italian media reports, and "it would certainly be welcome news".

The family has campaigned tirelessly for the truth, and it was its demands that led in part to The Vatican launching an inquiry into its most famous cold case in January.

Following that, Rome Public Prosecutor's Office is now also formally returning to investigate the Orlandi case, Italy's Corriere della Sera newspaper said.

It will be the third investigation by the Rome office, following ones from 1983-1997, and 2008-2015.

The Vatican has been accused of obstructing investigation efforts over the decades.

The fresh Italian investigation was driven in part by former prosecutor Giancarlo Capaldo's claims that he had spoken during the last probe to two representatives at The Vatican who had promised to reveal the whereabouts of Orlandi's body, the Corriere said.

One of the most widely circulated theories claims Orlandi was snatched by mobsters to put pressure on The Vatican to recover a loan. Another claim was that she was taken to force the release from prison of Mehmet Ali Agca, the Turk who attempted to assassinate Pope John Paul II in 1981.

The twists and turns of the case were documented in a 2022 TV series by Netflix called Vatican Girl.

In it, a friend also claimed the teen confided the week before she disappeared to having been harassed in The Vatican gardens by a figure close to John Paul II.

**AFP**

## French Polynesia nuclear tests 'raised cancer risk'

**PARIS:** Polynesians exposed to fallout from France's nuclear tests in the South Pacific have a slightly increased risk of developing thyroid cancer, a study suggests, using declassified military data for the first time.

France carried out 41 atmospheric nuclear weapon tests in French Polynesia between 1966 and 1974, exposing residents to fallout that has been a source of lasting friction between Paris and residents of the Pacific archipelago.

The study, published in the journal JAMA Network Open, used risk modelling to estimate that the nuclear tests were associated with between 0.6 per cent and 7.7 per cent of thyroid cancers in French Polynesia.

"This is the proportion of thyroid cancer attributable to the tests among all the cases of thyroid cancer that have or will develop in the people present at the time of the tests, in all islands combined," the study's lead author Florent de Vathaire said.

The impact of the tests was "weak but not at all non-existent", said Dr de Vathaire, a radiation expert at France's INSERM medical research institute.

The study compared 395 people who were diagnosed with thyroid cancer between 1984 and 2018 in French Polynesia with a control group of 525 from the general population.

"This is the first study that uses confidential army reports declassified in 2013," Dr de Vathaire said.

Using the documents, meteorological data and interviews with the cancer patients, the researchers simulated the radioactive cloud produced by each nuclear test, and estimated the dose of radiation received in the thyroid of each participant.

The average radiation dose for each person was nearly five milligrays, a standard unit of radiation absorption. The scientists found "no significant association" between the radiation dose and the risk of thyroid cancer.

The link was considered significant if the analysis only included invasive cancer requiring treatment.

France moved its nuclear tests underground in 1975, but continued conducting blasts in the Pacific until 1996.

During a visit to the capital, Papeete, in 2021, French President Emmanuel Macron acknowledged that France owes a "debt" to Polynesians for the nuclear tests.

**AFP**

## Commercial Opportunities

### Business Opportunities

**AMAZING OPPORTUNITY**

Ladies/Mens Clothing shop
Must sell Owner has cancer
- Shop established 60 years
- $127K net T/O $600K plus
- Running cost Company car
- $30K for goodwill plus all fixtures and fittings
- Vendor Finance available
- Easy Bus to learn/operate
- Idyllic beachside location
- Airport 1Hr Melb or Syd

Contact us by email
Will reply with details
shopswannies@gmail.com

## Real Estate

### Auctions

**AUCTION**
10 Marseilles Place South Morang
Auction: 3rd June, 10:30am
3 2 2
Love & Co Mill Park
Contact:
John Gioftsidis
0410 522 195

LOVE & CO

### Boarding & Rooms to let

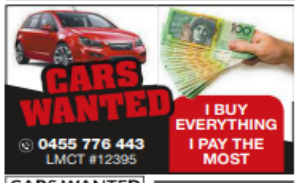
ARMADALE
ROOM AND KITCHEN,
BEDROOM PLUS OWN KITCHENET
SUIT OLDER GENT
$200 PER WEEK
0412 087 873

ESSENDON. Furnished Room. No Bills. Close to City & Transport. Clean & tidy. 0477 504 775

buy search sell .com.au

## Motoring

### Cars Wanted




CARS WANTED
ANY CONDITION
UP TO $1,000
RING Brendan
0409 648 076
LMCT11988

### Wrecking & Removal

FREE CAR REMOVAL
We pay upto $3,500 for all
Complete cars dead or alive
0422 108 512
Towing Service Also Available
LMCT 10268 20036154

### Caravans & Motor Homes

Caravans Wanted
Any Condition, Anywhere
0417 373 338

Need new wheels?

buy search sell .com.au

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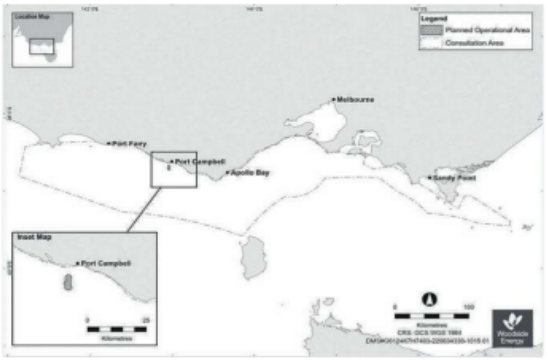


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E: **Feedback@woodside.com**

Toll free: **1800 442 977**

## Notices

### Public Notices

OPTUS vodafone

**PROPOSAL TO UPGRADE EXISTING OPTUS MOBILE PHONE BASE STATION WITH 5G AT THE FOLLOWING LOCATION**

**Lonton Parr Library (The Hub), Building 863, Victoria College of Art Campus, 234 St Kilda Road, Southbank, VIC 3006 www.rfnsa.com.au/3006023**

The proposed upgrade to the existing facility consists of the following works: Installation of six (6) new 5G panel antennas (no longer than 2.8m) on new mounts, removal of six (6) existing panel antennas, installation of five (5) new panel antennas on new mounts (no longer than 2.8m), strengthening the building (building brace), new shroud & platform design, new fixed access ladder design, power upgrade and reconfiguration of existing equipment on the facility and within the equipment shelter, including installation of existing Remote Radio Units on new mounts and a GPS antenna.

Optus regards the proposed installation as exempt from requiring a Permit in accordance with the Telecommunications Facility - Victorian Planning Provisions 52.19-1 (2022) based on the description above.

In accordance with Section 7 of C564:2020 Mobile Phone Base Station Deployment Code, we invite you to provide feedback about the proposal. Further information and/or comments should be directed to: BMM Group, 1300 260 834, submissions@bmmgroup.com.au by **31st May, 2023.** Further information may also be obtained from the website provided above.

**1303/2023T**

**Cohuna WTP Clarifier Refurbishment**

We invite tender submissions for the refurbishment of water treatment clarifiers in Cohuna. Scope includes concrete structural repairs, concrete sealing, pipework replacement, installation of new steel walkways.

**Tenders Close**
2pm on Thursday 22nd June 2023 at the Electronic Tender Box via the Tenders Vic website.

Tender documents can be downloaded at **www.tenders.vic.gov.au** by searching under 'Coliban Water'

Coliban WATER

**www.coliban.com.au**

**PROPOSAL TO UPGRADE VODAFONE & OPTUS MOBILE PHONE BASE STATION AT EXISTING TELSTRA EXCHANGE BUILDING ROOFTOP AT 737-743 PUNT ROAD SOUTH YARRA VIC 3141 INCLUDING 5G**

1. The proposed 5G upgrade will consist of:
• The installation of three (3) new Vodafone 5G antennas (each measuring not more than 2.8m in length);
• The removal and installation of Remote Radio Units (RRUs);
• The installation of ancillary equipment including GPS antenna, antenna mounts, feeders, cabling, combiners and other associated equipment; and ancillary works within the existing equipment shelter.

2. **Vodafone** regards the proposed installation as a Low-Impact Facility under the Telecommunications (Low-impact Facilities) Determination 2018 ("The Determination") based on the description above.

3. In accordance with Section 7 of C564:2020 Mobile Phone Base Station Deployment Code, we invite you to provide feedback about the proposal. Further information and/or comments should be directed to: Ben Lavery at Service Stream Limited, 0497 833 252, TPCSubmissions@servicestream.com.au or Level 3, Tower B, Zenith Centre 821 Pacific Highway, Chatswood NSW 2067 by 5.00pm Wednesday 31 May 2023

4. If you would like to know more about this site, further information can be obtained from www.rfnsa.com.au/3141004

vodafone

Looking for car parts?

buy search sell .com.au

Printed and published at 127-129 Todd Road, Port Melbourne, Victoria, 3207 by The Herald & Weekly Times Pty Ltd ABN 49 004 113 937, of HWT Tower, 40 City Rd, Southbank, Victoria, 3006.

## Positions Vacant

ATT PTS

Allansford Truck and Trailer, and, Progress Transport Services have an exciting opportunity for a Diesel Mechanic Apprentice to join our team. We have 2 Apprenticeships available - One at each workshop. Consideration will also be given to any 2nd, 3rd or 4th Year Apprentices

**Key Activities of the Role Include**

- Assisting with servicing/repairs on various Trucks and Trailer make and models.
- Completing all relevant Theory and Assessments associated with the apprenticeship.
- All Duties and responsibilities within the Skill and Experience of the employee.

**Applicants are required to demonstrate the ability to:**

- Excellent Relationship skills and works well in a Team environment.
- Energetic individual who shows initiative and commitment.
- A good listener who undertakes instruction in a constructive manner.

**Benefits**

- Ongoing Mentoring and a Supportive environment.
- Comprehensive on the job training with industry experts
- Above Award Wages

A full-time position will be offered. All applications will be strictly confidential.
For further details contact:
E: admin@progresstransportservices.com.au



## Public Notices

**QUARTERLY GENERAL MEETING**
For all members will be held upstairs at Flying Horse Bar & Brewery
Wednesday May 31, 2023 at 7.30pm
Please submit any agenda items in writing by Friday May 26 to
manager@premierspeedway.com.au

WARRNAMBOOL RACING CLUB INC.

**Road Closure**
**Friday 19 May**
**7:00am – 2:00pm**
Tozer Road and Moore Street
Contact 03 5562 2211 or
www.warrnamboolracing.com.au.
For more information.

## Massage



## Trade Services





## Bingo





## Adult Services



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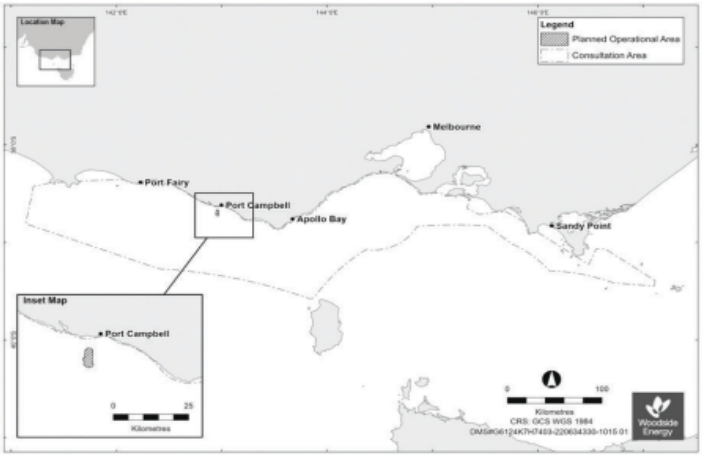


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E: **Feedback@woodside.com** Toll free: **1800 442 977**

# CLASSIFIEDS

## PUBLIC NOTICES

### THE COLAC HERALD / KFC FOOTY TIPPING CHALLENGE – HOW TO PLAY

**Part 1 –**
Correctly tip the winner of the first game of the round and also the exact winning margin. The first correct entry drawn will win a KFC 21-Piece Bucket from KFC Colac.

**Part 2 –**

1. Simply circle your AFL tips and your CDFNL and GFL tips for the forthcoming round.
2. Be sure to write down all AFL tips – Incomplete forms will be ruled ineligible.
3. The winner will be the first correct entry drawn with all AFL, CDFNL and GFL tips correct.
4. A drawn game will not be marked as correct unless tipped as a draw.
5. Enter name, address and phone number.
6. You may enter as many times as you wish – Photocopied entry forms will be ruled ineligible. Facsimile entry forms will be ruled ineligible.
7. Place your entry in the boxes provided at either ***KFC Colac, Murray Street, Colac*** or the ***Colac Herald, 37-41 Bromfield Street, Colac.***
8. The judges decision is final and no correspondence will be entered into.
9. Employees of *The Colac Herald* and KFC Colac are ineligible to enter.
10. Entries close at **4pm the day of the first game of the round.**



## MEETINGS

**Colac Swimming Club Inc.**
**AGM**
**Monday, May 29**
**6.00pm**
at
Bluewater Centre
Hearn Street, Colac
**ALL WELCOME**

**AGM**
**Saturday, May 20th 10am**
Presentation of Club Championship winners for 22/23 seasons
followed by light luncheon
Colac Central Bowling Club
115 Wilson Street, Colac

## POSITIONS VACANT

**Medical Receptionist**
Part-time
A position is available for a motivated person to join our practice team.
30 Hrs – 4 days per week

***We are looking for*** someone with Strong computer and telephone skills, who is honest, reliable and empathetic. Exceptional interpersonal and communication skills together with the ability to work independently or in a team environment may make you an ideal candidate.

If you require more information, please contact us.

**Apply** with CV and Reference By 5pm, Monday May 22nd 2023.
To Glenda McIlveen – Practice Manager
**Robinson Street Medical Centre**
7 Robinson St, Camperdown Vic 3260
**Email:** rsmc@swarh.vic.gov.au
**Phone:** 03 5593 7070





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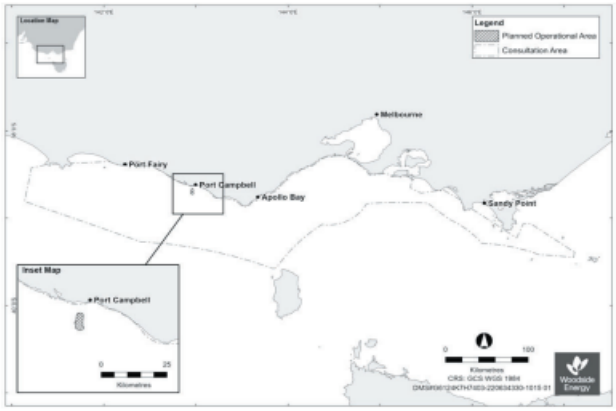


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Cobden Timboon Coast Times, Wednesday, May 17, 2023 ~ Page 13

**Classifieds** Telephone: 5593 1888

**Positions Vacant**

genU

**Aged & Disability Support Workers**

We are looking for part-time employees based across the Corangamite Shire. Assist participants with a range of daily routine activities.

Hourly rate starting at $30.46 per hour

**Apply online at:**
https://applynow.net.au/jobs/GENU3269
OR contact Nikki at nikki.gilbertson@genu.org.au for more information.

**HARDWARE AND RURAL MERCHANDISE SALES POSITION**

E & RA Parlour Home Hardware are seeking a self-motivated and well organised person to join their supportive and friendly team in Simpson - commencing June 2023.

**The potential candidate must have the following attributes:**

- Knowledge in hardware and rural merchandising;
- Excellence in customer service with attention to detail;
- Computer skills including using accounting and POS software;
- Training can be provided for stock ordering, receival and invoicing procedures.

Ideally this position is full-time with Saturday morning work (on a rostered basis only), however flexible hours can be negotiated for the right candidate.

**Applications in writing to parlours@bigpond.com by Monday May 29, 2023.**

**For enquiries phone Richard Parlour on 55943208.**

**Positions Vacant**

Robinson Street Medical Centre

**MEDICAL RECEPTIONIST**

**Part-time**

A position is available for a motivated person to join our practice team.

**30 hrs - 4 days per week**

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**Ph:** 5593 7070

WDN

**Journalist(s)**

***(Graded or opportunity for cadetship)***

Exciting opportunities for a journalist/writer exists at Western District Newspapers P/L.

We are seeking persons with creative flair and excellent organisational skills. The ability to communicate well and work within deadlines to produce quality and accurate editorial content is essential.

You must also have excellent customer service and computer skills. Ideally you will possess a good knowledge of local issues and are interested in and have a strong desire to help our wonderful community.

The following tasks relate to this position:

- Help to co-ordinate editorial content for each edition
- General news/sports reporting
- Community news gathering
- Feature writing
- Developing key contacts throughout the community.

A "can do" attitude is also a must, as is the need to be part of a team.

**Interested? Then don't hesitate, forward your application letter, resume and any other relevant documents to: editor@wdnews.com.au**

**Positions Vacant**

**THE TYRE FACTORY WARRNAMBOOL**

**QUALIFIED EXPERIENCED AUTOMOTIVE TECHNICIAN**

- Full-time (with overtime available when work load permits)
- Specialising in, light vehicle, SUV & 4WD of all brands.
- Saturday mornings (on a roster fitting tyres)
- Able to work unsupervised but within a team environment
- Full car license
- Friendly/Clean appearance
- Fit and healthy

**Only experienced applicants as stated to apply, all applications are to be forwarded to Geoff in person or via email, 180 Raglan Parade Warrnambool or warrnambool@ttf.com.au**

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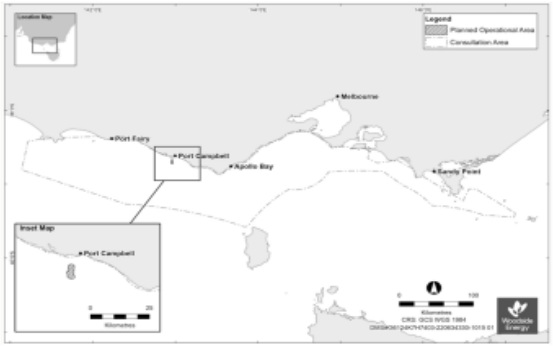


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## 2.4 Email sent to Australian Border Force (ABF) – 31 May 2023

Dear stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of

Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| Minerva Decommissioning Activities | Well P&A | Facilities Removal (Commonwealth Waters) | Facilities Removal (State Waters) |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |

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| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated |

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| | activities, such as inspection, as required until equipment is removed. | • 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |

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|---|---|---|---|
| **Distance to nearest marine park/nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

### 2.4.1 Email sent to Australian Border Force (ABF) – 22 June 2023

Dear stakeholder

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.
Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Regulatory approvals are being sought for the following activities:
**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.5 Email sent to Department of Industry, Science and Resources (DISR) – 31 May 2023

Dear stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

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| | Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port | ~5.5 km to 10.45 km south south-west of Port | ~1.7 km to 5.5 km south southwest of Port |

| | | | |
|---|---|---|---|
| | Campbell in ~59 m water depth | Campbell in ~53 m to 59 m water depth | Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows: | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | • Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.5.1 Email sent to Department of Industry, Science and Resources (DISR) – 22 June 2023

Dear stakeholder

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.6 Email sent to Australian Energy Producers (AEP) (Formerly APPEA) — 31 May 2023

Dear stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |

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| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after |

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| | campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU). | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving |

| | | | |
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| | • MODU supported by 2 – 3 offshore support vessels | | operations be required |
| **Distance to nearest marine park/nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.6.1 Email sent to Australian Energy Producers (AEP) (*formerly APPEA*) — 22 June 2023

Dear stakeholder

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.7 Email sent to Australian Fisheries Management Authority (AFMA) – 31 May 2023

Dear AFMA

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with

an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters. |

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| | subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | | Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |

| | | | |
|---|---|---|---|
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.7.1 Email sent to Australian Fisheries Management Authority (AFMA) – 22 June 2023

Dear AFMA

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.8 Email sent to AHO/AMSA (Australian Hydrographic Office and Australian Maritime Safety Authority) – 31 May 2023

Dear AHO/AMSA

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for*

*the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

### *Activity summary:*

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season. | |

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| | pursuant to General Direction 831. | Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures |

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| | wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | The recovery method options being considered for each group of equipment are as follows:<br><br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

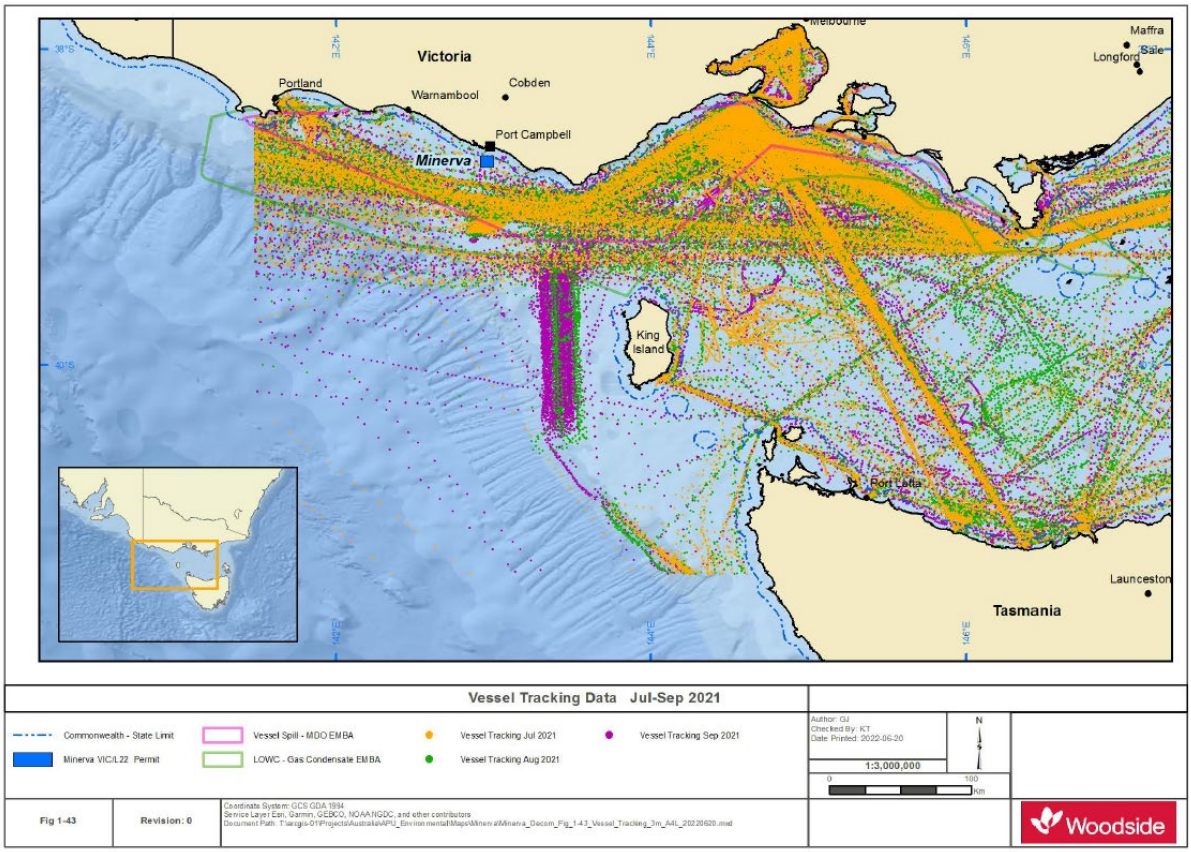
Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**




*Vessel tracking map sent as attachment*

### 2.8.1 Email sent to AMSA – Marine Safety – 22 June 2023

Dear AMSA

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with

an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.9 Email sent to Australian Maritime Safety Authority (AMSA) – Marine Pollution – 31 May 2023

Dear Mick

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

| | | | |
|---|---|---|---|
| | Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port | ~5.5 km to 10.45 km south south-west of Port | ~1.7 km to 5.5 km south southwest of Port |

| | | | |
|---|---|---|---|
| | Campbell in ~59 m water depth | Campbell in ~53 m to 59 m water depth | Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows: | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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|---|---|---|---|
| | | • Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.9.1 Email sent to AMSA – Marine Pollution — 22 June 2023

Dear Mick

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.9.2 Email sent to AMSA – Marine Pollution – 11 December 2023

Dear (Individual 4),

Further to the correspondence that AMSA has previously received (below) regarding the preparation of three Environment Plans (EPs) for the Minerva decommissioning activities, Woodside would like to offer AMSA the opportunity to review or provide comment on the activity-specific Oil Pollution First Strike Plans. Please note that these assets were previously operated by BHP Petroleum Pty Ltd. (BHP) and, as such, AMSA may have received previous consultation materials and draft plans for this activity. Following the merger of BHP and Woodside, the EPs and Oil Pollution First Strike Plans have now been revised to align to Woodside's approaches and processes.

Information is presented as follows:

- A Consultation Information Sheet providing information on the proposed activities is available here. This is a combined Information Sheet addressing both the Commonwealth and State operations for Minerva decommissioning activities.

- Oil Pollution First Strike Plans for each of the three EPs are also attached. These will form part of each approval submission in accordance with (as relevant): the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth); the Victoria *Offshore Petroleum and Greenhouse Gas Storage Act 2010*; and the Victoria *Offshore Petroleum and Greenhouse Gas Storage Regulations 2021*.

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plans. The two Commonwealth EPs will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). The State waters EP will be submitted to Earth Resources Regulation (ERR) branch of the Department of Energy, Environment and Climate Action (DEECA) for acceptance in accordance with the Victoria *Offshore Petroleum and Greenhouse Gas Storage Act 2010* and the Victoria *Offshore Petroleum and Greenhouse Gas Storage Regulations 2021*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or ERR upon submission of the Environment Plan in order for this information to remain confidential to the respective regulatory body.

Many thanks,

## 2.10 Email sent to Department of Agriculture, Fisheries and Forestry (DAFF) — 31 May 2023

Dear DAFF – Biosecurity and Fisheries

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |

| | | | |
|---|---|---|---|
| | **Field Management EP** | | |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |

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| | around each of the wells. | | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle: | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | • Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

| | | | |
|---|---|---|---|
| | Marine National Park (Minerva-1 well) | | |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.10.1 Email sent to DAFF — 23 June 2023

Dear DAFF – Biosecurity and Fisheries

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.

- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.11 Email sent to relevant Victorian shire councils — 31 May 2023

- Bass Coast Shire
- Colac Otway Shire
- Corangamite Shire Council
- City of Greater Geelong
- Mornington Peninsula Shire
- Moyne Shire
- Borough of Queenscliffe
- South Gippsland Shire
- Surf Coast Shire
- Warrnambool City Shire Council

Dear *(each Shire individually addressed*)

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.

- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable.

Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

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|---|---|---|---|
| | subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |

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| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| | | The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010
.
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.11.1 Email sent to relevant Victorian shire councils — 23 June 2023

- Bass Coast Shire
- Colac Otway Shire
- City of Greater Geelong
- Mornington Peninsula Shire
- Moyne Shire
- Borough of Queenscliffe
- Warrnambool City Shire Council

Dear (*relevant shire)*

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.12 Email sent to tour operators and community groups – 31 May 2023

- Great Ocean Road Coast and Parks Authority
- Great Ocean Road Regional Tourism
- Twelve Apostles Tourism and Business Group

Dear (*each tour operator or community group individually addressed*)

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

### *Activity summary:*

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

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| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion. | Pipeline bundle encompassing: | Pipeline bundle encompassing: |

| | | | |
|---|---|---|---|
| | 2 x exploration wells.<br><br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br><br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after | • 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.12.1 Email sent to tour operators and community groups – 23 June 2023

- Great Ocean Road Coast and Parks Authority
- Great Ocean Road Regional Tourism
- Twelve Apostles Tourism and Business Group

Dear (*organisation name)*

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15–60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.13 Email sent to local conservation groups — 31 May 2023

- Apollo Bay Landcare
- Otway Climate Emergency Action Network (OCEAN)

- Otway Water
- Warrnambool Coastcare Landcare Network

Dear (*each local conservation group individually addressed*)

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |

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| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after |

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| | campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU). | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving |

| | | | |
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| | • MODU supported by 2 – 3 offshore support vessels | | operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.13.1 Email sent to local conservation groups — 23 June 2023

- Apollo Bay Landcare
- Otway Climate Emergency Action Network (OCEAN)
- Otway Water
- Warrnambool Coastcare Landcare Network

Dear (*each local conservation group individually addressed*)

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.14 Email sent to Titleholders (Beach Energy, Cooper Energy and Conoco Phillips) — 31 May 2023

Dear Titleholders

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters. |

| | | | |
|---|---|---|---|
| | Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | | Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |

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| | vessels during P&A activities. | | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | • Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.14.1 Email sent to Titleholders (Beach Energy, Cooper Energy and Conoco Phillips) — 23 June 2023

Dear Titleholder

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.15 Email sent to Department of Defence (DoD) – 31 May 2023

Dear Department of Defence

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. **A defence zone map is also attached**. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints. | |

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| | vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines |

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| | infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br><br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool. | • 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

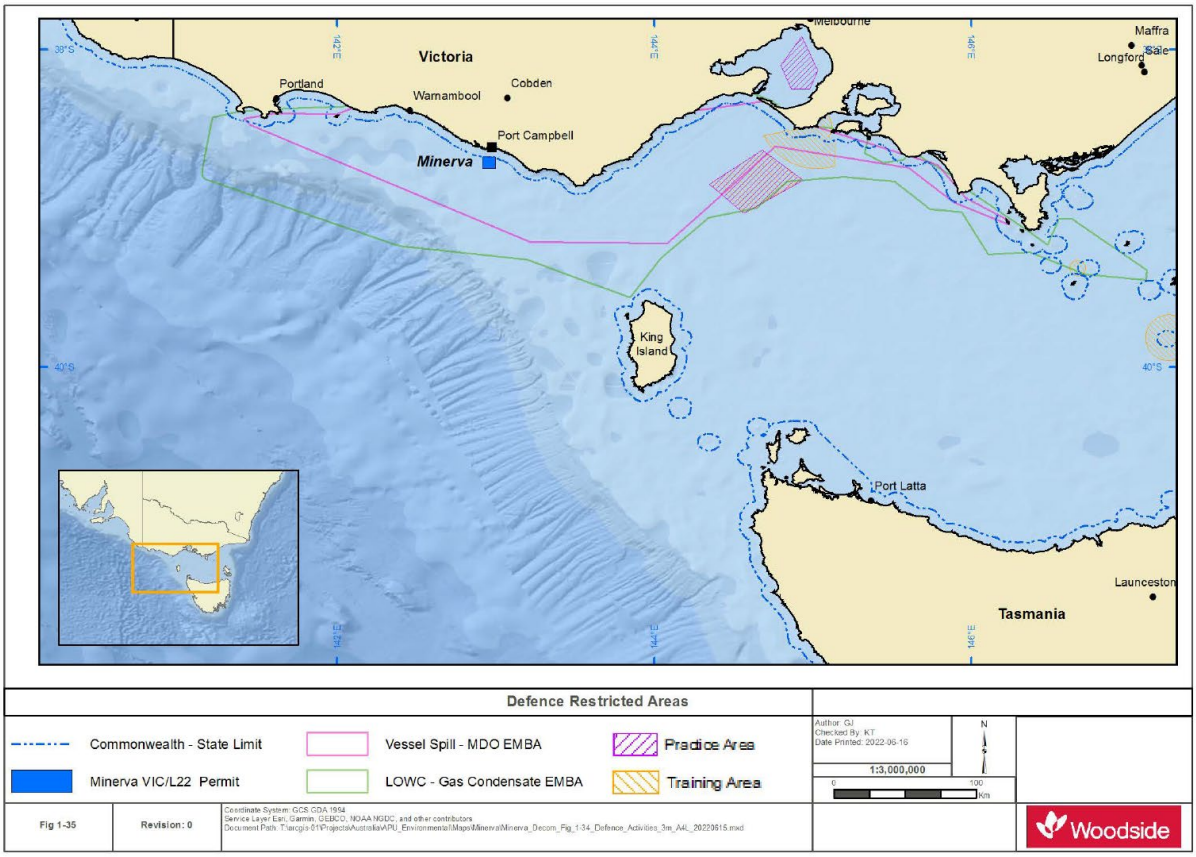
Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**




*Defence zone map sent as attachment*

### 2.15.1 Email sent to Department of Defence (DoD) — 23 June 2023

Dear Department of Defence

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.

- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.16 Email sent to relevant ports – 31 May 2023

- Port of Melbourne
- Port of Hastings
- Port of Warrnambool

Dear Port of *(individual port named)*

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

| | | | |
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| | Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port | ~5.5 km to 10.45 km south south-west of Port | ~1.7 km to 5.5 km south southwest of Port |

| | | | |
|---|---|---|---|
| | Campbell in ~59 m water depth | Campbell in ~53 m to 59 m water depth | Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows: | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| | | • Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.16.1 Email sent to relevant ports – 23 June 2023

- Port of Melbourne
- Port of Hastings
- Port of Warrnambool

Dear *individual port inserted*

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.17 Email sent to Department of Energy, Environment and Climate Action (DEECA), Earth Resources Regulator | Resources Victoria – 1 June 2023

Dear (Individual 8)

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

### *Activity summary:*

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total). | |

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| | pursuant to General Direction 831. | Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered |

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| | may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | for each group of equipment are as follows:<br><br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.17.1 Email sent to Department of Energy, Environment, and Climate Action (DEECA) Earth Resources Regulator | Resources Victoria – 23 June 2023

Dear (Individual 9)

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.18 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) – 2 June 2023

Dear DCCEEW

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. **Also attached is a list of shipwrecks in Commonwealth waters within the EMBA.** You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| Minerva Decommissioning Activities | Well P&A | Facilities Removal (Commonwealth Waters) | Facilities Removal (State Waters) |
|---|---|---|---|

| Environment Plan | Minerva Plug and Abandonment and Field Management EP | Minerva Field Decommissioning EP | Minerva (State Waters) Decommissioning EP |
|---|---|---|---|
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |

| | | | |
|---|---|---|---|
| | 1,500 m radius around each of the wells. | | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle: | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| | equipment is removed. | • Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

| | | | |
|---|---|---|---|
| | Marine National Park (Minerva-1 well) | | |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

Commonwealth shipwrecks data also attached to DCCEEW email:

Shipwrecks (commonwealth dataset)

| VESSEL_NAM | VESSEL_TYP | VESSEL_T_1 | JURISDICTION | NAVAL_WRK | WHERE_LOST | CO |
|---|---|---|---|---|---|---|
| AGNES | UNKNOWN | Unknown | VIC | Unknown | 1839 Bass Strait, near Cape Schanck | AST |
| AGUVA | MTRVSSL | Motor vessel | VIC | Unknown | 1950 Port Phillip Heads, Point Nepean | |
| ALBERT | SAILVESL | Sailing vessel | VIC | Unknown | 1890 Bass Strait, off Port Phillip Heads | AST |
| ALERT | SCRWSTMR | Screw steamer | VIC | VIC - Port | 1893 Bass Strait, between Cape Schanck and Port Phillip Heads | SOC |
| EURO | SCRWSTMR | Screw steamer | VIC | Unknown | 1948 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| FALLS OF HALLADALE | SAILVESL | Sailing vessel | VIC | Unknown | 1908 Mariners' Bay, Peterborough | SOC |
| FAIRENER | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | |
| FORMOSA | SCRWSTMR | Screw steamer | VIC | VIC - Port | 1909 Portsea Back Beach, 3 miles east of Point Nepean | SOC |
| FRISK | SAILVESL | Sailing vessel | VIC | Unknown | 1853 Port Phillip Heads, Point Nepean | ENG |
| GOLDEN SPRING | UNKNOWN | Unknown | VIC | Unknown | 1863 Warrnambool | USA |
| H.C. PIGOTT | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| HARRIET | UNKNOWN | Unknown | VIC | Unknown | 1848 Bass Strait, last seen off Cape Schanck | AST |
| HELEN | UNKNOWN | Unknown | VIC | Unknown | 1838 Cape Schanck | |
| HOI YIHFAT | SAILVESL | Sailing vessel | VIC | Unknown | 1990 Lonsdale Reef, Port Phillip Heads | HNG |
| TAMORA | UNKNOWN | Unknown | VIC | Unknown | 1960 Portland Bay | SOC |
| W. GORDON | SAILVESL | Sailing vessel | VIC | Unknown | 1870 Cape Otway, disappeared at sea | CAN |
| WAREATEA | SCRWSTMR | Screw steamer | VIC | Unknown | 1895 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| Unconfirmed: Lorne | UNKNOWN | Unknown | VIC | Unknown | 1877 Mount St George near Lorne | |
| UNCONFIRMED: WESTERN PORT | UNKNOWN | Unknown | VIC | Unknown | Off McHaffies Reef, Western Port | |
| Unidentified: Cape Liptrap, small boat | UNKNOWN | Unknown | VIC | Unknown | Western side of Cape Liptrap | |
| UNIDENTIFIED: CAPE PATERSON WATER/ WHITES BEACH | SAILVESL | Sailing vessel | VIC | Unknown | Whites Beach, Portland | |
| UNIDENTIFIED: GODFREY CREEK | UNKNOWN | Unknown | VIC | Unknown | 1866 100 yards from the wreckside of the W.B. Godfrey | |
| UNITY | UNKNOWN | Unknown | VIC | Unknown | 1891 Sorrento Back Beach | AST |
| VH B 53 | UNKNOWN | Unknown | VIC | Unknown | 1971 Ships Graveyard, Commonwealth Area No.3, Bass Strait | |
| ISABELLA | SAILVESL | Sailing vessel | VIC | Unknown | 1876 Point Nepean back beach | |
| J-2 SUBMARINE | UNKNOWN | Unknown | VIC | VIC - Port | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| J-4 SUBMARINE | UNKNOWN | Unknown | VIC | Unknown | 1927 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| J-5 SUBMARINE | UNKNOWN | Unknown | VIC | | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | GBR |
| JANE | SAILVESL | Sailing vessel | VIC | Unknown | 1853 Cape Bridgewater, east end of Discovery Bay | |
| JANE | UNKNOWN | Unknown | VIC | Unknown | 1867 Warrnambool | ENG |
| JANE | UNKNOWN | Unknown | VIC | Unknown | 1852 Lady Bay, Warrnambool | WAL |
| JANE ELIZABETH | SAILVESL | Sailing vessel | VIC | Unknown | 1856 Point Nepean, Port Phillip Heads | AST |
| JESSIE | MTRVSSL | Motor vessel | VIC | Unknown | 1924 Point Nepean Jetty | AST |
| KINGSHEAR | UNKNOWN | Unknown | VIC | Unknown | 1915 Ships Graveyard, Bass Strait | SOC |
| LADY ROBILLIARD | SAILVESL | Sailing vessel | VIC | Unknown | 1867 Bluff reef, Portland | |
| LEEUWIN | SCRWSTMR | Screw steamer | VIC | Unknown | 1934 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | SOC |
| CAPTAIN COOK | SAILVESL | Sailing vessel | VIC | Unknown | 1850 Nelson Bay, Cape Grant | AST |
| COMET | PADDSTMR | Paddle steamer | VIC | Unknown | 1852 Eastern Bass Strait, last seen leaving Port Phillip Heads | AST |
| COMMISSIONER | SCRWSTMR | Screw steamer | VIC | Unknown | 1906 Bass Strait, off Cape Patterson | |
| SS CONSIDE | SCRWSTMR | Screw steamer | VIC | Unknown | 1852 Lonsdale Reef, Port Phillip Heads | ENG |
| COOGEE | SCRWSTMR | Screw steamer | VIC | Unknown | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | ENG |
| COQUETTE | SAILVESL | Sailing vessel | VIC | Unknown | 1892 Waratah Bay | AST |
| CORIO | UNKNOWN | Unknown | VIC | Unknown | 1939 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| COURIER | SCRWSTMR | Screw steamer | VIC | Unknown | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | ENG |
| CURLEW | SAILVESL | Sailing vessel | VIC | Unknown | 1915 Great Glennie Island, Wilsons Promontory | NWZ |
| DUKE OF WELLINGTON | SAILVESL | Sailing vessel | VIC | Unknown | 1853 Ten Mile Creek, Tarwin Lower | CAN |
| DUNLOE | UNKNOWN | Unknown | VIC | Unknown | 1947 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| MAID OF JULPHA | SAILVESL | Sailing vessel | VIC | Unknown | 1859 Warrnambool Bay | |
| MARGARET AND AGNES | UNKNOWN | Unknown | VIC | Unknown | 1852 Portland Bay | AST |
| MARIE | SAILVESL | Sailing vessel | VIC | Unknown | 1851 Cape Bridgewater | |
| MARTHA | SAILVESL | Sailing vessel | VIC | Unknown | 1895 Port Phillip Heads | AST |
| MARY JANE | UNKNOWN | Unknown | VIC | Unknown | 1852 Portland Bay | CAN |
| NEWFIELD | SAILVESL | Sailing vessel | VIC | Unknown | 1892 Newfield, one mile east of Curdies River | SOC |
| NIL DESPERANDUM | SAILVESL | Sailing vessel | VIC | Unknown | 1870 Wilsons Promontory, off the Glennie Islands | AST |
| OLIVIA DAVIS | UNKNOWN | Unknown | VIC | Unknown | 1882 Warrnambool | USA |
| ONTARIO | SAILVESL | Sailing vessel | VIC | Unknown | 1853 Bervieon Consair Rock and Point Nepean, Port Phillip Heads | SOC |
| ORDOST | UNKNOWN | Unknown | VIC | Unknown | 1904 Waratah Bay, Wilsons Promontory | AST |
| OTWAY | SAILVESL | Sailing vessel | VIC | Unknown | 1862 Lorne, Louttit Bay | AST |
| PALACE | SAILVESL | Sailing vessel | VIC | Unknown | 1932 Phillip Island The Nobbies | CAN |
| PRINCE ALBERT | UNKNOWN | Unknown | VIC | Unknown | 1840 Port Phillip Heads, Point Nepean | AST |
| R.M.S. AUSTRALIA | SCRWSTMR | Screw steamer | VIC | Unknown | 1904 Outer Consair Reef, Point Nepean | SOC |
| RAAF - B25 | | | VIC | Unknown | 1945 | |
| MELROPE | SAILVESL | Sailing vessel | VIC | Unknown | 1839 Lawrence rocks, Portland | |
| MILORA | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Just outside Commonwealth Area No.3, Bass Strait | AST |
| MIRAGE DYKE | UNKNOWN | Unknown | VIC | Unknown | 1896 Cape Everard | SOC |
| MINERVA | UNKNOWN | Unknown | VIC | Unknown | 1842 Bass Strait, 40 miles west of Cape Otway | AST |
| REINDEER | SAILVESL | Sailing vessel | VIC | Unknown | 1862 Cape Liptrap | AST |
| RELIANCE | PADDSTMR | Paddle steamer | VIC | Unknown | 1869 Three miles SE of Cape Schanck | AST |
| ROBERT JOHN | UNKNOWN | Unknown | VIC | Unknown | 1854 Port Phillip Heads, Point Nepean | AST |
| S.S. TIME | SCRWSTMR | Screw steamer | VIC | Unknown | 1949 Nepean Reef, Port Phillip Heads | ENG |
| SEA | SAILVESL | Sailing vessel | VIC | Unknown | 1853 Point Nepean, Port Phillip Heads | CAN |
| SEA WITCH | UNKNOWN | Unknown | VIC | Unknown | 1959 Consair Rock, Port Phillip Heads | |
| SPENCER | UNKNOWN | Unknown | VIC | Unknown | 1854 Waratah Bay, near Cape Liptrap | |
| SQUATTER | UNKNOWN | Unknown | VIC | Unknown | 1840 Port Fairy, 2.5 miles west of Port Fairy | AST |
| AMICUS | SAILVESL | Sailing vessel | VIC | Unknown | 1857 Bass Strait, off Port Phillip Heads, Point Nepean | |
| ANNA | UNKNOWN | Unknown | VIC | Unknown | 1863 Loutit Bay, Lorne | |
| ANTARES | SAILVESL | Sailing vessel | VIC | Unknown | 1914 Bay of Islands, 22 miles east of Warrnambool | SOC |
| ARIEL | SAILVESL | Sailing vessel | VIC | Unknown | 1892 Portland Bay | |
| ARKAROA | SCRWSTMR | Screw steamer | VIC | Unknown | 1925 Bass Strait, off Cape Liptrap | AST |
| BAT | SAILVESL | Sailing vessel | VIC | Unknown | 1852 Bass Strait | SOC |
| BIRCHGROVE | SAILVESL | Sailing vessel | VIC | Unknown | 1932 Near The Nobbies, Phillip Island | ENG |
| BLACK BOY | SCRWSTMR | Screw steamer | VIC | Unknown | 1883 Mushroom Rock, Lonsdale Reef, Port Phillip Heads | SOC |
| BLACK WATCH | SAILVESL | Sailing vessel | VIC | Unknown | 1867 Bass Strait, west of Cape Otway | NWZ |
| BRAND | SAILVESL | Sailing vessel | VIC | Unknown | 1877 Waratah Bay, Wilsons Promontory | CAN |
| BUNINYONG | SCRWSTMR | Screw steamer | VIC | Unknown | 1929 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | ENG |
| BURKE | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | AST |
| CAMPANA | UNKNOWN | Unknown | VIC | Unknown | 1927 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | ENG |
| VICTORIAN | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| VISION | MTRVSSL | Motor vessel | VIC | Unknown | 1917 Between Cape Liptrap and Cape Paterson | AST |
| WERRA | SCRWSTMR | Screw steamer | VIC | Unknown | 1929 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| WHITE PINE | UNKNOWN | Unknown | VIC | Unknown | 1947 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| WYRALLAH | SCRWSTMR | Screw steamer | VIC | Unknown | 1924 Port Phillip Heads | AST |
| Vicky | TWSCRSTM | Twin screw steamer | TAS | TAS - East | 1964 Eastern Bass Strait | SOC |
| AGNES AND HANNAH | SAILVESL | Sailing vessel | VIC | Unknown | 1853 Between Cape Schanck and Point Nepean | NWZ |
| ALEXANDRE | SAILVESL | Sailing vessel | VIC | Unknown | 1877 East Coast, Waratah Bay | CAN |
| HILL BARGE | SCRWSTMR | Screw steamer | VIC | Unknown | 1937 Ships Graveyard, Rasa Strait | AST |
| HYGEIA | PADDSTMR | Paddle steamer | VIC | Unknown | 1932 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | SOC |
| MAHOGANNY SHIP | SAILVESL | Sailing vessel | VIC | Unknown | west of Warrnambool | |
| MALAITA | SCRWSTMR | Screw steamer | VIC | Unknown | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| PAUL PRY | UNKNOWN | Unknown | VIC | Unknown | 1841 Bass Strait, off Cape Schanck | AST |
| SS PETRANA | SCRWSTMR | Screw steamer | VIC | Unknown | 1903 Port Phillip Heads, Point Nepean, Petrana Reef | ENG |
| PRYOR | UNKNOWN | Unknown | VIC | Unknown | 1841 Nepean Reef, Port Phillip Heads | CAN |
| RAAF - Mildura | | | VIC | Unknown | 1944 | |
| Rebel | SAILVESL | Sailing vessel | VIC | Unknown | 1855 | |
| MEROPE | UNKNOWN | Unknown | VIC | Unknown | 1853 Portland Bay, 15 miles east of Portland | INDI |
| MISS ECHO | UNKNOWN | Unknown | VIC | Unknown | 1918 Lady Julia percy Island, Portland Bay | AST |
| NAUTILUS | SAILVESL | Sailing vessel | VIC | VIC - East | 1866 Cape Liptrap | ENG |
| Anser Island Unidentified | UNKNOWN | Unknown | VIC | Unknown | South Point of Anser Island, Wilsons Promontory | |
| ARGO | UNKNOWN | Unknown | VIC | Unknown | 1885 Portland Reach | AST |
| ARGONAH | UNKNOWN | Unknown | VIC | Unknown | Ships Graveyard, Outside Port Phillip Heads Area, Rasa Strait | |
| ASA PACKER | SAILVESL | Sailing vessel | VIC | Unknown | 1901 Point Nepean, Port Phillip Heads | USA |
| AURIGA | UNKNOWN | Unknown | VIC | Unknown | 1930 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| BATMAN | UNKNOWN | Unknown | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | ENG |
| BEVERWIJK 19 | SCRWSTMR | Screw steamer | VIC | Unknown | 1963 Ships Graveyard, Commonwealth Area No.3, Bass Strait | |
| BITTER BEER | UNKNOWN | Unknown | VIC | Unknown | 1866 Between Port Fairy and Warrnambool, off Cape Otway | AST |
| BRUNETTE | SAILVESL | Sailing vessel | VIC | Unknown | 1913 Ships Graveyard, Outer Heads Area, Bass Strait | ENG |
| BUNYIP | UNKNOWN | Unknown | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| CASABLANCA | SAILVESL | Sailing vessel | VIC | Unknown | 1950 Ships Graveyard, Commonwealth Area No.3, Bass Strait | ENG |
| CHARLOTTE | SAILVESL | Sailing vessel | VIC | Unknown | 1880 Cape Schanck | |
| TSS CORAMBA | SCRWSTMR | Screw steamer | VIC | Unknown | 1934 Bass Strait, off Phillip Island | SOC |
| D. McLENNAN | UNKNOWN | Unknown | VIC | Unknown | 1949 Ships Graveyard, Commonwealth Area No.3, Bass Strait | NTH |
| DORMEN | SAILVESL | Sailing vessel | VIC | Unknown | 1849 Shelton Hist, Waratah Bay | AST |
| EDWARD | SAILVESL | Sailing vessel | VIC | Unknown | 1912 Point Nepean Reef, Port Phillip Heads | NOR |
| ELIZA | SAILVESL | Sailing vessel | VIC | Unknown | 1875 Cape Schanck | |
| ELIZA DAVIES | SAILVESL | Sailing vessel | VIC | Unknown | 1924 Bass Strait, 10 miles east of Wilsons Promontory | AST |
| FOAM | SAILVESL | Sailing vessel | VIC | Unknown | 1880 Bass Strait, off Breamlea | AST |
| GANGE | SAILVESL | Sailing vessel | VIC | Unknown | 1887 Lonsdale Reef, Pt Phillip Heads | AUT |
| P.S. GLASGOW CITIZEN | PADDSTMR | Paddle steamer | VIC | Unknown | 1862 Bass Strait, disappeared after leaving the Heads | SOC |
| ISABELLA | SAILVESL | Sailing vessel | VIC | Unknown | 1837 Cape Nelson, Portland | GBR |
| ISABELLA WATSON | SAILVESL | Sailing vessel | VIC | Unknown | 1852 Nepean Reef, Port Phillip Heads | SOC |
| J-1 SUBMARINE | UNKNOWN | Unknown | VIC | | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| JOHN MUMO | SCRWSTMR | Screw steamer | VIC | Unknown | 1931 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | AST |

### 2.18.1 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) – 23 June 2023

Dear DCCEEW

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.19 Email sent to Victorian fishery stakeholders — 2 June 2023

- Victorian Fishing Authority (VFA)
- Apollo Bay Fisherman's Co-operative
- South Eastern Professional Fishermen's Association Inc
- Victoria Rock Lobster Association (VRLA)

Dear Fishery Stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15–60m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A 500 m temporary exclusion zone will be in place around the survey vessels to manage vessel movements. There are no restrictions to other vessels within the operational area apart from being advised to take care during the survey vessel activities and to maintain the 500 m exclusion zone around those vessels. Once the decommissioning activities are completed, the petroleum safety zones and any exclusion zones will no longer be in place.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as

part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

### *Activity summary:*

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |

| | | | |
|---|---|---|---|
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows: |

| | | | |
|---|---|---|---|
| | facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | • Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible Mobile Offshore | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel |

| | | | |
|---|---|---|---|
| | Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | | • Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |
| ***Relevant Fisheries:*** | **Victorian fisheries**<br>Operational area and EMBA:<br>Victorian Rock Lobster<br>Victorian Giant Crab<br>Abalone<br>Wrasse<br>Snapper | | |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.19.1 Email sent to Victorian fishery stakeholders — 23 June 2023

- Victorian Fishing Authority (VFA)
- Apollo Bay Fisherman's Co-operative
- South Eastern Professional Fishermen's Association Inc
- Victoria Rock Lobster Association (VRLA)

Dear Fishery Stakeholder

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

### 2.20 Email that Seafood Industry Victoria (SIV) distributed to represented fisheries — 19 July 2023

- Rock Lobster Fishery
- Giant Crab Fishery
- Wrasse Fishery
- Snapper Fishery

Hi (Individual 10)
As per my previous email, thank you for your assistance sharing this information with your members/licence holders.

Best regards

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Dear Fishery Stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Activities are scheduled to commence around Q2, 2024 and will be completed by 30 June 2025. The activities are scheduled to take 3-4 months to complete and execution windows will be determined once contracts are awarded. The activities will be covered under three Environment Plans:

- Plug and Abandonment of wells and field management
- Field decommissioning in Commonwealth waters
- Field decommissioning in State waters

Regulatory approvals are being sought for the proposed activities detailed in the attached Consultation Information Sheet.

During decommissioning activities there are no restrictions to other vessels within the operational area apart from being advised to take care during the vessel activities and to maintain the 500 m exclusion zone around those vessels. Once the decommissioning activities are completed, all exclusion zones will be lifted.

**Your feedback**

Woodside consults relevant persons in the course of preparing Environment Plans to notify them of the activity and to obtain relevant feedback to inform its planning for proposed petroleum activities in the region.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 August 2023.**

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or Department of Energy, Environment and Climate Action (DEECA) for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plans in order for this information to remain confidential to NOPSEMA or DEECA.

NOPSEMA has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Regards

**Woodside Feedback**

### 2.21 Email sent to Commonwealth fishery stakeholders — 2 June 2023

- Commonwealth Fisheries Association (CFA)
- Tuna Australia
- Australian Southern Bluefin Tuna Industry Association (ASBTIA)
- South East Trawl Fishing Industry Association (SETFIA)
- Southern Shark Industry Alliance (SSIA)

- Bass Strait Scallop Industry Association (BSSIA)

Dear Fishery Stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

**A 500 m temporary exclusion zone will be in place around the survey vessels to manage vessel movements. There are no restrictions to other vessels within the operational area apart from being advised to take care during the survey vessel activities and to maintain the 500 m exclusion zone around those vessels. Once the decommissioning activities are completed, the petroleum safety zones and any exclusion zones will no longer be in place.**

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |

| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
|---|---|---|---|
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| | | Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine** | ~8.5 km from The Arches Marine | ~5.44 km from The Arches Marine Sanctuary | ~1.69 km from The Arches Marine Sanctuary |

| | | | |
|---|---|---|---|
| **park/mature reserve** | Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~4.74 km from the Twelve Apostles Marine National Park | ~5 km from the Twelve Apostles Marine Park |
| ***Relevant Fisheries:*** | **Commonwealth fisheries**<br>Operational area:<br>Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine<br>Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook<br>Southern Squid Jig Fishery<br>EMBA:<br>Bass Strait Central Zone Scallop Fishery<br>Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine<br>Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook<br>Southern Squid Jig Fishery | | |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.21.1 Email sent to Commonwealth fishery stakeholders — 23 June 2023

- Commonwealth Fisheries Association (CFA)
- Australian Southern Bluefin Tuna Industry Association (ASBTIA)
- Abalone Council Victoria
- Bass Strait Scallop Industry Association (BSSIA)
- South East Trawl Fishing Industry Association (SETFIA)
- Southern Shark Industry Alliance (SSIA)

Dear Fishery Stakeholder

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.22 Email sent to Fishery stakeholders (140 licence holders) — 26 July 2023

- Bass Strait Central Zone Scallop Fishery
- Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine
- Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook
- Southern Squid Jig Fishery

Dear Fishery Stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

**A 500 m temporary exclusion zone will be in place around the survey vessels to manage vessel movements. There are no restrictions to other vessels within the operational area apart from being advised to take care during the survey vessel activities and to maintain the 500 m exclusion zone around those vessels. Once the decommissioning activities are completed, the petroleum safety zones and any exclusion zones will no longer be in place.**

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 July 2023.**

***Activity summary:***

| Minerva Decommissioning Activities | Well P&A | Facilities Removal (Commonwealth Waters) | Facilities Removal (State Waters) |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |

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|---|---|---|---|
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | • Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |
| ***Relevant Fisheries:*** | **Commonwealth fisheries**<br>Operational area: | | |

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|---|---|
| | Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine<br>Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook<br>Southern Squid Jig Fishery<br>EMBA:<br>Bass Strait Central Zone Scallop Fishery<br>Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine<br>Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook<br>Southern Squid Jig Fishery<br>**State fisheries**<br>Operational area and EMBA:<br>Victorian Rock Lobster<br>Victorian Giant Crab<br>Abalone<br>Wrasse<br>Snapper |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 19 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.22.1 Email sent to Fishery stakeholders (140 licence holders) — 18 August 2023

- Bass Strait Central Zone Scallop Fishery
- Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine
- Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook
- Southern Squid Jig Fishery

Dear Fishery Stakeholder

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 July 2023.**

Regards

**Woodside Feedback**

### 2.23 Email sent to State Fishery stakeholders — 19 June 2023

- Abalone Council Victoria
- Abalone Victoria Central Zone
- Abalone Fishery (through Abalone Council Victoria)
- Victorian Scallop Fishermen's Association Inc
- VR Fish

Dear Fishery Stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).

- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

**A 500 m temporary exclusion zone will be in place around the survey vessels to manage vessel movements. There are no restrictions to other vessels within the operational area apart from being advised to take care during the survey vessel activities and to maintain the 500 m exclusion zone around those vessels. Once the decommissioning activities are completed, the petroleum safety zones and any exclusion zones will no longer be in place.**

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 July 2023.**

***Activity summary:***

| Minerva Decommissioning Activities | Well P&A | Facilities Removal (Commonwealth Waters) | Facilities Removal (State Waters) |
|---|---|---|---|

| Environment Plan | Minerva Plug and Abandonment and Field Management EP | Minerva Field Decommissioning EP | Minerva (State Waters) Decommissioning EP |
|---|---|---|---|
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |

| | | | |
|---|---|---|---|
| | 1,500 m radius around each of the wells. | | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle: | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| | equipment is removed. | • Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

| | | | |
|---|---|---|---|
| | Marine National Park (Minerva-1 well) | | |
| ***Relevant Fisheries:*** | **State fisheries**<br>Operational area and EMBA:<br>Victorian Rock Lobster<br>Victorian Giant Crab<br>Abalone<br>Wrasse<br>Snapper | | |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 19 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.23.1 Email sent to State Fishery stakeholders — 11 July 2023

- VR Fish
- Abalone Victoria Central Zone
- Abalone Council Australia
- Abalone Fishery (through Abalone Council Victoria)
- Victorian Scallop Fishermen's Association Inc.

Dear Fishery Stakeholder

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 July 2023.**

Regards

**Woodside Feedback**

### 2.24 Email sent to Greenpeace Australia Pacific (GAP) — 2 June 2023

Dear (Individual 11)
Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

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| | Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |

| | | | |
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| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore

Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.24.1 Email sent to Greenpeace Australia Pacific (GAP) — 26 June 2023

Dear (Individual 11)

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

Regards

**Woodside Feedback**

### 2.25 Email sent to Environment Victoria — 2 June 2023

Dear Environment Victoria

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as

part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |

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| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows: |

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| | facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | • Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible Mobile Offshore | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel |

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| | Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | | • Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**
If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**
Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.25.1 Email sent to Environment Victoria — 23 June 2023

Dear Environment Victoria

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).

- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.26 Email sent to Australian Coastal Society – Victorian Chapter — 2 June 2023

Dear Environment Victoria

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.

- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

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| | subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |

| | | | |
|---|---|---|---|
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

### 2.26.1 Email sent to Australian Coastal Society – Victorian Chapter — 23 June 2023

Dear Australian Coastal Society – Victoria

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

### 2.27 Email sent to Marine Mammal Foundation — 2 June 2023

Dear Marine Mammal Foundation

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

### *Activity summary:*

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total). | |

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| | pursuant to General Direction 831. | Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered |

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| | may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | for each group of equipment are as follows:<br><br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.27.1 Email sent to Marine Mammal Foundation — 23 June 2023

Dear Marine Mammal Foundation

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.
Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

Regards

**Woodside Feedback**

### 2.28 Email sent to Maritime Union of Australia (MUA) — 2 June 2023

Dear (Individual 12)

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters. |

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| | Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | | Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |

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| | vessels during P&A activities. | | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | • Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.28.1 Email sent to Maritime Union of Australia (MUA) — 23 June 2023

Dear (Individual 12) and (Individual 13)

Woodside previously provided consultation information (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

Regards

**Woodside Feedback**

### 2.29 Email sent to Australian Conservation Foundation (ACF) — 2 June 2023

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |

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| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows: |

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| | otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | • Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible Mobile Offshore | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel |

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| | Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | | • Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.29.1 Email sent to Australian Conservation Foundation (ACF) — 23 June 2023

Dear (Individual 14)

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

Regards

**Woodside Feedback**

### 2.30 Email sent to Fisheries Research and Development Corporation — 2 June 2023

Dear Fisheries Research and Development Corporation

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with

an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

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| | subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |

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| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.30.1 Email sent to Fisheries Research and Development Corporation — 23 June 2023

Dear Fisheries Research and Development Corporation

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

Regards

**Woodside Feedback**

### 2.31 Email sent to Blue Whale Study — 2 June 2023

Dear Blue Whale Study

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for*

*the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

### *Activity summary:*

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season. | |

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| | pursuant to General Direction 831. | Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures |

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| | wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | The recovery method options being considered for each group of equipment are as follows:<br><br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.31.1 Email sent to Blue Whale Study — 23 June 2023

Dear Blue Whale Study

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

Regards

**Woodside Feedback**

### 2.32 Email sent to Commonwealth Scientific and Industrial Research Organisation (CSIRO) — 2 June 2023

Dear (Individual 15)

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).

- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |

| | | | |
|---|---|---|---|
| | **Field Management EP** | | |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |

| | | | |
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| | around each of the wells. | | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle: | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
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| | | • Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

| | | | |
|---|---|---|---|
| | Marine National Park (Minerva-1 well) | | |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.32.1 Email sent to Commonwealth Scientific and Industrial Research Organisation (CSIRO) — 23 June 2023

Dear (Individual 15)

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.

- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

Regards

**Woodside Feedback**

### 2.33 Email sent to Australian Institute of Marine Science (AIMS) — 2 June 2023

Dear (Individual 16)

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

| | | | |
|---|---|---|---|
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around The Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion. | Pipeline bundle encompassing: | Pipeline bundle encompassing: |

| | | | |
|---|---|---|---|
| | 2 x exploration wells.<br><br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br><br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after | • 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 1 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

### 2.33.1 Email sent to Australian Institute of Marine Science (AIMS) — 23 June 2023

Dear (Individual 16)

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **1 July 2023.**

Regards

**Woodside Feedback**

### 2.34 Email sent to Direct of National Parks (DNP) — 19 June 2023

Dear Director of National Parks

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

**Australian Marine Parks**

We note Australian Government Guidance on consultation activities and confirm that:

- The proposed activities are outside the boundaries of a proclaimed Australian Marine Park. The distances to the nearest State reserves/marine parks are outlined in the table below.
- We have assessed potential risks to Australian Marine Parks (AMPs) in the development of the proposed Environment Plan revision and believe that there are no credible risks as part of planned activities that have potential to impact the values of the Marine Parks.
- The worst-case credible spill scenario assessed in this EP is the highly unlikely event of a loss of well containment for the P&A EP and a vessel spill marine diesel oil (MDO) for the Minerva Decommissioning EP and Minerva (State Waters) Decommissioning EP, resulting in the release of reservoir hydrocarbons to the marine environment. Through review of hydrocarbon spill modelling, and with consideration of a 50 ppb dissolved and 100 ppb entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:
    - Apollo Marine Park – approximately 75 km from the proposed activity
    - Beagle Marine Park – approximately 350 km from the proposed activity
- A Commonwealth Government approved oil spill response plan will be in place for the duration of the activities, which will include notification to relevant agencies and organisations as to the nature and scale of the event, as soon as practicable following an occurrence. The Director of National Parks will be advised if an environmental incident occurs that may impact on the values of the Marine Park.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints. | |

| | | | |
|---|---|---|---|
| | and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around The Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU) |

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| | or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 821 Piggyback clamps<br>• Stabilisation structures<br><br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>Flowline and stabilisation structures will be recovered by reverse install method by the | • 832 Piggyback clamps<br>• Stabilisation structures<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 19 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.
Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.34.1 Email sent to Direct of National Parks — 12 July 2023

Dear Director of National Parks

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 July 2023.**

Regards

**Woodside Feedback**

**2.35 Email sent to Otway recreational marine users and local tourism and other groups — 19 June 2023**

**Otway Recreational Marine Users Group 1:**

- Apollo Bay Dive Centre and Surf
- Apollo Bay Fishing Charters
- Apollo Bay Surf and Kayak
- Dive Industry Association of Australia
- Go Surf School
- SCUBA Divers Federation of Victoria
- Apollo Bay Surf Lifesaving Club
- Apollo Bay Sailing Club
- Ocean Racing Club of Victoria
- Twelve Apostles Helicopters Tours

**Local tourism and other groups:**

- Port Campbell Visitor Information Centre

- Apollo Bay Visitor Information Centre
- Warrnambool Visitor Information Centre
- Apollo Bay Chamber of Commerce

Dear *inserted individual rec marine users name*

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **18 July 2023.**

### *Activity summary:*

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |

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| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around The Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after |

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| | campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU). | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving |

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| | • MODU supported by 2 – 3 offshore support vessels | | operations be required |
| **Distance to nearest marine park/nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 18 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.35.1 Email sent to Otway recreational marine users and local tourism and other groups — 11 July 2023

**Otway Recreational Marine Users Group 1:**

- Apollo Bay Dive Centre and Surf
- Apollo Bay Fishing Charters
- Apollo Bay Surf and Kayak
- Dive Industry Association of Australia
- Go Surf School
- SCUBA Divers Federation of Victoria
- Apollo Bay Surf Lifesaving Club
- Apollo Bay Sailing Club
- Ocean Racing Club of Victoria
- Twelve Apostles Helicopters Tours

**Local tourism and other groups:**

- Port Campbell Visitor Information Centre
- Apollo Bay Visitor Information Centre
- Warrnambool Visitor Information Centre
- Apollo Bay Chamber of Commerce

Dear (*inserted individual rec marine users name)*

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **18 July 2023.**

Regards

**Woodside Feedback**

### 2.36 Email sent to Deakin University, School of Life and Environmental Sciences — 19 June 2023

Dear Deakin University – School of Life and Environmental Sciences

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 July 2023.**

***Activity summary:***

| Minerva Decommissioning Activities | Well P&A | Facilities Removal (Commonwealth Waters) | Facilities Removal (State Waters) |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |

| | | | |
|---|---|---|---|
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around The Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated |

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| | activities, such as inspection, as required until equipment is removed. | • 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |

| | | | |
|---|---|---|---|
| **Distance to nearest marine park/nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 19 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.36.1 Email sent to Deakin University – School of Life and Environmental Sciences — 12 July 2023

Dear Deakin University – School of Life and Environmental Sciences

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).

- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **19 July 2023.**

Regards

**Woodside Feedback**

### 2.37 Email sent to Department of Transport and Planning (DTP) — 19 June 2023

Dear Department of Transport

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.

- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. **Also attached is a list of shipwrecks in Commonwealth waters within the EMBA.** You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

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| | the MODU or Construction Support Vessel (CSV).<br><br>Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br><br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br><br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br><br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around The Construction Support Vessel and the associated project vessels during pipeline removal activities | |

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| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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|---|---|---|---|
| | | The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**
Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

Shipwreck data also attached:

Shipwrecks (commonwealth dataset)

| VESSEL_NAM | VESSEL_TYP | VESSEL_T_1 | JURISDICTN | GION_NAAR_WRK | WHERE_LOST | CO |
|---|---|---|---|---|---|---|
| AGNES | UNKNOWN | Unknown | VIC | Unknown | 1839 Bass Strait, near Cape Schanck | AST |
| AGUVA | MTRVSSL | Motor vessel | VIC | Unknown | 1950 Port Phillip Heads, Point Nepean | |
| ALBERT | SAILVSSL | Sailing vessel | VIC | Unknown | 1890 Bass Strait, off Port Phillip Heads | AST |
| ALERT | SCRWSTMR | Screw steamer | VIC | VIC - Port | 1893 Bass Strait, between Cape Schanck and Port Phillip Heads | SOC |
| ELRO | SCRWSTMR | Screw steamer | VIC | Unknown | 1918 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| FALLS OF HALLADALE | SAILVSSL | Sailing vessel | VIC | Unknown | 1908 Melbourne Bay, Peterborough | SOC |
| FARRNER | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | |
| FORMOSA | SCRWSTMR | Screw steamer | VIC | VIC - Port | 1909 Portsea Back Beach, 3 miles east of Point Nepean | SOC |
| FRISK | SAILVSSL | Sailing vessel | VIC | Unknown | 1853 Port Phillip Heads, Point Nepean | ENG |
| GOLDEN SPRING | UNKNOWN | Unknown | VIC | Unknown | 1903 Warrnambool | USA |
| H.C. PIGOTT | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| HARRIET | UNKNOWN | Unknown | VIC | Unknown | 1848 Bass Strait, last seen off Cape Schanck | AST |
| HELEN | UNKNOWN | Unknown | VIC | Unknown | 1935 Cape Schanck | |
| HOLYHEAD | SAILVSSL | Sailing vessel | VIC | Unknown | 1890 Lonsdale Reef, Port Phillip Heads | ENG |
| TAMORA | UNKNOWN | Unknown | VIC | Unknown | 1960 Portland Bay | SOC |
| W. GORDON | SAILVSSL | Sailing vessel | VIC | Unknown | 1876 Cape Otway, disappeared at sea | CAN |
| WAREATEA | SCRWSTMR | Screw steamer | VIC | Unknown | 1945 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| Unconfirmed: Lorne | UNKNOWN | Unknown | VIC | Unknown | 1877 Mount St George near Lorne | |
| UNCONFIRMED: WESTERN PORT | UNKNOWN | Unknown | VIC | Unknown | Off McHaffies Reef, Western Port | |
| Unidentified: Cape Liptrap, small boat | UNKNOWN | Unknown | VIC | Unknown | Western side of Cape Liptrap | |
| UNIDENTIFIED: CAPE BRIDGEWATER/ WHITES BEACH | SAILVSSL | Sailing vessel | VIC | Unknown | Whites Beach, Portland | |
| UNIDENTIFIED: GODFREY CREEK | UNKNOWN | Unknown | VIC | Unknown | 1906 100 yards from the wreckside of the W.B. Godfrey | |
| UNITY | UNKNOWN | Unknown | VIC | Unknown | 1891 Sorrento Back Beach | AST |
| VH B 53 | UNKNOWN | Unknown | VIC | Unknown | 1971 Ships Graveyard, Commonwealth Area No.3, Bass Strait | |
| ISABELLA | SAILVSSL | Sailing vessel | VIC | Unknown | 1876 Point Nepean back beach | |
| J-2 SUBMARINE | UNKNOWN | Unknown | VIC | VIC - Port | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| J-4 SUBMARINE | UNKNOWN | Unknown | VIC | Unknown | 1927 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| J-5 SUBMARINE | UNKNOWN | Unknown | VIC | | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | GBR |
| JANE | SAILVSSL | Sailing vessel | VIC | Unknown | 1853 Cape Bridgewater, east end of Discovery Bay | |
| JANE | UNKNOWN | Unknown | VIC | Unknown | 1867 Warrnambool | ENG |
| JANE | UNKNOWN | Unknown | VIC | Unknown | 1882 Lady Bay, Warrnambool | WAL |
| JANE ELIZABETH | SAILVSSL | Sailing vessel | VIC | Unknown | 1856 Point Nepean, Port Phillip Heads | AST |
| JESSIE | MTRVSSL | Motor vessel | VIC | Unknown | 1924 Point Nepean Jetty | AST |
| KINGSWEAR | UNKNOWN | Unknown | VIC | Unknown | 1915 Ships Graveyard, Bass Strait | SOC |
| LADY ROBILLIARD | SAILVSSL | Sailing vessel | VIC | Unknown | 1867 Bluff reef, Portland | |
| LEEUWIN | SCRWSTMR | Screw steamer | VIC | Unknown | 1934 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | SOC |
| CAPTAIN COOK | SAILVSSL | Sailing vessel | VIC | Unknown | 1850 Nelson Bay, Cape Grant | AST |
| COMET | PADDSTMR | Paddle steamer | VIC | Unknown | 1852 Eastern Bass Strait, last seen leaving Port Phillip Heads | AST |
| COMMISSIONER | SCRWSTMR | Screw steamer | VIC | Unknown | 1906 Bass Strait, off Cape Patterson | |
| SS CONSIDE | SCRWSTMR | Screw steamer | VIC | Unknown | 1952 Lonsdale Reef, Port Phillip Heads | ENG |
| COOGEE | SCRWSTMR | Screw steamer | VIC | Unknown | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | ENG |
| COQUETTE | SAILVSSL | Sailing vessel | VIC | Unknown | 1892 Waratah Bay | AST |
| CORIO | UNKNOWN | Unknown | VIC | Unknown | 1939 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| COURIER | SCRWSTMR | Screw steamer | VIC | Unknown | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | ENG |
| CURLEW | SAILVSSL | Sailing vessel | VIC | Unknown | 1915 Great Glennie Island, Wilsons Promontory | NWL |
| DUKE OF WELLINGTON | SAILVSSL | Sailing vessel | VIC | Unknown | 1853 Ten Mile Creek, Tarwin Lower | CAN |
| DUNLOE | UNKNOWN | Unknown | VIC | Unknown | 1947 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| MAID OF JULPHA | SAILVSSL | Sailing vessel | VIC | Unknown | 1859 Warrnambool Bay | |
| MARGARET AND AGNES | UNKNOWN | Unknown | VIC | Unknown | 1852 Portland Bay | AST |
| MARIE | SAILVSSL | Sailing vessel | VIC | Unknown | 1851 Cape Bridgewater | |
| MARTHA | SAILVSSL | Sailing vessel | VIC | Unknown | 1895 Port Phillip Heads | AST |
| MARY JANE | UNKNOWN | Unknown | VIC | Unknown | 1852 Portland Bay | CAN |
| NEWFIELD | SAILVSSL | Sailing vessel | VIC | Unknown | 1892 Newfield, one mile east of Curdies River | SOC |
| NIL DESPERANDUM | SAILVSSL | Sailing vessel | VIC | Unknown | 1870 Wilsons Promontory, off the Glennie Islands | AST |
| OLIVIA DAVIS | UNKNOWN | Unknown | VIC | Unknown | 1882 Warrnambool | USA |
| ONTARIO | SAILVSSL | Sailing vessel | VIC | Unknown | 1853 Between Corsair Rock and Point Nepean, Port Phillip Heads | SOC |
| ORBOST | UNKNOWN | Unknown | VIC | Unknown | 1904 Waratah Bay, Wilsons Promontory | AST |
| OTWAY | SAILVSSL | Sailing vessel | VIC | Unknown | 1852 Lorne, Louttit Bay | AST |
| PALACE | SAILVSSL | Sailing vessel | VIC | Unknown | 1932 Phillip Island The Nobbies | CAN |
| PRINCE ALBERT | UNKNOWN | Unknown | VIC | Unknown | 1840 Port Phillip Heads, Point Nepean | AST |
| R.M.S. AUSTRALIA | SCRWSTMR | Screw steamer | VIC | Unknown | 1904 Outer Corsair Reef, Point Nepean | SOC |
| RAAF - B25 | | | VIC | Unknown | 1945 | |
| MEROPE | SAILVSSL | Sailing vessel | VIC | Unknown | 1839 Lawrence rocks, Portland | |
| MILORA | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Just outside Commonwealth Area No.3, Bass Strait | AST |
| MIMMIE DYKE | UNKNOWN | Unknown | VIC | Unknown | 1866 Cape Everard | SOC |
| MINERVA | UNKNOWN | Unknown | VIC | Unknown | 1849 Bass Strait, 40 miles west of Cape Otway | AST |
| REINDEER | SAILVSSL | Sailing vessel | VIC | Unknown | 1862 Cape Liptrap | AST |
| RELIANCE | PADDSTMR | Paddle steamer | VIC | Unknown | 1869 Three miles SE of Cape Schanck | AST |
| ROBERT JOHN | UNKNOWN | Unknown | VIC | Unknown | 1854 Port Phillip Heads, Point Nepean | AST |
| S.S. TIME | SCRWSTMR | Screw steamer | VIC | Unknown | 1949 Nepean Reef, Port Phillip Heads | ENG |
| SEA | SAILVSSL | Sailing vessel | VIC | Unknown | 1853 Point Nepean, Port Phillip Heads | CAN |
| SEA WITCH | UNKNOWN | Unknown | VIC | Unknown | 1909 Corsair Rock, Port Phillip Heads | |
| SPENCER | UNKNOWN | Unknown | VIC | Unknown | 1854 Waratah Bay, near Cape Liptrap | |
| SQUATTER | UNKNOWN | Unknown | VIC | Unknown | 1846 Port Fairy, 2.5 miles west of Port Fairy | AST |
| ARICUS | SAILVSSL | Sailing vessel | VIC | Unknown | 1857 Bass Strait, off Port Phillip Heads, Point Nepean | |
| ANNE | UNKNOWN | Unknown | VIC | Unknown | 1863 Louttit Bay, Lorne | |
| ANTARES | SAILVSSL | Sailing vessel | VIC | Unknown | 1914 Bay of Islands, 22 miles east of Warrnambool | SOC |
| ARIEL | SAILVSSL | Sailing vessel | VIC | Unknown | 1892 Portland Bay | |
| ARKAROA | SCRWSTMR | Screw steamer | VIC | Unknown | 1925 Bass Strait, off Cape Liptrap | AST |
| BAT | SAILVSSL | Sailing vessel | VIC | Unknown | 1892 Bass Strait | SOC |
| BIRCHGROVE | SAILVSSL | Sailing vessel | VIC | Unknown | 1932 Near The Nobbies, Phillip Island | ENG |
| BLACK BOY | SCRWSTMR | Screw steamer | VIC | Unknown | 1883 Mushroom Rock, Lonsdale Reef, Port Phillip Heads | SOC |
| BLACK WATCH | SAILVSSL | Sailing vessel | VIC | Unknown | 1867 Bass Strait, west of Cape Otway | NWL |
| BRAVO | SAILVSSL | Sailing vessel | VIC | Unknown | 1877 Waratah Bay, Wilsons Promontory | CAN |
| BUNNYONG | SCRWSTMR | Screw steamer | VIC | Unknown | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | ENG |
| BURKE | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | AST |
| CAMPANA | UNKNOWN | Unknown | VIC | Unknown | 1927 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | ENG |
| VICTORIAN | SCRWSTMR | Screw steamer | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| VISION | MTRVSSL | Motor vessel | VIC | Unknown | 1917 Between Cape Liptrap and Cape Paterson | AST |
| WERFA | SCRWSTMR | Screw steamer | VIC | Unknown | 1929 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| WHITE PINE | UNKNOWN | Unknown | VIC | Unknown | 1947 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| WYRALLAH | SCRWSTMR | Screw steamer | VIC | Unknown | 1924 Port Phillip Heads | AST |
| Vicky | TWSCRSTM | Twin screw steamer | TAS | TAS - East | 1956 Eastern Bass Strait | SOC |
| AGNES AND HANNAH | SAILVSSL | Sailing vessel | VIC | Unknown | 1853 Between Cape Schanck and Point Nepean | NWL |
| ALCANDRE | SAILVSSL | Sailing vessel | VIC | Unknown | 1877 Lost Coast, Waratah Bay | CAN |
| HILL SHARDS | SCRWSTMR | Screw steamer | VIC | Unknown | 1927 Ships Graveyard, Bass Strait | AST |
| HYGRA | PADDSTMR | Paddle steamer | VIC | Unknown | 1932 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | SOC |
| MAHOGANY SHIP | SAILVSSL | Sailing vessel | VIC | Unknown | west of Warrnambool | |
| MALAITA | SCRWSTMR | Screw steamer | VIC | Unknown | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| PAUL PRY | UNKNOWN | Unknown | VIC | Unknown | 1841 Bass Strait, off Cape Schanck | AST |
| SS PETRIANA | SCRWSTMR | Screw steamer | VIC | Unknown | 1905 Port Phillip Heads, Point Nepean, Petriana Reef | ENG |
| PRYOR | UNKNOWN | Unknown | VIC | Unknown | 1948 Nepean Reef, Port Phillip Heads | CAN |
| RAAF - Mitchell | | | VIC | Unknown | 1944 | |
| Rebel | SAILVSSL | Sailing vessel | VIC | Unknown | 1855 | |
| MEROPE | UNKNOWN | Unknown | VIC | Unknown | 1853 Portland Bay, 15 miles east of Portland | IND |
| MISS ECHO | UNKNOWN | Unknown | VIC | Unknown | 1918 Lady Julia percy Island, Portland Bay | AST |
| NAUTILUS | SAILVSSL | Sailing vessel | VIC | VIC - East | 1846 Cape Liptrap | ENG |
| Anser Island Unidentified | UNKNOWN | Unknown | VIC | Unknown | South Point of Anser Island, Wilsons Promontory | |
| ARGO | UNKNOWN | Unknown | VIC | Unknown | 1885 Portland Reach | AST |
| ARGONAH | UNKNOWN | Unknown | VIC | Unknown | Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| ASA PACKER | SAILVSSL | Sailing vessel | VIC | Unknown | 1861 Point Nepean, Port Phillip Heads | USA |
| AURIGA | UNKNOWN | Unknown | VIC | Unknown | 1930 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| BATMAN | UNKNOWN | Unknown | VIC | Unknown | 1935 Ships Graveyard, Commonwealth Area No.3, Bass Strait | ENG |
| BEVERWIJK 19 | SCRWSTMR | Screw steamer | VIC | Unknown | 1965 Ships Graveyard, Commonwealth Area No.3, Bass Strait | |
| BITTER BEEK | UNKNOWN | Unknown | VIC | Unknown | 1906 Between Port Fairy and Warrnambool, off Cape Otway | AST |
| BRUNETTE | SAILVSSL | Sailing vessel | VIC | Unknown | 1913 Ships Graveyard, Outer Heads Area, Bass Strait | ENG |
| BUNYIP | UNKNOWN | Unknown | VIC | Unknown | 1955 Ships Graveyard, Commonwealth Area No.3, Bass Strait | SOC |
| CASABLANCA | SAILVSSL | Sailing vessel | VIC | Unknown | 1950 Ships Graveyard, Commonwealth Area No.3, Bass Strait | ENG |
| CHARLOTTE | SAILVSSL | Sailing vessel | VIC | Unknown | 1880 Cape Schanck | |
| TSS CORAMBA | SCRWSTMR | Screw steamer | VIC | Unknown | 1934 Bass Strait, off Phillip Island | SOC |
| D. McLENNAN | UNKNOWN | Unknown | VIC | Unknown | 1949 Ships Graveyard, Commonwealth Area No.3, Bass Strait | NIH |
| DORAIN | SAILVSSL | Sailing vessel | VIC | Unknown | 1849 Shelly Hbd, Waratah Bay | AST |
| EDWARD | SAILVSSL | Sailing vessel | VIC | Unknown | 1912 Point Nepean Reef, Port Phillip Heads | NOR |
| ELIZA | SAILVSSL | Sailing vessel | VIC | Unknown | 1875 Cape Schanck | |
| ELIZA DAVIES | SAILVSSL | Sailing vessel | VIC | Unknown | 1824 Bass Strait, 10 miles east of Wilsons Promontory | AST |
| FOAM | SAILVSSL | Sailing vessel | VIC | Unknown | 1880 Bass Strait, off Broomfiow | AST |
| GANGE | SAILVSSL | Sailing vessel | VIC | Unknown | 1887 Lonsdale Reef, Prt Phillip Heads | AUT |
| P.S. GLASGOW CITIZEN | PADDSTMR | Paddle steamer | VIC | Unknown | 1862 Bass Strait, disappeared after leaving the Heads | SOC |
| ISABELLA | SAILVSSL | Sailing vessel | VIC | Unknown | 1837 Cape Nelson, Portland | GBR |
| ISABELLA WATSON | SAILVSSL | Sailing vessel | VIC | Unknown | 1852 Nepean Reef, Port Phillip Heads | SOC |
| J-1 SUBMARINE | UNKNOWN | Unknown | VIC | | 1926 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | |
| JOHN MIMMO | SCRWSTMR | Screw steamer | VIC | Unknown | 1931 Ships Graveyard, Outside Port Phillip Heads Area, Bass Strait | AST |

### 2.37.1 Email sent to Department of Transport and Planning (DoTP) — 16 November 2023

Dear Department of Transport

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field. A follow up email to this was sent to you on 11 July 2023 however our records indicate this email was not received at your end as intended. We are therefore sending this email again as follows:

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **30 November 2023.**

Regards

### 2.37.2 Email sent to Department of Transport and Planning (DoTP) — 11 December 2023

Dear Department of Transport and Planning,

Further to the correspondence that Department of Transport and Planning (DTP) has previously received (below) regarding the preparation of three Environment Plans (EPs) for the Minerva

decommissioning activities, Woodside would like to offer DTP the opportunity to review or provide comment on the activity-specific Oil Pollution First Strike Plans. Please note that these assets were previously operated by BHP Petroleum Pty Ltd. (BHP) and, as such, DTP may have received previous consultation materials and draft plans for this activity. Following the merger of BHP and Woodside, the EPs and Oil Pollution First Strike Plans have now been revised to align to Woodside's approaches and processes.

Information is presented as follows:

- A Consultation Information Sheet providing information on the proposed activities is available here. This is a combined Information Sheet addressing both the Commonwealth and State operations for Minerva decommissioning activities.

- Oil Pollution First Strike Plans for each of the three EPs are also attached. These will form part of each approval submission in accordance with (as relevant): the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth); the Victoria *Offshore Petroleum and Greenhouse Gas Storage Act 2010*; and the Victoria *Offshore Petroleum and Greenhouse Gas Storage Regulations 2021*.

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plans. The two Commonwealth EPs will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). The State waters EP will be submitted to Earth Resources Regulation (ERR) branch of the Department of Energy, Environment and Climate Action (DEECA) for acceptance in accordance with the Victoria *Offshore Petroleum and Greenhouse Gas Storage Act 2010* and the Victoria *Offshore Petroleum and Greenhouse Gas Storage Regulations 2021*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or ERR upon submission of the Environment Plan in order for this information to remain confidential to the respective regulatory body.

Many thanks,

### 2.38 Email sent to Heritage Victoria — 20 June 2023

Dear Heritage Victoria

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **20 July 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline | Removal of the pipeline bundle within State waters. |

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| | productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | structures and stabilisation materials. | Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the | A temporary 500 m exclusion zone will apply around The Construction Support Vessel and the associated project vessels during pipeline removal activities | |

| | | | |
|---|---|---|---|
| | associated project vessels during P&A activities. | | |
| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| | | • Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 20 July 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

### 2.39 Email sent to Bunurong Land Council Aboriginal Corporation — 19 May 2023

Dear (Individual 17)

My name is (Individual 18) and I am a Principal Adviser in the First Nations Relations team at Woodside Energy. It's nice to virtually meet you.

Woodside Energy is reaching out to Bunurong Land Council Aboriginal Corporation (BLCAC) to consult with you about the removal of subsea infrastructure located approximately 11 km south-southwest of Port Campbell, Victoria.

The Minerva Gas Plant ceased operation 2019 and we are now proposing to remove the gas pipeline and subsea infrastructure that connected the Minerva Gas Plant to the Minerva Gas Field. This work will also include the permanent plugging of four gas wells that were part of the Minerva Gas Field.

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in an Environmental Plan.

I have attached a summary information sheet that explains the activities we plan to undertake, and a detailed consultation information sheet can be found here.

Woodside is seeking to understand the nature of the interests that BLCAC and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.
- If you would like to speak with us, please let us know by Friday 16 June 2023 and please also advise of your preferred method of consultation and any support you may require.

BLCAC can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached documents to BLCAC members or other people who you think may be interested as required. Woodside would be pleased to speak with BLCAC members, the BLCAC Board or office holders and other interested parties as required.

We look forward to hearing from you.

Kind regards

Woodside Energy

CONSULTATION

# SUMMARY INFORMATION SHEET

May 2023

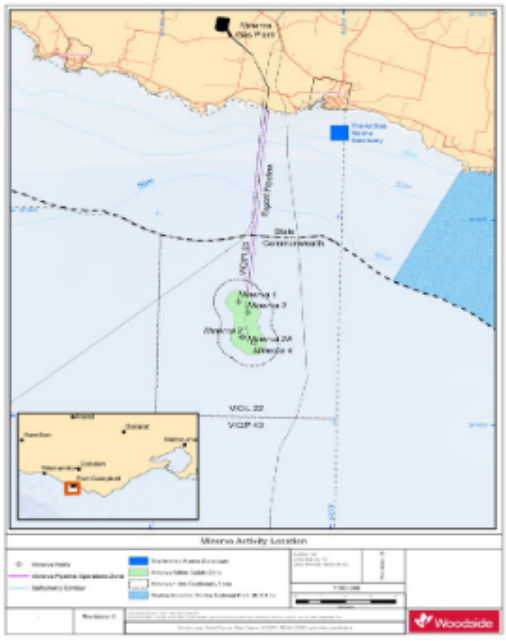
# MINERVA DECOMMISSIONING

This is a summary of the activity in plain English. More detailed information can be found in Activity Update - Minerva Decommissioning Environment Plans.

## Overview

Woodside is planning to remove all subsea infrastructure and equipment from the seabed for the Minerva Field, located in 50-60 m of water approximately 11 km south-southwest of Port Campbell, Victoria

A map of the location is shown below.




## Background

The Minerva Gas Plant commenced production in 2005 and ceased in 2019. At that time, the Minerva wells were isolated and the production system flushed of hydrocarbons. In 2021, the flowlines were disconnected from the wells and barrier plugs installed.

## Work Method

The work can be considered in three parts:

- **Minerva plug and abandonment and field management**
  Four wells are proposed to be permanently plugged with cement using a moored Mobile Offshore Drilling Unit (MODU) and the well infrastructure above the mudline is proposed to be removed. Other vessels may provide support for this activity. The field will be monitored and inspected, as required, until the equipment is removed. A temporary 1000 m exclusion zone will apply around the MODU and other project vessels. This work is estimated to take up to 60 days and must be completed by mid 2025.
- **Minerva Field decommissioning in Commonwealth Waters**
  The gas pipeline bundle and other subsea infrastructure is proposed to be removed. Hydraulic shears will be used to cut the flowline and equipment will be recovered to a Construction Support Vessel (CSV) by crane. This work is estimated to take up to 30 days and must be completed by mid 2025. Figure 1, Figure 2 and Figure 3 show some of the structures and equipment used to remove them.
- **Minerva Field decommissioning in State Waters**
  The gas pipeline bundle is proposed to be removed in State Waters, using hydraulic shears and supported by divers, where required. This work is proposed to be done at the same time as decommissioning in Commonwealth Waters.

Figure 1. Minerva Pipeline Bundle Arrangement

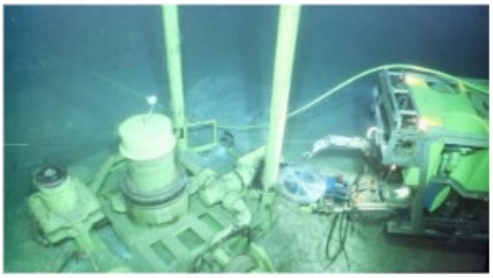


Figure 2. Typical Subsea Cutting Activity

Figure 3. Typical Subsea Equipment Recovery Activity

## Environmental Impacts and Management

This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as reasonably practical.

Planned Activities are activities that Woodside knows will happen as part of this work program. For example, Planned Activities include other marine users being temporarily stopped from accessing the work area, and the marine vessels and drill rig used for the work may disturb the seabed, generate underwater noise, light emissions, atmospheric emissions, and routine discharges (such as sewage, waste, and deck drainage), and other authorised waste.

Unplanned Activities are not planned as part of the work program, but may be the result of an accident, incident, or emergency situation. It is highly unlikely that there will be an Unplanned Activity. Unplanned Activities might include a spill of fuel or oil, a release from a well, a spill on the deck of a vessel (such as during refuelling), unplanned seabed disturbance, accidental collision with marine animals, waste entering the environment and accidental introduction of invasive species from outside the region. Management measures will be in place to reduce the probability and impacts of these unplanned activities to as low as practical.

A table showing all planned and unplanned activities, potential impacts, and management measures for each is included in the Information Sheet.

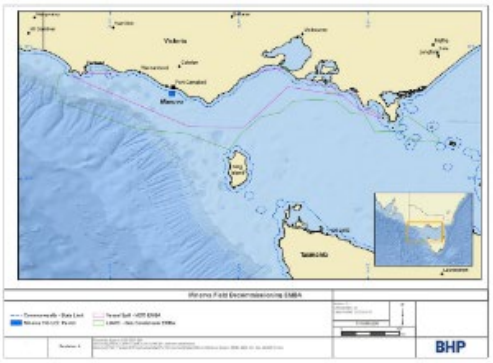
## Environment that may be affected

The total area over which unplanned events could have environmental impacts is shown in the maps below. This is referred to as the environment that may be affected (EMBA. In the highly unlikely event such as a fuel spill from a vessel collision or an oil release from one of the wells while drilling, the entire EMBA will not be affected. The part of the EMBA that is affected will only be known at the time of the event.

There are two potential EMBAs for the Minerva decommissioning, in the event of:

- Loss of Well Containment during the plugging and abandonment of four production/exploration wells in the Minerva Field by a MODU
- Vessel Spill Marine Diesel Oil (MDO) during the recovery of subsea infrastructure in the Minerva Field using a CSV.

Figure 4 shows the two potential EMBAs.




## Conclusion

Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

There are always potential risks with surveys like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside complies with these laws and has systems in place to keep following these laws and rules for each project it undertakes.

If you would like information about Woodside's work to study and care for the environment, you can find it at https://www.woodside.com/sustainability/environment.

## Providing Feedback

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or any concerns, you can tell Woodside by calling 1800 442 977 or send an email to Feedback@woodside.com.au.

If you would prefer to speak to the government directly, they can be contacted on +61 (0)8 6188 8700 or send an email to communications@nopsema.gov.au.

## Further Information

You can find the details Consultation Information Sheet for proposed activity on our website:
https://www.woodside.com/sustainability/consultation-activities.

### 2.40 Email sent to Eastern Maar Aboriginal Corporation — 19 May 2023

Dear (Individual 19)

My name is (Individual 18) and I am a Principal Adviser in the First Nations Relations team at Woodside Energy. It's nice to virtually meet you.

Woodside Energy is reaching out to Eastern Maar Aboriginal Corporation (EMAC) to consult with you about the removal of subsea infrastructure located approximately 11 km south-southwest of Port Campbell, Victoria.

The Minerva Gas Plant ceased operation 2019 and we are now proposing to remove the gas pipeline and subsea infrastructure that connected the Minerva Gas Plant to the Minerva Gas Field. This work will also include the permanent plugging of four gas wells that were part of the Minerva Gas Field.

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in an Environmental Plan.

I have attached a summary information sheet that explains the activities we plan to undertake, and a detailed consultation information sheet can be found here.

Woodside is seeking to understand the nature of the interests that EMAC and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.
- If you would like to speak with us, please let us know by Friday 16 June 2023 and please also advise of your preferred method of consultation and any support you may require.

EMAC can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached documents to EMAC members or other people who you think may be interested as required. Woodside would be pleased to speak with EMAC members, the EMAC Board or office holders and other interested parties as required.

We look forward to hearing from you.

Kind regards

Woodside Energy

CONSULTATION

# SUMMARY INFORMATION SHEET

May 2023

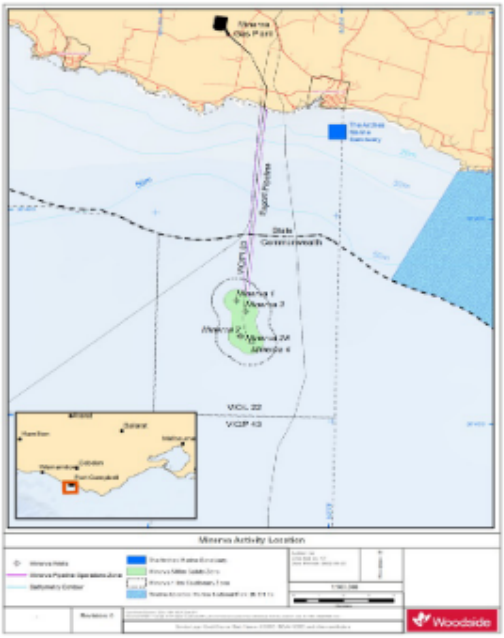
# MINERVA DECOMMISSIONING

This is a summary of the activity in plain English. More detailed information can be found in Activity Update - Minerva Decommissioning Environment Plans.

## Overview

Woodside is planning to remove all subsea infrastructure and equipment from the seabed for the Minerva Field, located in 50-60 m of water approximately 11 km south-southwest of Port Campbell, Victoria

A map of the location is shown below.




## Background

The Minerva Gas Plant commenced production in 2005 and ceased in 2019. At that time, the Minerva wells were isolated and the production system flushed of hydrocarbons. In 2021, the flowlines were disconnected from the wells and barrier plugs installed.

## Work Method

The work can be considered in three parts:

- **Minerva plug and abandonment and field management**
  Four wells are proposed to be permanently plugged with cement using a moored Mobile Offshore Drilling Unit (MODU) and the well infrastructure above the mudline is proposed to be removed. Other vessels may provide support for this activity. The field will be monitored and inspected, as required, until the equipment is removed. A temporary 1000 m exclusion zone will apply around the MODU and other project vessels. This work is estimated to take up to 60 days and must be completed by mid 2025.
- **Minerva Field decommissioning in Commonwealth Waters**
  The gas pipeline bundle and other subsea infrastructure is proposed to be removed. Hydraulic shears will be used to cut the flowline and equipment will be recovered to a Construction Support Vessel (CSV) by crane. This work is estimated to take up to 30 days and must be completed by mid 2025. Figure 1, Figure 2 and Figure 3 show some of the structures and equipment used to remove them.
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Figure 1. Minerva Pipeline Bundle Arrangement

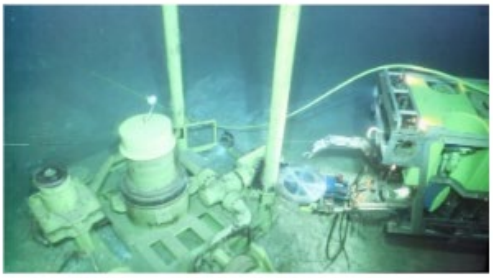

Figure 2. Typical Subsea Cutting Activity

Figure 3. Typical Subsea Equipment Recovery Activity

## Environmental Impacts and Management

This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as reasonably practical.

Planned Activities are activities that Woodside knows will happen as part of this work program. For example, Planned Activities include other marine users being temporarily stopped from accessing the work area, and the marine vessels and drill rig used for the work may disturb the seabed, generate underwater noise, light emissions, atmospheric emissions, and routine discharges (such as sewage, waste, and deck drainage), and other authorised waste.

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A table showing all planned and unplanned activities, potential impacts, and management measures for each is included in the Information Sheet.

## Environment that may be affected

The total area over which unplanned events could have environmental impacts is shown in the maps below. This is referred to as the environment that may be affected (EMBA. In the highly unlikely event such as a fuel spill from a vessel collision or an oil release from one of the wells while drilling, the entire EMBA will not be affected. The part of the EMBA that is affected will only be known at the time of the event.

There are two potential EMBAs for the Minerva decommissioning, in the event of:

- Loss of Well Containment during the plugging and abandonment of four production/exploration wells in the Minerva Field by a MODU
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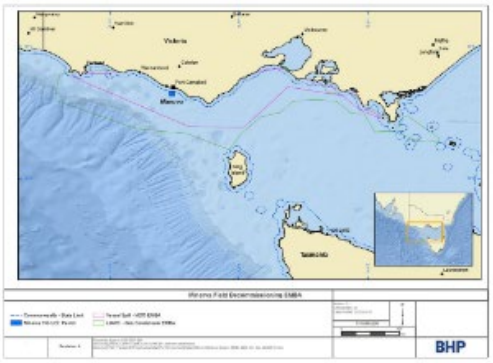
Figure 4 shows the two potential EMBAs.




## Conclusion

Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

There are always potential risks with surveys like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside complies with these laws and has systems in place to keep following these laws and rules for each project it undertakes.

If you would like information about Woodside's work to study and care for the environment, you can find it at https://www.woodside.com/sustainability/environment.

## Providing Feedback

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or any concerns, you can tell Woodside by calling 1800 442 977 or send an email to Feedback@woodside.com.au.

If you would prefer to speak to the government directly, they can be contacted on +61 (0)8 6188 8700 or send an email to communications@nopsema.gov.au.

## Further Information

You can find the details Consultation Information Sheet for proposed activity on our website:
https://www.woodside.com/sustainability/consultation-activities.

### 2.41 Email sent to Gunditj Mirring Traditional Owners Aboriginal Corporation — 19 May 2023

Dear (Individual 20)

My name is (Individual 18) and I am a Principal Adviser in the First Nations Relations team at Woodside Energy. It's nice to virtually meet you.

Woodside Energy is reaching out to the Gunditj Mirring Traditional Owner Aboriginal Corporation (Gunditj Mirring) to consult with you about the removal of subsea infrastructure located approximately 11 km south-southwest of Port Campbell, Victoria.

The Minerva Gas Plant ceased operation 2019 and we are now proposing to remove the gas pipeline and subsea infrastructure that connected the Minerva Gas Plant to the Minerva Gas Field. This work will also include the permanent plugging of four gas wells that were part of the Minerva Gas Field.

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in an Environmental Plan.

I have attached a summary information sheet that explains the activities we plan to undertake, and a detailed consultation information sheet can be found here.

Woodside is seeking to understand the nature of the interests that Gunditj Mirring and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by Friday 16 June 2023 and please also advise of your preferred method of consultation and any support you may require.

Gunditj Mirring can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached documents to Gunditj Mirring members or other people who you think may be interested as required. Woodside would be pleased to speak with Gunditj Mirring members, the Gunditj Mirring Board or office holders and other interested parties as required.

We look forward to hearing from you.

Kind regards

Woodside Energy

CONSULTATION

# SUMMARY INFORMATION SHEET

May 2023

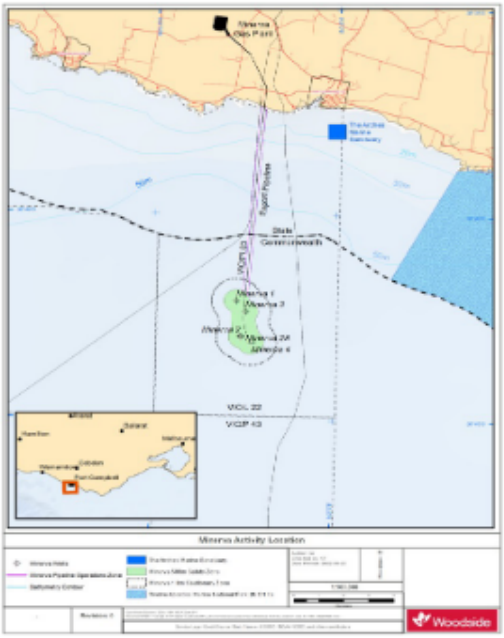
# MINERVA DECOMMISSIONING

This is a summary of the activity in plain English. More detailed information can be found in Activity Update - Minerva Decommissioning Environment Plans.

## Overview

Woodside is planning to remove all subsea infrastructure and equipment from the seabed for the Minerva Field, located in 50-60 m of water approximately 11 km south-southwest of Port Campbell, Victoria

A map of the location is shown below.




## Background

The Minerva Gas Plant commenced production in 2005 and ceased in 2019. At that time, the Minerva wells were isolated and the production system flushed of hydrocarbons. In 2021, the flowlines were disconnected from the wells and barrier plugs installed.

## Work Method

The work can be considered in three parts:

- **Minerva plug and abandonment and field management**
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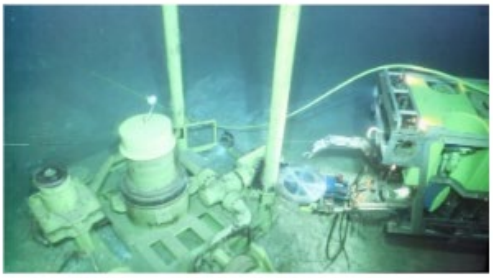

Figure 2. Typical Subsea Cutting Activity

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## Environmental Impacts and Management

This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as reasonably practical.

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- Loss of Well Containment during the plugging and abandonment of four production/exploration wells in the Minerva Field by a MODU
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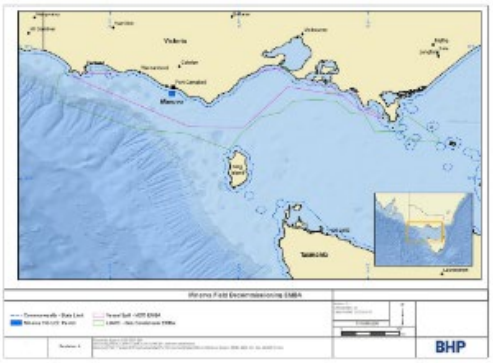


## Conclusion

Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

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If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or any concerns, you can tell Woodside by calling 1800 442 977 or send an email to Feedback@woodside.com.au.

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## Further Information

You can find the details Consultation Information Sheet for proposed activity on our website:
https://www.woodside.com/sustainability/consultation-activities.

### 2.42 Email sent to Wadawurrung Traditional Owners Aboriginal Corporation — 19 May 2023

Dear (Individual 21)

My name is (Individual 18) and I am a Principal Adviser in the First Nations Relations team at Woodside Energy. It's nice to virtually meet you.

Woodside Energy is reaching out to Wadawurrung Traditional Owners Aboriginal Corporation (Wadawurrung) to consult with you about the removal of subsea infrastructure located approximately 11 km south-southwest of Port Campbell, Victoria.

The Minerva Gas Plant ceased operation 2019 and we are now proposing to remove the gas pipeline and subsea infrastructure that connected the Minerva Gas Plant to the Minerva Gas Field. This work will also include the permanent plugging of four gas wells that were part of the Minerva Gas Field.

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in an Environmental Plan.

I have attached a summary information sheet that explains the activities we plan to undertake, and a detailed consultation information sheet can be found here.

Woodside is seeking to understand the nature of the interests that Wadawurrung and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
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- If you would like to speak with us, please let us know by Friday 16 June 2023 and please also advise of your preferred method of consultation and any support you may require.

Wadawurrung can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached documents to Wadawurrung members or other people who you think may be interested as required. Woodside would be pleased to speak with Wadawurrung members, the Wadawurrung Board or office holders and other interested parties as required.

We look forward to hearing from you.

Kind regards

Woodside Energy

CONSULTATION

# SUMMARY INFORMATION SHEET

May 2023

# MINERVA DECOMMISSIONING

This is a summary of the activity in plain English. More detailed information can be found in Activity Update - Minerva Decommissioning Environment Plans.

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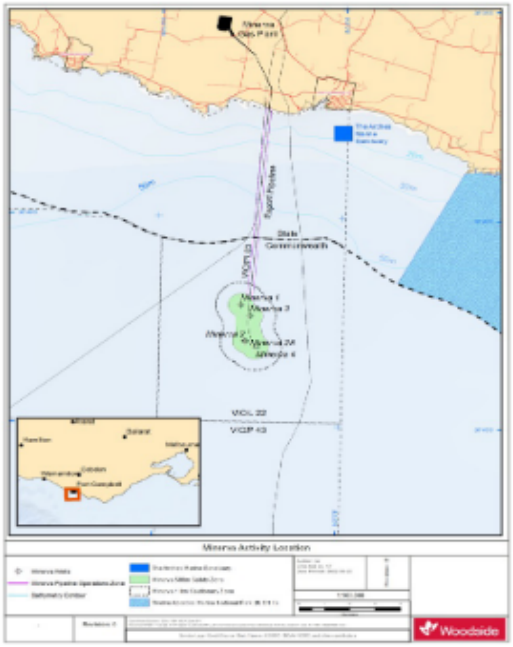


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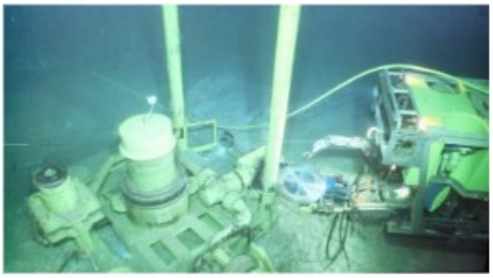

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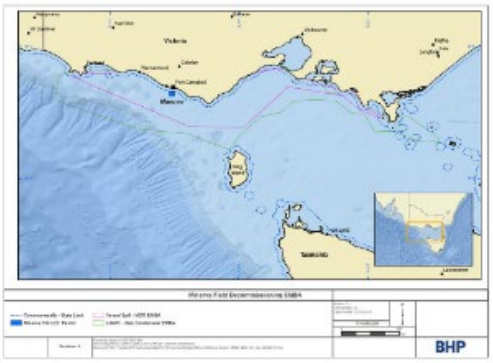


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Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

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## Providing Feedback

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or any concerns, you can tell Woodside by calling 1800 442 977 or send an email to Feedback@woodside.com.au.

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## Further Information

You can find the details Consultation Information Sheet for proposed activity on our website:
https://www.woodside.com/sustainability/consultation-activities.

### 2.43 Email sent to Gunaikurnai Land and Waters Aboriginal Corporation — 19 May 2023

Dear Individual 22

My name is (Individual 18) and I am a Principal Adviser in the First Nations Relations team at Woodside Energy. It's nice to virtually meet you.

Woodside Energy is reaching out to Gunaikurnai Land and Waters Aboriginal Corporation (Gunaikurnai) to consult with you about the removal of subsea infrastructure located approximately 11 km south-southwest of Port Campbell, Victoria.

The Minerva Gas Plant ceased operation 2019 and we are now proposing to remove the gas pipeline and subsea infrastructure that connected the Minerva Gas Plant to the Minerva Gas Field. This work will also include the permanent plugging of four gas wells that were part of the Minerva Gas Field.

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in an Environmental Plan.

I have attached a summary information sheet that explains the activities we plan to undertake, and a detailed consultation information sheet can be found here.

Woodside is seeking to understand the nature of the interests that Gunaikurnai and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by Friday 16 June 2023 and please also advise of your preferred method of consultation and any support you may require.

Gunaikurnai can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

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Kind regards

Woodside Energy

CONSULTATION

# SUMMARY INFORMATION SHEET

May 2023

# MINERVA DECOMMISSIONING

This is a summary of the activity in plain English. More detailed information can be found in Activity Update - Minerva Decommissioning Environment Plans.

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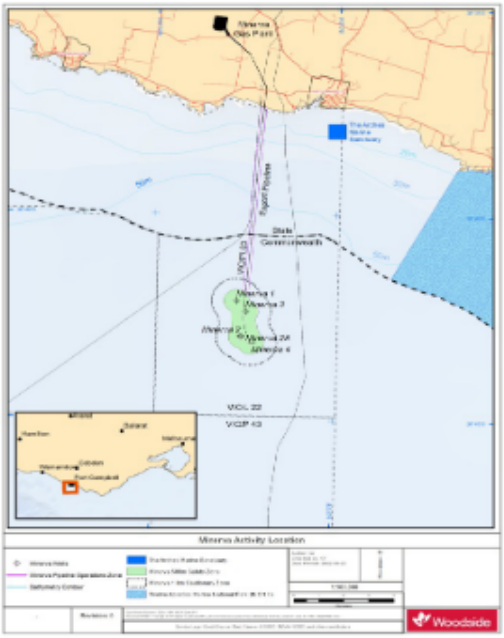


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The work can be considered in three parts:

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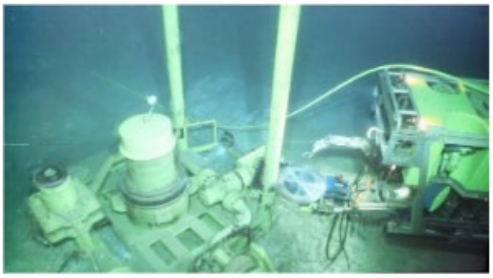

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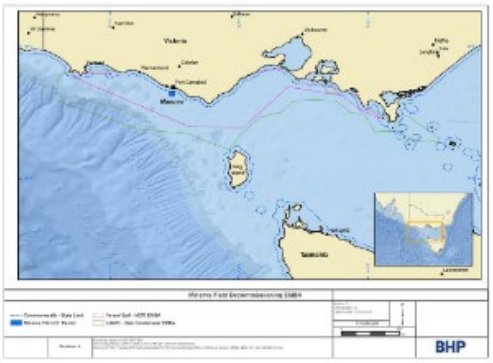


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## Further Information

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### 2.44 Email sent to First Nations Legal and Research Services — 22 May 2023

Dear (Individual 23)

As referred to this morning and for later discussion today, please see attached summary information sheet about Woodside Energy's proposed removal of subsea infrastructure located approximately 11 km south-southwest of Port Campbell, Victoria. A more detailed technical information sheet can be found here.

The Minerva Gas Plant ceased operation 2019 and we are now proposing to remove the gas pipeline and subsea infrastructure that connected the Minerva Gas Plant to the Minerva Gas Field. This work will also include the permanent plugging of four gas wells that were part of the Minerva Gas Field.

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in an Environmental Plan.

Woodside is seeking to understand the nature of the functions, activities and interests that First Nations Legal and Research Services (FNLRS) may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. We are also interested to understand if there are any other individuals, groups or organisations you think we should talk to, noting that we have reached out directly to Gunditj Mirring, Waddawurrung, Eastern Maar, GLaWAC and Bunurong.

If you would like to receive detailed consultation, please let us know by Friday 16 June 2023. You can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

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Kind regards

Woodside Energy

CONSULTATION

# SUMMARY INFORMATION SHEET

May 2023

# MINERVA DECOMMISSIONING

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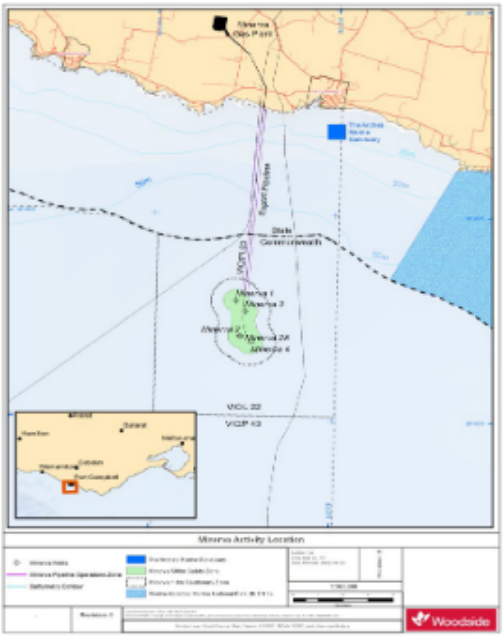


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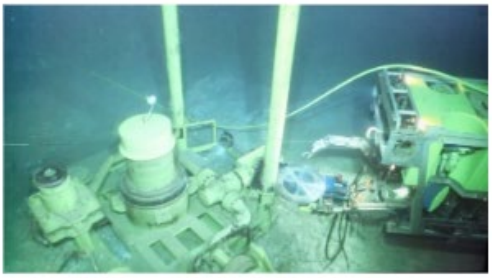

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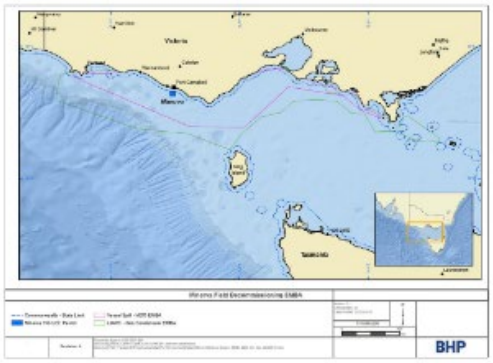
- Vessel Spill Marine Diesel Oil (MDO) during the recovery of subsea infrastructure in the Minerva Field using a CSV.

Figure 4 shows the two potential EMBAs.




## Conclusion

Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

There are always potential risks with surveys like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside complies with these laws and has systems in place to keep following these laws and rules for each project it undertakes.

If you would like information about Woodside's work to study and care for the environment, you can find it at https://www.woodside.com/sustainability/environment.

## Providing Feedback

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or any concerns, you can tell Woodside by calling 1800 442 977 or send an email to Feedback@woodside.com.au.

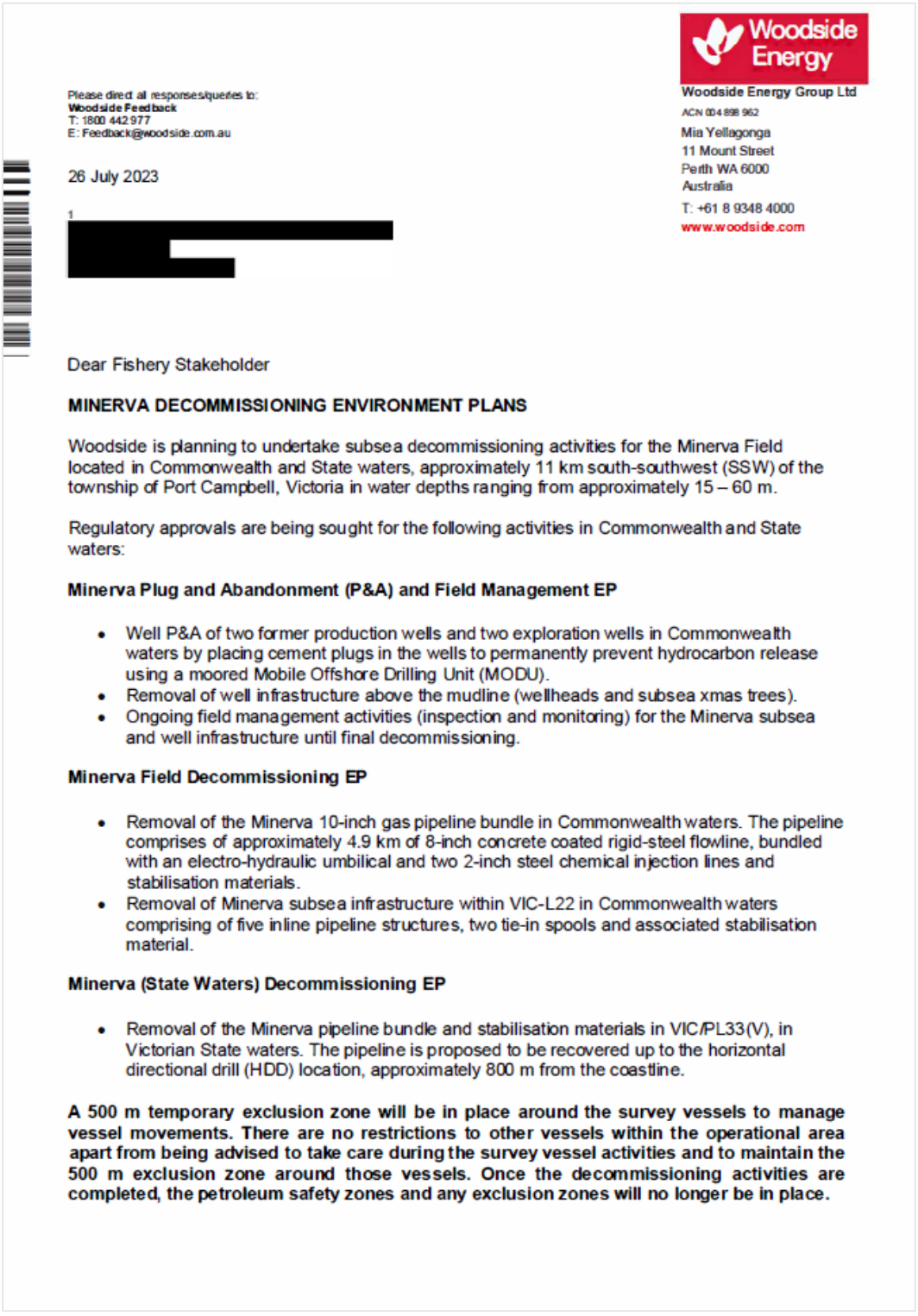
If you would prefer to speak to the government directly, they can be contacted on +61 (0)8 6188 8700 or send an email to communications@nopsema.gov.au.

## Further Information

You can find the details Consultation Information Sheet for proposed activity on our website:
https://www.woodside.com/sustainability/consultation-activities.

## 2.45 Email sent to Fishery Licence Holders — 26 July 2023

- Bass Strait Central Zone Scallop Fishery
- Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine
- Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook
- Southern Squid Jig Fishery



Please direct all responses/queries to:
**Woodside Feedback**
T: 1800 442 977
E: Feedback@woodside.com.au

Woodside Energy

**Woodside Energy Group Ltd**
ACN 004 898 962
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T: +61 8 9348 4000
www.woodside.com

26 July 2023

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[redacted]

Dear Fishery Stakeholder

**MINERVA DECOMMISSIONING ENVIRONMENT PLANS**

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

**A 500 m temporary exclusion zone will be in place around the survey vessels to manage vessel movements. There are no restrictions to other vessels within the operational area apart from being advised to take care during the survey vessel activities and to maintain the 500 m exclusion zone around those vessels. Once the decommissioning activities are completed, the petroleum safety zones and any exclusion zones will no longer be in place.**

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental impact. For these Eps, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website at woodside.com. You can also subscribe to receive updates on our consultation activities on our website.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and the Department of Environment, Energy and Climate Action (DEECA) for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **26 August 2023.**

**Activity summary:**

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

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| | (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is anticipated to be around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign is scheduled to avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal is planned to be be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 - 60 days | ~15 - 30 days | ~15 - 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including | Pipeline bundle encompassing: | Pipeline bundle encompassing: |

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| | xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each | • 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/Nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |
| ***Relevant Fisheries:*** | **Commonwealth fisheries**<br>Operational area:<br>Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine<br>Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook<br>Southern Squid Jig Fishery | | |

EMBA:
Bass Strait Central Zone Scallop Fishery
Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine
Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook
Southern Squid Jig Fishery

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 26 August 2023.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) and/or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA and/or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan.

Regards,

**Woodside Feedback**

Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com

### 2.45.1 Reminder Email sent to Fishery Licence Holders — 18 August 2023

- Bass Strait Central Zone Scallop Fishery
- Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine
- Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook
- Southern Squid Jig Fishery

Dear Fishery Stakeholder

Woodside previously consulted you (via a letter dated 26 July 2023) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Information on the proposed activity is provided below and in the attached Consultation Information Sheet.

We would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 26 August 2023.

Kind regards,

Woodside Feedback

### 2.46 Email sent to Glenelg Shire — 19 June 2023

Dear Glenelg Shire

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.
A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for*

*the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.
If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **18 July 2023.**

### *Activity summary:*

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total). | |

| | | | |
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| | pursuant to General Direction 831. | Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around The Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered |

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| | may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools<br>• Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | for each group of equipment are as follows:<br><br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/nature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 18 July 2023.**
Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.
Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

### 2.46.1 Reminder Email sent to Glenelg Shire –– 11 July 2023

Dear Glenelg Shire

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **18 July 2023.**

Regards

**Woodside Feedback**

### 2.47 Email sent to Port of Portland — 11 December 2023

Dear Andrew,

As part of Woodside's ongoing consultation for its current and planned activities, I would like to advise the Port of Portland that Woodside is preparing three Environment Plans (EPs) for Minerva decommissioning activities as follows:

1. Minerva Plug and Abandonment Environment Plan
    - Well plug and abandonment (P&A) of two former production wells and two exploration wells using a moored Mobile Offshore Drilling Unit (MODU).
    - Removal of well infrastructure above the mudline.
    - Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.
2. Minerva Decommissioning and Field Management Environment Plan
    - Removal of the Minerva gas pipeline bundle in Commonwealth waters.
    - Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth Waters.
3. Minerva Decommissioning and Field Management Environment Plan (State Waters)
    - Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State Waters.

Woodside would like to offer the Port of Portland the opportunity to review or provide comment on the activity. Please note that these assets were previously operated by BHP Petroleum Pty Ltd. (BHP) and, as such, the Port of Portland may have received previous consultation materials for this

activity. Following the merger of BHP and Woodside, the EPs have now been revised to align to Woodside's approaches and processes.

Information is presented as follows:

- A Consultation Information Sheet providing information on the proposed activities is available here. This is a combined Information Sheet addressing both the Commonwealth and State operations for Minerva decommissioning activities.

- Oil Pollution First Strike Plans for each of the above EPs are also attached. These will form part of each approval submission in accordance with (as relevant): the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth); the Victoria *Offshore Petroleum and Greenhouse Gas Storage Act 2010*; and the Victoria *Offshore Petroleum and Greenhouse Gas Storage Regulations 2021*.

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977.

Your feedback and our response will be included in our Environment Plans. The two Commonwealth EPs will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth). The State waters EP will be submitted to Earth Resources Regulation (ERR) branch of the Department of Energy, Environment and Climate Action (DEECA) for acceptance in accordance with the Victoria *Offshore Petroleum and Greenhouse Gas Storage Act 2010* and the Victoria *Offshore Petroleum and Greenhouse Gas Storage Regulations 2021*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or ERR upon submission of the Environment Plan in order for this information to remain confidential to the respective regulatory body.

Many thanks,

### 2.48 Email sent to Parks Victoria — 21 December 2023

Dear Parks Victoria

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with

an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

**A 500 m temporary exclusion zone will be in place around the survey vessels to manage vessel movements. There are no restrictions to other vessels within the operational area apart from being advised to take care during the survey vessel activities and to maintain the 500 m exclusion zone around those vessels. Once the decommissioning activities are completed, the petroleum safety zones and any exclusion zones will no longer be in place.**

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **31 January 2024.**

***Activity summary:***

| Minerva Decommissioning Activities | Well P&A | Facilities Removal (Commonwealth Waters) | Facilities Removal (State Waters) |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |

| | | | |
|---|---|---|---|
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br><br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV).<br><br>Ongoing field management activities (equipment monitoring and inspection). | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br><br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br><br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br><br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br><br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the | A temporary 500 m exclusion zone will apply around The Construction Support Vessel and the associated project vessels during pipeline removal activities | |

| | | | |
|---|---|---|---|
| | associated project vessels during P&A activities. | | |
| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br><br>2 x exploration wells.<br><br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br><br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br><br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br><br>Inline field equipment comprising:<br><br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br><br>Equipment from wells to the pipeline bundle:<br><br>• Two ~85 m Gas Production Spools<br>• Four lengths of Chemical Injection Spools | Pipeline bundle encompassing:<br><br>• 5.0 km of 10-inch steel pipeline<br><br>• 2 lengths of Chemical Injection Lines<br><br>• 1 length of Electro-Hydro Umbilical (EHU)<br><br>• 832 Piggyback clamps<br><br>• Stabilisation structures<br><br>The recovery method options being considered for each group of equipment are as follows:<br><br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | • Two lengths of Electric Flying Leads (EFLs)<br>• Two lengths of Hydraulic Flying Leads (HFLs)<br><br>The recovery method options being considered for each group of equipment are as follows:<br><br>• Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br><br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br><br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br><br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br><br>~5 km from the Twelve Apostles Marine Park |

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|---|---|
| ***Relevant Fisheries:*** | **Commonwealth fisheries**<br>Operational area:<br>Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine<br>Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook<br>Southern Squid Jig Fishery<br><br>EMBA:<br>Bass Strait Central Zone Scallop Fishery<br>Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine<br>Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook<br>Southern Squid Jig Fishery<br><br>**State fisheries**<br>Operational area and EMBA:<br>Victorian Rock Lobster<br>Victorian Giant Crab<br>Abalone<br>Wrasse<br>Snapper |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 31 January 2024.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

### 2.49 Email sent to Port Campbell Community Group — 31 May 2023

Dear Port Campbell Community Group

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.
Regulatory approvals are being sought for the following activities in Commonwealth and State waters:
**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

Following recent changes to Commonwealth Environment Plan (EP) consultation requirements, Woodside is now consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs, as well as additional information or changes to information previously provided, where applicable. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

***Activity summary:***

| **Minerva Decommissioning Activities** | **Well P&A** | **Facilities Removal (Commonwealth Waters)** | **Facilities Removal (State Waters)** |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Field Decommissioning EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells). Removal of wellhead and subsea trees, by the MODU or | Removal of the pipeline bundle, well tie in spools and flying leads, pipeline structures and stabilisation materials. | Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |

| | | | |
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| | Construction Support Vessel (CSV).<br>Ongoing field management activities (equipment monitoring and inspection). | | |
| **Commencement date** | Earliest P&A start is around Q2 2024, subject to approvals, MODU vessel availability and weather constraints.<br>P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>The pipeline removal campaign will avoid activities being conducted in the peak blue pygmy whale foraging season.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (30-60 days total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPS)** | P&A and Facilities Removal simultaneous operations (SIMOPs) are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the wells. | The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route and 1,500 m around the wells | |
| **Exclusion zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the Construction Support Vessel and the associated project vessels during pipeline removal activities | |
| **Estimated duration** | ~45 – 60 days | ~15 – 30 days | ~15 – 30 days |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as | Pipeline bundle encompassing:<br>· 4.95 km of 10-inch steel pipeline<br>· 2 lengths of Chemical Injection Lines | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU) |

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| | practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | · 1 length of Electro-Hydro Umbilical (EHU)<br>· 821 Piggyback clamps<br>· Stabilisation structures<br>Inline field equipment comprising:<br>· 2 Umbilical Termination Assemblies and protection structures<br>· 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>· 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>· Two ~85 m Gas Production Spools<br>· Four lengths of Chemical Injection Spools<br>· Two lengths of Electric Flying Leads (EFLs)<br>· Two lengths of Hydraulic Flying Leads (HFLs)<br>The recovery method options being considered for each group of equipment are as follows:<br>· Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool. | • 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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| | | Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | · Semi-submersible Mobile Offshore Drilling Unit (MODU).<br>· MODU supported by 2 – 3 offshore support vessels | · Multipurpose CSV<br>· Supply Vessel | · Multipurpose CSV<br>· Supply Vessel<br>· Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 29 June 2023.**
Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.
Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth) and the Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010.
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

Regards

**Woodside Feedback**

#### 2.49.1 Email sent to Port Campbell Community Group — 23 June 2023

Dear Port Campbell Community Group

Woodside previously consulted you (see email below) on Woodside's plans to undertake subsea decommissioning activities for the Minerva Field.

Proposed activities will occur in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 15 – 60 m.

Regulatory approvals are being sought for the following activities:

**Minerva Plug and Abandonment (P&A) and Field Management Environment Plan (EP)**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).
- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.

**Minerva Field Decommissioning EP**

- Removal of the Minerva 10-inch gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 8-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC/PL33(V), in Victorian State waters. The pipeline is proposed to be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from the coastline.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website.

If you have feedback specific to the proposed activities described in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **29 June 2023.**

Regards

**Woodside Feedback**

# 3. Activity Update (January 2024)

## 3.1 Activity Update – Information Sheet – Minerva Decommissioning Environment Plan — 12 January 2024

Woodside Energy

CONSULTATION

INFORMATION SHEET

January 2024

# ACTIVITY UPDATE – MINERVA DECOMMISSIONING ENVIRONMENT PLANS

## OTWAY BASIN, SOUTH EAST AUSTRALIA

### Overview

Woodside Energy (Victoria) Pty Ltd (Woodside) consults relevant persons in the course of preparing an Environment Plan (EP) to notify them, obtain their input and to assist Woodside to confirm current measures or identify additional measures, if any, that could be taken to lessen or avoid potential adverse effects of the proposed activity on the environment. This is the intended outcome of consultation.

Woodside's aim is to ensure the activity is carried out in a manner that is consistent with the principles of Ecologically Sustainable Development (ESD), by which the environmental impacts and risks of the activity are reduced to As Low As Reasonably Practicable (ALARP) and of an acceptable level. We want relevant persons whose functions, interests or activities may be affected by the proposed activity to have the opportunity to provide feedback on our proposed activity, in accordance with the intended outcome of consultation.

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field (previously operated by BHP Petroleum (Victoria) Pty Ltd (BHP)), located in Commonwealth waters in Petroleum Licence VIC-L22 and Pipeline Licence VIC-PL33, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria and in water depths of approximately ~50 – 60 m. The pipeline also traverses State waters in Pipeline Licence VIC-PL33(v). Woodside plans to remove all subsea infrastructure and equipment from the seabed associated with the Minerva development in Commonwealth and State waters **(Figure 1)**.

Regulatory approvals are being sought for the following activities:

### Minerva Plug and Abandonment (P&A) and Field Management EP

- Well P&A of two former production wells and two exploration wells by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).

### Minerva Decommissioning and Field Management EP

- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.
- Removal of the Minerva gas pipeline bundle **(Figure 2)** in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 10-inch concrete coated rigid-steel flowline, bunded with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth Waters comprising of five inline pipeline structures, five tie-in spools, and associated equipment and stabilisation material.

### Minerva (State Waters) Decommissioning EP

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC-PL33(v), in Victorian State waters. The pipeline will be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from shore.

Decommissioning of the Minerva field is planned to be undertaken following acceptance of the EPs. Equipment removal activities are planned to commence in Q3 2024 and require approximately three to five months, subject to vessel availability and weather constraints. The P&A activities are expected to commence in Q2 2025 and take approximately two to three months to complete. However, an earlier start in Q1 2025 may be required.

The P&A activities and subsea removal are required to be completed by 30 June 2025, as per the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) General Direction 831.

Following removal, Woodside proposes to dispose of infrastructure onshore in accordance with applicable requirements, assessing all options to reduce waste through reuse or recycling of recovered infrastructure.

The location of the Minerva infrastructure is summarised in **Table 1** and proposed decommissioning activities summarised in **Table 2**.

An EP for the P&A activities has previously been submitted to NOPSEMA for assessment under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023*. The Minerva Field Decommissioning EP will be submitted to NOPSEMA and the Minerva (State Waters) Decommissioning EP will be submitted to the Department of Energy, Environment and Climate Action (DEECA) under the *Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010*.

This Activity Update provides an overview of proposed activities under each of the three EPs. Woodside has revised the timing and duration of these proposed activities. These changes are in response to engineering work that has been completed and include:

- The timing and duration of the equipment removal and P&A activities have been updated to provide sufficient time to complete the activities.
- Woodside has identified that decommissioning work may encroach on the period between January and March 2025 depending on progress of the activities. This allows for the opportunity to undertake activities during calmer ocean conditions during this period. The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales including:
  - Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
  - Vessel speed limitations within the operational area during January to March and at other times when whales are observed
  - Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the MODU – if applicable
  - Using only moorings to maintain the MODU position, with no use of MODU thrusters.

Feedback from relevant persons as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and DEECA for assessment.

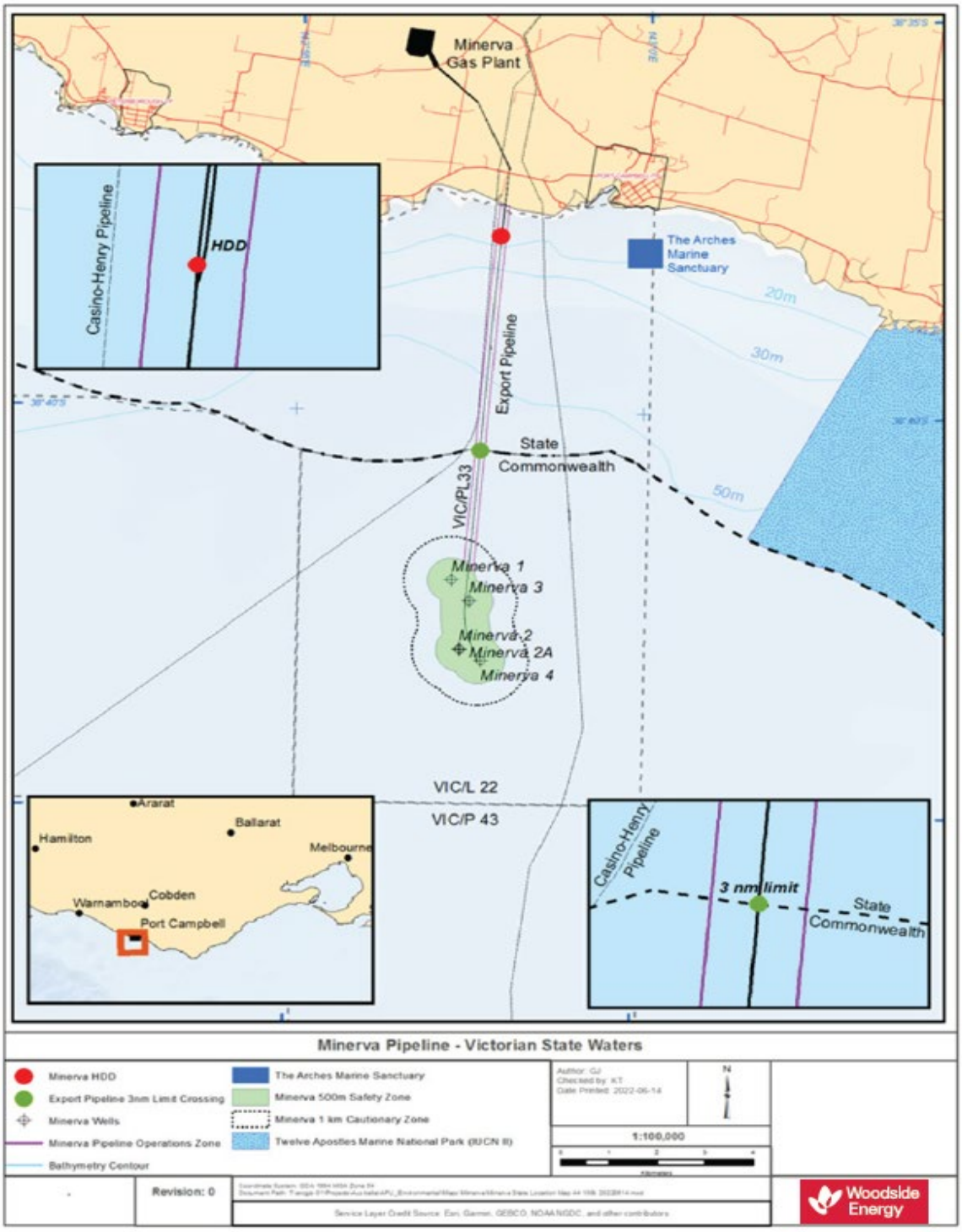



*Figure 1. Minerva Location Map*

## Minerva Decommissioning Background

The offshore wells were drilled in late 2002 and the offshore and onshore pipeline was laid in 2003. The construction of the onshore Minerva Gas Plant was completed in December 2004, and the facilities were commissioned and commenced production in January 2005.

The Minerva field reached the end of its economic production life in September 2019. Immediately following the cessation of production, the Minerva wells were suspended and the subsea system was left in a preserved state (i.e. wells isolated and production system flushed of hydrocarbons) for final decommissioning. The onshore gas plant was sold for reuse to another Operator. A vessel-based campaign was conducted in Q1 2021 to disconnect flowlines from wells and install barrier plugs.

## Communications with Mariners

Woodside will implement an Operational Area for the P&A and equipment removal activities. All planned activities will be restricted to within the Operational Area.

Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area and remain clear of the Exclusion Zone.

It is anticipated that vessels and MODU will operate 24 hours per day for the duration of the P&A activities. The duration of these activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

**Well P&A:** The Operational Area includes the area encompassing an approximate 1,500 m radius around each of the four wells within VIC-L22. A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.

**Facilities Removal:** The Operational Area includes the area encompassing an approximate 1,000 m corridor along the pipeline route. It is intended that a temporary 500 m exclusion zone will apply around the Construction Support Vessel (CSV) and the associated project vessels during removal activities.

*Figure 2. Minerva Pipeline Bundle Arrangement*

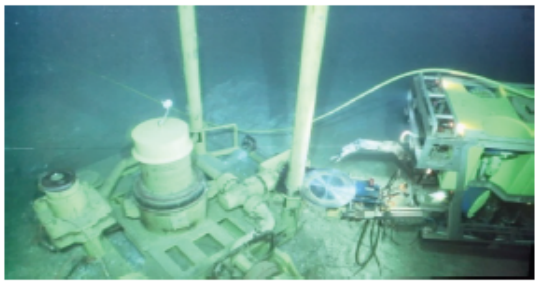


*Figure 3. Typical Subsea Cutting Activity*

## Decommissioning Assessment

Woodside has undertaken an assessment to identify potential impacts and risks to the environment and relevant persons, considering timing, duration, location and environmental aspects of the planned activities. A number of mitigation and management measures will be implemented and are summarised in **Table 3**. Further details will be provided in the EPs.

In preparing the EPs, Woodside's intent is to minimise environmental and social impacts associated with the proposed activities. We are seeking comments and input from relevant persons to inform our decision making and for the intended outcome of consultation (see above).

## Joint Venture

Woodside is the Operator of Minerva field on behalf of the Joint Venture Partners. The participants are Woodside Energy (Victoria) Pty Ltd and Cooper Energy (MF) Pty Ltd.

We welcome your feedback by **12 February 2024.**

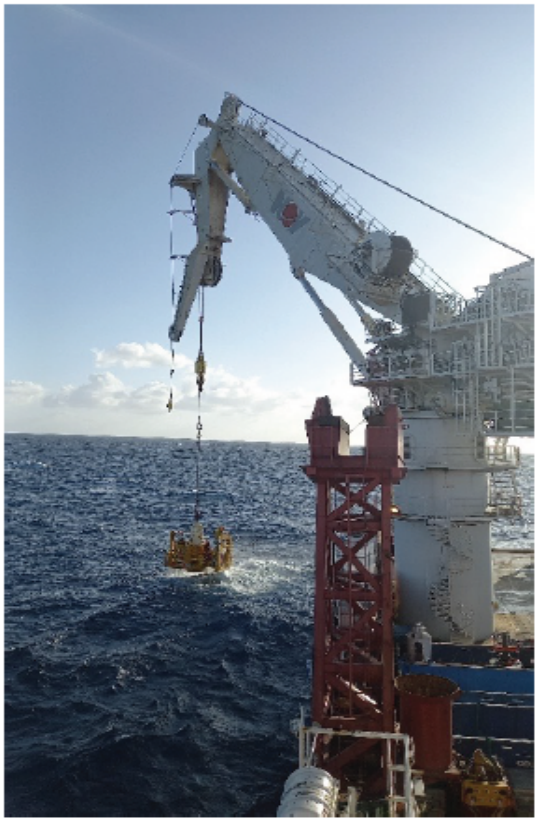


*Figure 4. Typical Subsea Equipment Recovery Activity*

**Table 1. Activity summary**

| Environment Plan | Minerva Plug and Abandonment and Field Management EP | Minerva Decommissioning and Field Management EP | Minerva (State Waters) Decommissioning EP |
|---|---|---|---|
| Summary | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or CSV. | Ongoing field management activities (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle, well tie-in spools and flying leads, pipeline structures and stabilisation materials. | Ongoing pipeline management activities (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign. |
| Commencement date | P&A start is around Q2 2025. However, it may commence Q1 2025, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (three to five months in total).<br>Equipment removal in Commonwealth Waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| Simultaneous Operations (SIMOPs) | P&A and Facilities Removal SIMOPs are not planned but may occur depending on vessel and equipment availability. | | |
| Petroleum Title | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| Operational Area | 1,500 m radius around each of the wells | 1,000 m buffer along the pipeline route and around subsea infrastructure. | |
| Exclusion Zones | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. | |
| Estimated duration | Two to three months | Three to five months (removal activities in Commonwealth and State waters) | |
| Location and water depth | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south south-west of Port Campbell in ~15 m to 53 m water depth |

| Environment Plan | Minerva Plug and Abandonment and Field Management EP | Minerva Decommissioning and Field Management EP | Minerva (State Waters) Decommissioning EP |
|---|---|---|---|
| Infrastructure | 2 x production wells, including xmas tree completion<br>2 x exploration wells<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• 2 -85 m Gas Production Spools and a 1.6 km crossover spool<br>• 2 -85 m Chemical Injection Spools<br>• 2 lengths of Electric Flying Leads (EFLs)<br>• 2 lengths of Hydraulic Flying Leads (HFLs)<br>Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of EHU<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a Control Flow Excavator (CFE) tool.<br>• Recovery methods may use diver assist and/or ROV in the shallow water |
| Vessels | • Semi-submersible MODU.<br>• MODU supported by 2 – 3 offshore support vessels. | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| Distance to nearest marine park/nature reserve | -8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>-6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | -5.44 km from The Arches Marine Sanctuary<br>-4.74 km from the Twelve Apostles Marine National Park | -1.69 km from The Arches Marine Sanctuary<br>-5 km from the Twelve Apostles Marine Park |

**Table 2. Equipment locations (coordinates are GDA94)**

| Subsea Infrastructure | Latitude (South) | Longitude (East) |
|---|---|---|
| Minerva-1 well | -38° 42' 0.6.885" | 142° 57' 17.278" |
| Minerva-2A well | -38° 42' 59.190" | 142° 57' 25.742" |
| Minerva-3 well | -38° 42' 22.718" | 142° 57' 32.997" |
| Minerva-4 well | -38° 43' 0.7368" | 142° 57' 44.023" |
| Pipeline start | -38° 71' 89.530" | 142° 96' 14.700" |
| Pipeline Commonwealth/State boundary point | -38° 40' 29.11" | 142° 57' 39.42" |
| Pipeline end | -38° 62' 96.930" | 142° 96' 48.470" |

# ENVIRONMENT THAT MAY BE AFFECTED (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where planned activities and unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from both the direct and indirect activities that are the subject of the EPs.

The EMBA does not represent the predicted impact of the highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths that a highly unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release.

This means that in the highly unlikely event that a hydrocarbon release does occur, the entire EMBA will not be affected and the specific and minimal part of the EMBA that is affected will only be known at the time of the release.

There are two potential hydrocarbon release EMBAs for Minerva P&A and decommissioning activities, reflecting the activities and the different locations that the activities will occur.

Each of the EMBAs are presented in **Figure 5** below and summarised as:

- **Loss of Well Containment EMBA:** Primary activity of the Well P&A EP – P&A of 4 production/exploration wells by a MODU.
- **Vessel Spill Marine Diesel Oil (MDO) EMBA:** Primary activity for the Minerva Decommissioning EP and the Minerva (State Waters) Decommissioning EP– Recovery of subsea infrastructure using a CSV.

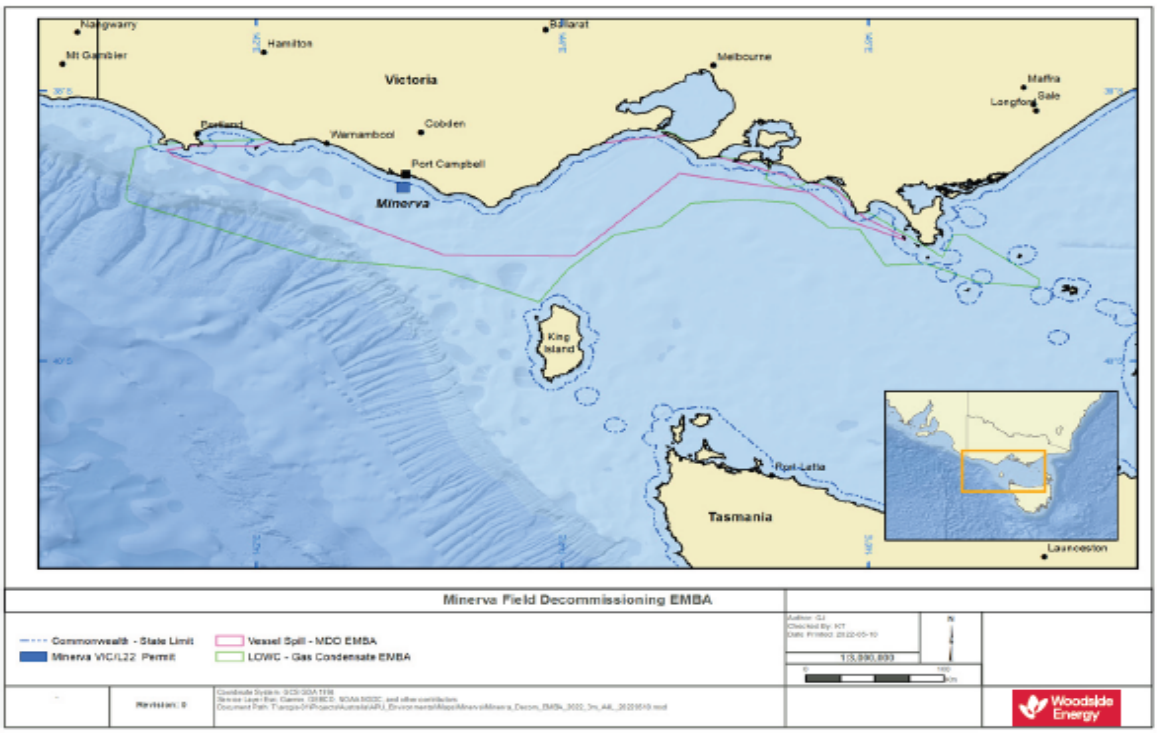



*Figure 5. Environment that may be affected (EMBA) for the proposed decommissioning activities.*

## Mitigation and management measures

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from the decommissioning activities considering timing, duration and location.

A number of mitigation and management measures for the P&A and decommissioning of the Minerva field are outlined in **Table 3**. Further details will be provided in the EPs.

**Table 3. Summary of key risks and/ or impacts and management measures for the Minerva Decommissioning activities. Key risks and/ or impacts and management measure apply to activities occurring within the Operational Area.**

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| **Planned** | | | |
| Physical presence and interactions with other marine users | • The activities will be undertaken using a range of project vessels, namely a MODU and CSV, along with general support vessels. A 1,000 m exclusion zone will apply around the MODU and a 500 m exclusion zone around the CSV.<br>• Presence of vessels in the safety and exclusion zones has the potential to result in interaction with third-party marine users. | • Interference with commercial shipping.<br>• Interference with commercial fishing activity.<br>• Displacement of recreational fishing activity.<br>• Interaction with existing oil and gas infrastructure. | • 500 m gazetted petroleum safety zones maintained around Minerva-3 and Minerva-4 wells.<br>• 1500 m operational area maintained around the wells and 1000m along the pipeline corridor during activities.<br>• 1,000 m exclusion zone established around the MODU and 500 m exclusion zone around the CSV.<br>• Activity support vessel(s) to communicate with third-party vessels to assist in maintaining the exclusion zones.<br>• Consultation with relevant persons for the consultation outcomes. |
| Physical presence – disturbance to benthic habitat from MODU anchoring, P&A and removal activities and ROV operations. | Seabed disturbance may result from:<br>• Removal of excess marine growth from infrastructure prior to removal using high-pressure water jetting.<br>• Infrastructure deburial and short-term wet parking of infrastructure may be required.<br>• MODU mooring and transponder installation for MODU positioning.<br>• Cutting and recovery of infrastructure on the seabed.<br>• Temporary equipment laydown or ROV operations.<br>• Post decommissioning sediment sampling. | • P&A and subsea removal activities including infrastructure deburial, marine growth removal, cutting and recovery of infrastructure, MODU mooring installation, ROV operations and temporary laydown of equipment may result in localized, temporary physical disturbance to benthic habitat and indirect disturbance to benthic habitats from sedimentation.<br>• Seabed disturbance as a result of these activities could occur within a localized radius of the Minerva wells and subsea infrastructure locations. Near this area, it is possible that benthic communities may be reduced or altered, leading to a highly localized impact to epifauna and infauna benthic communities. | • Use controlled recovery techniques to limit seabed disturbance.<br>• Subsea infrastructure to be marked on navigational charts until removal.<br>• Project specific mooring design analysis for anchored MODU to reduce the likelihood of anchor drag leading to seabed disturbance.<br>• All infrastructure and temporary wet parked equipment will be removed from the seabed on completion of the P&A and removal activities. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Routine Discharges: MODU and Project Vessels | • Sewage, greywater and putrescible waste will be discharged from MODU and project vessels.<br>• Bilge water, deck drainage, brine and cooling water may also be discharged. | • The main impact associated with ocean disposal of sewage and other organic wastes (i.e. putrescible waste) is eutrophication. Eutrophication occurs when the addition of nutrients, such as nitrates and phosphates, causes adverse changes to the ecosystem including short-term, localized impacts to water quality.<br>• No significant impacts are expected to water quality from planned discharges because of the minor quantities involved, the expected localized mixing zone, and the high level of dilution into the open water marine environment of the Operational Area.<br>• Similarly, although some marine fauna may transit the Operational Area, potential for impacts remains low due to the localized nature of discharges and rapid dilution. | • All routine marine discharges will be managed according to legislative and regulatory requirements. |
| Discharges: Decommissioning Activities | • During infrastructure removal, residual fluid remaining in infrastructure will be drained to the surrounding environment. Fluid includes treated seawater with residual hydrocarbon (less than 5ppm) and other minor volumes of chemicals such as monoethylene glycol (MEG), biocide and water-based hydraulic fluid.<br>• Chemical use may be required to remove marine growth and calcium/scale buildup<br>• Routine P&A discharges including well kill and well clean up brine, water-based drilling fluids, cement and cementing fluids, residual wellbore fluids including residual hydrocarbon.<br>• Routine discharges of subsea control fluid, treated seawater and residual wellbore fluids during subsea tree preparation for P&A.<br>• Potential non-routine discharge of unused bulk product. | • Localised short-term impacts to water quality from the release of seawater ballast and residual chemicals and hydrocarbons. | • All chemicals intended or likely to be discharged into the marine environment reduced to ALARP using the Woodside chemical assessment process.<br>• Fluids contaminated with hydrocarbons will be treated to meet specified discharge limits prior to discharge or contained. If discharge specifications are not met the fluid will be returned to shore.<br>• During well kill activities, if formation water and any wellbore fluids that are not able to flared, will be processed through a water filtration treatment package prior to discharge to the environment.<br>• No bulk cement, bentonite or barite will be discharged without a documented environmental assessment. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Light Emissions | • Project vessels and MODU will use external lighting to navigate and conduct safe operations at night.<br>• Vessel lighting will also be used to communicate the vessel's presence to other marine users (i.e. navigation/ warning lights).<br>• Light emissions may be generated by flaring during well P&A if required. Flaring is only expected to occur for short durations (hours). | Light emissions may affect fauna (such as marine turtles and birds) in two main ways:<br>1. Behaviour: artificial lighting has the potential to create a constant level of light at night that can override natural levels and cycles.<br>2. Orientation: if an artificial light source is brighter than a natural source, the artificial light may override natural cues, leading to disorientation.<br>• During the decommissioning activities, there is potential a small number of seabirds and migratory shorebirds may be attracted to lighting on the MODU and project vessels. The Operational Area overlaps ten seabird species foraging BIAs. Potential impacts are expected to be limited to localised behavioural disturbance to isolated individuals, with no significant impact to seabird foraging.<br>• The Operational Area does not overlap any critical habitat for marine turtle species. Localised behavioural impacts to individual foraging marine turtles from light emissions generated during the activity are considered negligible, with no impact predicted at a community or population level. | • Lighting limited to the minimum required for navigational and safety requirements, except for emergency events.<br>• Flaring restricted to a duration necessary to perform the activity for well bleed-off.<br>• Implementation of a Seabird Management Plan and relevant controls in the National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds (2020). |
| Noise Emissions | • MODU and project vessels will generate noise both in the air and underwater due to the operation of thruster engines, propellers, and the use of cutting tools, or positioning equipment subsea. | Underwater noise may affect marine fauna, including marine mammals in three main ways:<br>1. By causing direct physical effects, including injury or hearing impairment. Hearing impairment may be temporary or permanent.<br>2. Through disturbance leading to behavioural changes or displacement from important areas. The occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation.<br>3. By masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey).<br>• Predicted noise levels from the MODU and project vessels may have short term behavioural impacts to Pygmy Blue Whales and Southern Right Whales transiting within or utilising a Biologically Important Area (BIA).<br>• Marine turtle presence is expected to be infrequent, and potential impacts from predicted noise levels are not considered to be ecologically significant at a population level.<br>• Fish, sharks and rays may demonstrate avoidance or attraction behaviour to the noise generated by the activity. However, potential impacts from predicted noise levels are not considered to be ecologically significant at a population level.<br>• Woodside has proposed controls that when implemented will ensure activities will not have physical and/or observable biologically significant behavioural disturbance (including breeding, foraging and resting on migration) on these species. Noise levels are expected to be localised, with possible effects limited to, at worst, short-term avoidance behaviour. | • Compliance with legislative and regulatory requirements for interactions with marine fauna to prevent adverse interactions.<br>• Implementation of a Blue Whale and Southern Right Whale Adaptive Management Plan which details adaptive management measures for vessels operating on DP to reduce the risk of displacement of blue whale and southern right whales during the petroleum activities.<br>• Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period.<br>• Vessel speed limitations within the operational area during January to March and at other times when whales are observed.<br>• Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU).<br>• Using only moorings to maintain the MODU position, with no use of MODU thrusters.<br>• Whale sightings to be reported to support greater environmental knowledge. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Atmospheric Emissions | • Atmospheric emissions will be generated by the MODU and project vessels from internal combustion engines and incineration activities.<br>• Atmospheric emissions will be generated from venting of residual gas and contingent flaring from the MODU during P&A activities. | • Emissions from MODU and project vessels could result in temporary, localised reductions in air quality in the immediate vicinity of the vessels.<br>• Venting or flaring of hydrocarbon gas may result in a short-lived localised gas plume and a minor contribution to greenhouse gas emissions. | • Compliance with legislative and regulatory requirements for marine air pollution.<br>• Flaring and venting of hydrocarbons is restricted to a duration necessary to perform the P&A activity. |
| **Unplanned** | | | |
| Unplanned Hydrocarbon Release – Loss of Well Containment during P&A | • Accidental loss of wellbore fluids and hydrocarbons to the marine environment due to loss of well containment may occur, caused by failure of well barriers during the P&A activity. | • A loss of well containment and resulting blowout event is considered to be a highly unlikely event as it has occurred only very infrequently in the industry, and never in the Company's history.<br>• Modelling a loss of well containment was undertaken with the outcome, EMBA illustrated in **Figure 5.**<br>• Minerva condensate is a light, non-persistent natured hydrocarbon with a high tendency to evaporate.<br>• A release of gas condensate from a loss of well control has the potential to impact an array of receptors. Potential impacts across the whole EMBA were assessed including relevant ecological and socio-economic receptors. Given the limited volumes, low wax content and non-persistent nature of condensate, potential impacts are not expected to persist. The residual risk has been assessed to be tolerable. | **Preventing loss of well containment**<br>• Wells to be permanently plugged in compliance with an accepted Well Operating Management Plan including implementation of barriers to prevent a loss of well containment.<br>• Checks completed during well P&A operations to establish minimum acceptable standard of well integrity.<br>• An approved Source Control Emergency Response Plan will be prepared prior to P&A, including feasibility and specific considerations for relief well.<br>• Subsea blow out preventer specification, installation and testing compliant with internal Woodside Standards and international requirements.<br><br>**Spill Response arrangements**<br>• Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP)/Emergency Response Manual (ERM) will be tested to ensure the OPEP can be implemented as planned.<br>• Emergency response activities would be implemented in line with the OPEP/ERM. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Unplanned Hydrocarbon Release – Vessel Collision | • Project vessels will use marine diesel fuel.<br>• In the unlikely event of a vessel collision involving a project vessel or third-party vessels during the activity, there is potential for a release of marine diesel fuel if the collision has enough force to penetrate the vessel hull in the exact location of the fuel tank. | • In the highly unlikely event of a vessel collision causing a release of hydrocarbons, impacts to water quality and marine ecosystems could occur.<br>• Modelling of a surface releasee of marine diesel was undertaken at a representative location within the Operational Area.<br>• Marine diesel is a relatively volatile, non-persistent natured hydrocarbon with up to 41% evaporating within the first 24 hours.<br>• A release of marine diesel from a vessel collision has the potential to impact an array of receptors. Potential impacts across the whole EMBA were assessed including relevant ecological and socio-economic receptors. Potential impacts are considered moderate to significant but are unlikely to persist due to the nature of the marine diesel. The residual risk has been assessed to be tolerable. | **Preventing Vessel Collision**<br>• Comply with regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements.<br>• Consult with relevant persons so that other marine users are informed and aware, reducing the likelihood of a collision.<br>• Establish temporary exclusion zones around vessels which are communicated to marine users to reduce the likelihood of collision.<br>• Develop a management plan for simultaneous operations where multiple campaigns occur concurrently in the same Operational Area.<br>**Spill Response Arrangements**<br>• Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP)/Emergency Response Manual (ERM) will be tested to ensure the OPEP can be implemented as planned.<br>• Emergency response activities would be implemented in line with the OPEP/ERM. |
| Chemical and Hydrocarbon Spills (Deck Spills and Bunkering) | • Accidental loss of chemicals or hydrocarbons to the marine environment during bunkering/ refuelling may occur caused by partial or total failure of a bulk transfer hose or fittings due to operational stress or other integrity issues.<br>• Accidental spills of chemicals or hydrocarbons from MODU or project vessel deck activities and equipment. | • Accidental loss of such chemicals from the MODU or vessels to the marine environment could occur as a result of failure of bulk transfer hoses or fittings during bunkering, spillage during handling, inadequate bunding and/ or storage, inadequate method of securing or tank/ pipework failure, leak from equipment or rupture or failure of ROV hydraulic hoses whilst underwater.<br>• Spills from bunkering/refuelling or deck activities could result in short term, localised impacts to water quality or marine fauna in the immediate area surrounding the spill. | • Compliance with legislative and regulatory requirements for the prevention of marine pollution.<br>• Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process.<br>• Liquid chemical and fuel storage areas bunded or secondarily contained when they are not being handled or temporarily moved.<br>• Maintain and locate spill kits in close proximity to hydrocarbon storage and deck areas for use to contain and recover deck spills.<br>• Appropriate bunkering equipment kept and maintained, and contractors to follow procedures and requirements for bunkering and refuelling to reduce the likelihood of a spill. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Unplanned Discharge of Solid Hazardous/ Non-Hazardous Waste/ Equipment | • Accidental, unplanned loss of hazardous or non-hazardous solid wastes/equipment to the marine environment may occur if dropped or blown overboard. | • The potential impacts of hazardous or non-hazardous solid wastes and equipment accidentally discharged to the marine environment include contamination of the environment as well as secondary impacts relating to potential contact of marine fauna with wastes.<br>• The temporary or permanent loss of waste materials/ equipment into the marine environment is not likely to have a significant environmental impact, based on the location of the Operational Area, the types, size and frequency of wastes that could occur, and species present. | • Compliance with legislative and regulatory requirements for the prevention of marine pollution and handling of hazardous wastes.<br>• Implement a Waste Management Plan.<br>• Solid waste/equipment dropped to the marine environment will be recovered where safe and practicable to do so.<br>• Where retrieval is not practicable and/ or safe, material items (property) lost to the marine environment will undergo an impact assessment and will be added to the inventory for the title. |
| Unplanned Interaction with Marina Fauna | • Accidental collision between project vessels and protected marine fauna. | • Vessel movements have the potential to result in accidental collisions between the vessel (hull and propellers) and marine fauna.<br>• The risk of vessel collision with marine mammals is present year-round but is seasonally elevated for species such as pygmy blue whales during foraging periods and southern right whales when resting on migration (May – October). Given the short duration of activities within the Operational Area, and the slow speeds at which project vessels operate collisions with cetaceans are considered highly unlikely. | • Compliance with legislative and regulatory requirements for interactions with marine fauna to reduce the likelihood of a collision occurring. |
| Disturbance to Seabed from Dropped Objects and Unplanned Anchor Drag | • Accidental, unplanned dropping of objects overboard from project vessels during recovery operations.<br>• High energy weather conditions, occurring while the MODU is on station, can lead to excessive loads on the mooring lines, resulting in failure (either anchor(s) dragging or mooring lines parting). | • In the unlikely event of an object being dropped or mooring failure, potential environment effects should be limited to minor physical damage to seabed and benthic communities in a localized area. | • MODU and project vessel inductions include control measures and training for crew in dropped object prevention.<br>• Lost waste/ dropped objects will be recovered where safe and practicable to do so.<br>• Procedures for lifts, bulk transfers and cargo loading if an unplanned object release does occur.<br>• Project-specific Mooring Design Analysis and mooring system testing undertaken to reduce the likelihood of mooring failure or anchor drag. |

| Potential Impact/Risk | Description of Source of Potential Impact/Risk | Description of Potential Impacts | Proposed Mitigation and/or Management Measure |
|---|---|---|---|
| Accidental Introduction of Invasive Marine Species (IMS) | • Vessels transiting to the Operational Area may be subject to marine fouling whereby organisms attach to the vessel hull.<br>• Organisms can also be drawn into ballast tanks during onboarding of ballast water.<br>• IMS could also be present as biofouling on submersible equipment. | • There is potential for the transfer of IMS between the project vessels while in its currently location within the Operational Area. | • Ballast water and biofouling will be managed according to regulatory requirements, including the Australian Ballast Water Management Requirements, and the Australian Biofouling Management Requirements, as applicable.<br>• Woodside's IMS risk assessment process will be applied to the MODU, project vessels and submersible equipment entering the Operational Area. |
| **Indirect** | | | |
| Waste Generation | • Removal of the Minerva subsea infrastructure will result in the generation of waste products. | • Generation of waste products that require appropriate management. | • Waste generated on the MODU and project vessels, including recovered infrastructure will be managed in accordance with legislative requirements.<br>• Recovered infrastructure will be transported onshore by a licensed waste contractor for disposal including recycling and reuse opportunities.<br>• Infrastructure and resource recovery strategy that ensures waste is handled and disposed of in accordance with applicable legislation, monitors and tracks waste and sets KPIs for recycling and reuse of decommissioned infrastructure. |

### Feedback

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before **12 February 2024** via:

**E: Feedback@woodside.com**

**Toll free: 1800 442 977**

You can subscribe on our website to receive Consultation Information Sheets for proposed activities:
www.woodside.com/sustainability/consultation-activities.

Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) and the Department of Energy, Environment and Climate Action DEECA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.

Please note that your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) and the *Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA or DEECA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA or DEECA.

**www.woodside.com**

Woodside Energy

## 3.2 Activity Update – Summary Information Sheet – Minerva Decommissioning Environment Plan — 12 January 2024

Woodside Energy

CONSULTATION

# SUMMARY INFORMATION SHEET

January 2024

# MINERVA DECOMMISSIONING

This is a summary of the activity in plain English. More detailed information can be found in Activity Update - Minerva Decommissioning Environment Plans – January 2024.

## Overview

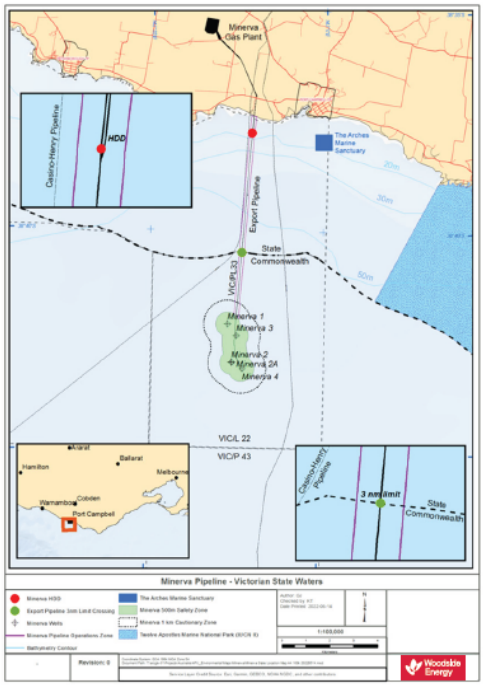
Woodside is planning to remove all subsea infrastructure and equipment from the seabed for the Minerva Field, located in 50-60 m of water approximately 11 km south-southwest of Port Campbell, Victoria.

Decommissioning is priority work for Woodside at the end of a project's life. The Minerva field produced gas for the world's energy needs for 15 years. We are fully committed to decommissioning in the area in a safe, timely, and culturally and environmentally responsible way. We are doing this work in carefully planned stages.

## Background

The Minerva Gas Plant commenced production in 2005 and ceased in 2019. At that time, the Minerva wells were isolated and the production system flushed of hydrocarbons. In 2021, the flowlines were disconnected from the wells and barrier plugs installed.

A map of the location is shown below.




## Work Method and Timing

The work can be considered in three parts:

- **Minerva plug and abandonment and field management**
  Four wells are proposed to be permanently plugged with cement using a moored Mobile Offshore Drilling Unit (MODU) and the well infrastructure above the mudline is proposed to be removed. Other vessels may provide support for this activity. The field will be monitored and inspected, as required, until the equipment is removed. A temporary 1000 m exclusion zone will apply around the MODU and other project vessels. This work is estimated to take between two and three months and must be completed by mid-2025.
- **Minerva Field decommissioning in State Waters**
  The gas pipeline bundle is proposed to be removed in State Waters, using hydraulic shears and supported by divers, where required. This work is proposed to be done at the same time as decommissioning in Commonwealth Waters. Minerva Field decommissioning in Commonwealth Waters. The gas pipeline bundle and other subsea infrastructure is proposed to be removed. Hydraulic shears will be used to cut the flowline and equipment will be recovered to a Construction Support Vessel (CSV) by crane. This work is estimated to take between three and five months (both Commonwealth and State waters) and must be completed by mid-2025. Figure 1, Figure 2 and Figure 3 show some of the structures and equipment used to remove them.

Woodside has revised the timing and duration of the proposed decommissioning activities to be able to remove equipment and complete the plugging of wells in calmer waters.

We want to avoid working during the pygmy blue whale foraging season (January to March) in 2025 but this may be required. We have put in extra protocols to limit any impact to whales. There is more information on this on page 2.

Figure 1. Minerva Pipeline Bundle Arrangement

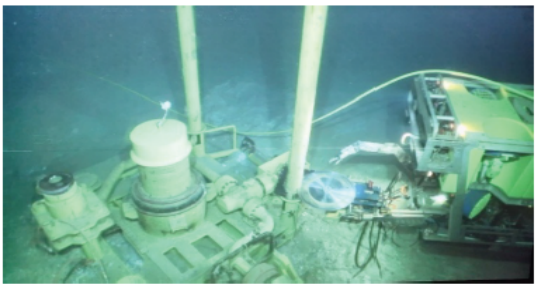


Figure 2. Typical Subsea Cutting Activity

## Environmental Impacts and Management

This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as reasonably practical.

Planned Activities are activities that Woodside knows will happen as part of this work program. For example, Planned Activities include other marine users being temporarily stopped from accessing the work area, and the marine vessels and drill rig used for the work may disturb the seabed, generate underwater noise, light emissions, atmospheric emissions, and routine discharges (such as sewage, waste, and deck drainage), and other authorised waste.

Unplanned Activities are not planned as part of the work program, but may be the result of an accident, incident, or emergency situation. It is highly unlikely that there will be an Unplanned Activity. Unplanned Activities might include a spill of fuel or oil, a release from a well, a spill on the deck of a vessel (such as during refuelling), unplanned seabed disturbance, accidental collision with marine animals, waste entering the environment and accidental introduction of invasive species from outside the region. Management measures will be in place to reduce the probability and impacts of these unplanned activities to as low as practical.

A table showing all planned and unplanned activities, potential impacts, and management measures for each is included in the Information Sheet.

One planned impact is noise emissions. Underwater noise may affect marine fauna. Part of the decommissioning work may need to happen in the period between January and March 2025 depending on progress due to weather. This is a peak foraging time for pygmy blue whales in the region.

Woodside will have measures to limit possible impacts to whales during this time. These are:

- Trained marine fauna observers (MFOs) on vessels to monitor for whales. Their only task is to monitor for whales. MFOs are trained to spot whales and know whale species, like the pygmy blue whale. MFOs are also trained on whale behaviour. They will know if a whale has any change in behaviour that might prevent it from foraging.
- Speed limits on vessels when whales are spotted.
- Using only moorings to hold the MODU position, with no use of MODU thrusters that create noise.
- Other measures when whales are detected including delaying vessel work and close monitoring when vessels come alongside the mobile offshore drilling unit (MODU).

Figure 3. Typical Subsea Equipment Recovery Activity

## Environment that may be affected

The total area over which unplanned events could have environmental impacts is shown in the maps below. This is referred to as the environment that may be affected (EMBA). In the highly unlikely event such as a fuel spill from a vessel collision or an oil release from one of the wells while drilling, the entire EMBA will not be affected. The part of the EMBA that is affected will only be known at the time of the event.

There are two potential EMBAs for the Minerva decommissioning, in the event of:

- Loss of Well Containment during the plugging and abandonment of four production/exploration wells in the Minerva Field by a MODU
- Vessel Spill Marine Diesel Oil (MDO) during the recovery of subsea infrastructure in the Minerva Field using a CSV.

Figure 4 shows the two potential EMBAs.

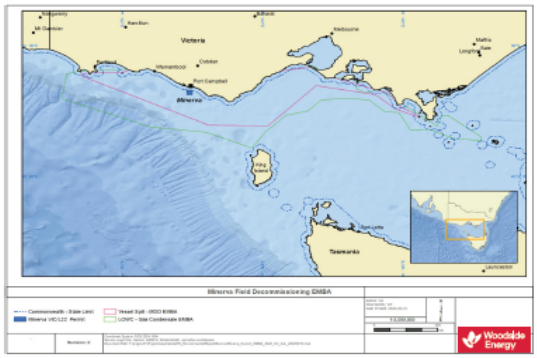



Figure 4. Environment that may be affected (EMBA) for the proposed activity.

**Conclusion**

Woodside produces energy that Western Australia, Australia, and the world needs. Woodside has made this energy from its oil and gas projects in Western Australia for over 35 years safely, reliably, and without any major environmental incident. Woodside is very proud of this legacy.

There are always potential risks with projects like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside complies with these laws and has systems in place to keep following these laws and rules for each project it undertakes.

If you would like information about Woodside's work to study and care for the environment, you can find it at https://www.woodside.com/sustainability/environment.

**Providing Feedback**

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or any concerns, you can tell Woodside by calling 1800 442 977 or send an email to Feedback@woodside.com.au.

If you would prefer to speak to the government directly, they can be contacted on +61 (0)8 6188 8700 or send an email to communications@nopsema.gov.au.

**Further Information**

You can find the details Consultation Information Sheet for proposed activity on our website: https://www.woodside.com/sustainability/consultation-activities.

www.woodside.com

Woodside Energy

## 3.3 Email sent to relevant Victorian Shire Councils — 12 January 2024

- Bass Coast Shire
- Colac Otway Shire
- Corangamite Shire Council

- City of Greater Geelong
- Mornington Peninsula Shire
- Moyne Shire
- Borough of Queenscliffe
- South Gippsland Shire
- Warrnambool City / Shire Council
- Glenelg Shire

Dear (*insert relevant council name)*

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
- Vessel speed limitations within the operational area during January to March and at other times when whales are observed
- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) – if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority

(NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Regards

**Woodside Feedback**

#### 3.3.1 Email sent to relevant Victorian Shire Councils –– 25 January 2024

- Bass Coast Shire
- Colac Otway Shire
- Corangamite Shire Council
- City of Greater Geelong
- Mornington Peninsula Shire
- Moyne Shire
- Borough of Queenscliffe
- South Gippsland Shire
- Warrnambool City / Shire Council
- Glenelg Shire

Dear (*insert name*)

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.4 Email sent to Surf Coast Shire – 12 January 2024

Dear Surf Coast Shire

Thank you again for your previous correspondence from June 2023. As stated in our reply, we would like to reiterate that the Minerva activities are decommissioning only, which means the removal of all

subsea infrastructure and equipment from the seabed associated with the Minerva development in Commonwealth and State waters. Minerva ceased operation in 2019.

As also stated, we are keeping you updated on all activities.

Woodside previously provided information to you (below) in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
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- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) – if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required

under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Regards

#### 3.4.1 Email sent to Surf Coast Shire – 25 January 2024

Dear Surf Coast Shire

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

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If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.5 Email sent to fishery stakeholders — 12 January 2024

- Abalone Victoria Central Zone
- Abalone Council Victoria
- Abalone Fishery (through Abalone Council Victoria)
- Victorian Scallop Fishermen's Association Inc
- VR Fish

Dear Fishery stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
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- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) – if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

**Feedback**
If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

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NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Regards

#### 3.5.1 Email sent to fishery stakeholders — 25 January 2024

- Abalone Victoria Central Zone
- Abalone Council Victoria
- Victorian Scallop Fishermen's Association Inc
- VR Fish

- Abalone Fishery (through Abalone Council Victoria)

Dear Fishery Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:
- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
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If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by 12 February 2024.

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Regards

Woodside Feedback

### 3.6 Email sent to Australian Bluefin Tuna Industry Association (ASBTIA) –– 12 January 2024

Dear Fishery Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:
- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

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- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

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**Feedback**

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#### 3.6.1 Email sent to Australian Bluefin Tuna Industry Association (ASBTIA) –– 25 January 2024

Dear fishery stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

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- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.7 Email sent to South Eastern Professional Fishermen's Association Inc — 12 January 2024

Dear Fishery Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

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While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

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#### 3.7.1 Email sent to South Eastern Professional Fishermen's Association Inc — 25 January 2024

Dear Fishery Stakeholder

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Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.8 Email sent to Commonwealth representative groups — 12 January 2024

- Commonwealth Fisheries Association (CFA)
- Bass Strait Scallop Industry Association (BSSIA)
- South East Trawl Fishing Industry Association (SETFIA)
- Southern Shark Industry Alliance (SSIA)

Dear Fishery Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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#### 3.8.1 Email sent to Commonwealth representative groups — 25 January 2024

- Commonwealth Fisheries Association (CFA)
- South East Trawl Fishing Industry Association (SETFIA)
- Southern Shark Industry Alliance (SSIA)
- Australian Fisheries Management Authority (AFMA)
- Bass Strait Scallop Industry Association (BSSIA)

Dear Fishery Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

Woodside Feedback

### 3.9 Email sent to Commonwealth fisheries — 12 January 2024

- Bass Strait Central Zone Scallop Fishery
- Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine
- Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook
- Southern Squid Jig Fishery

Dear Fishery Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

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The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

#### 3.9.1 Email sent to Commonwealth fisheries — 25 January 2024

- Bass Strait Central Zone Scallop Fishery
- Southern and Eastern Scalefish and Shark Fishery – CTS and Danish Seine
- Southern and Eastern Scalefish and Shark Fishery – Shark Gillnet and Shark Hook
- Southern Squid Jig Fishery

Dear

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

### 3.10 Email sent to State fishery stakeholders –– 12 January 2024

- Warrnambool Professional Fishermen's Association
- Victoria Rock Lobster Association (VRLA)
- Eastern Victorian Rock Lobster Industry Association
- Southern Rock Lobster Limited
- Port Campbell Professional Fishermen's Association

Dear Fishery Stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 50-60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).

**Minerva Decommissioning and Field Management EP**

- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.
- Removal of the Minerva gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 10-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters – comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC-PL33(v), in Victorian State waters. The pipeline will be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from shore.

Woodside is consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management

measures. This is also available on our website-. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and Department of Energy, Environment and Climate Action (DEECA) for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by 12 February 2024.

***Activity summary:***

| **Minerva Decommissioning Activities** | | | |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Decommissioning and Field Management EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV). | Ongoing field management activities (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle, well tie-in spools and flying leads, pipeline structures and stabilisation materials. | Ongoing pipeline management activities (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement Date** | P&A start is around Q2 2025. However, it may commence Q1 2025, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (three to five months in total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |

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| **Simultaneous Operations (SIMOPs)** | P&A and Facilities Removal SIMOPs are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | 1,500 m radius around each of the wells. | 1,000 m buffer along the pipeline route and around subsea infrastructure. | |
| **Exclusion Zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. | |
| **Estimated duration** | Two to three months | Three to five months (removal activities in Commonwealth and State waters) | |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 EHU<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a CFE tool. |

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| | campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | • 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• 2 ~85 m Gas Production Spools and a 1.6 km crossover spool<br>• 2 ~85 m Chemical Injection Spools<br>• 2 lengths of Electric Flying Leads (EFLs)<br>• 2 lengths of Hydraulic Flying Leads (HFLs)<br>Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | • Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |
| **Vessels** | • Semi-submersible MODU.<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine** | ~8.5 km from The Arches Marine | ~5.44 km from The Arches Marine Sanctuary | ~1.69 km from The Arches Marine Sanctuary |

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|---|---|---|---|
| **park/mature reserve** | Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~4.74 km from the Twelve Apostles Marine National Park | ~5 km from the Twelve Apostles Marine Park |

**Feedback-**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 12 February 2024.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) and the *Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

#### 3.10.1 Email sent to State fishery stakeholders –– 25 January 2024

- Warrnambool Professional Fishermen's Association
- Victoria Rock Lobster Association (VRLA)
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Dear Fishery Stakeholder

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Regards

**Woodside Feedback**

### 3.11 Email sent to Australian Border Force (ABF) — 12 January 2024

Dear ABF

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

### 3.12 Email sent to DISR — 12 January 2024

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Dear DISR

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Regards

**Woodside Feedback**

### 3.13 Email sent to DAFF – Biosecurity and Fisheries–– 12 January 2024

Dear DAFF – Biosecurity and Fisheries

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Regards

**Woodside Feedback**

### 3.14 Email sent to Environment Victoria — 12 January 2024

Dear Environment Victoria

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Regards

**Woodside Feedback**

### 3.15 Email sent to Marine Mammal Foundation — 12 January 2024

Dear Marine Mammal Foundation

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:
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- Vessel speed limitations within the operational area during January to March and at other times when whales are observed
- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) – if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement

our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

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Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

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#### 3.15.1 Email sent to Marine Mammal Foundation — 25 January 2024

Dear Marine Mammal Foundation

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.16 Email sent to Tuna Australia — 12 January 2024

Dear (Individual 23),

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management

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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

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The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
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- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) – if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

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**Feedback**

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#### 3.16.1 Email sent to Tuna Australia — 25 January 2024

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This update relates to the following Environment Plans:

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Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

### 3.17 Email sent to Australian Coastal Society – Victoria Chapter — 12 January 2024

Dear Australian Coastal Society – Victoria

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

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- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

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**Feedback**

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#### 3.17.1 Email sent to Australian Coastal Society – Victoria Chapter — 25 January 2024

Dear Australian Coastal Society

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

### 3.18 Email that Seafood Industry Victoria (SIV) distributed to represented fisheries — 9 February 2024:

- Rock Lobster Fishery
- Giant Crab Fishery
- Wrasse Fishery

- Snapper Fishery

Dear

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.
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**Feedback**

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**Woodside Energy Feedback**

### 3.19 Email sent to the Maritime Union Australia (MUA) –– 12 January 2024

Dear
Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

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Regards

**Woodside Feedback**

#### 3.19.1 Email sent to the Maritime Union Australia (MUA) –– 25 January 2024

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Regards

**Woodside Feedback**

### 3.20 Email sent to Fisheries Research and Development Corporation (FRDC) –– 12 January 2024

Dear Fisheries Research and Development Corporation

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

#### 3.20.1 Email sent to Fisheries Research and Development Corporation (FRDC) — 25 January 2024

Dear Fisheries Research and Development Corporation

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Regards

### 3.21 Email sent to Commonwealth Scientific and Industrial Research Organisation (CSIRO) — 12 January 2024

Dear (Individual 15)

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

#### 3.21.1 Email sent to Commonwealth Scientific and Industrial Research Organisation (CSIRO) — 25 January 2024

Dear Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

### 3.22 Email sent to Australian Conservation Foundation (ACF) — 12 January 2024

Dear

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**Woodside Energy Feedback**

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Regards

**Woodside Feedback**

### 3.23 Email sent to Blue Whale Study — 12 January 2024

Dear Blue Whale Study

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

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**Feedback**

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**Woodside Energy Feedback**

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Regards

**Woodside Feedback**

### 3.24 Email sent to Greenpeace (GAP) — 12 January 2024

Dear (Individual 11)

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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**Woodside Energy Feedback**

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Regards

**Woodside Feedback**

### 3.25 Email sent to Australian Institute of Marine Science (AIMS) — 12 January 2024

Dear (Individual 16)

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

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**Woodside Energy Feedback**

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Regards

**Woodside Feedback**

### 3.26 Email sent to Otway recreational marine users and local groups — 12 January 2024

**Recreational Marine Users Group 1:**

- Apollo Bay Dive Centre and Surf
- Apollo Bay Fishing Charters
- Apollo Bay Surf and Kayak
- Dive Industry Association of Australia
- Go Surf School
- SCUBA Divers Federation of Victoria
- Apollo Bay Surf Lifesaving Club
- Apollo Bay Sailing Club
- Ocean Racing Club of Victoria
- Twelve Apostles Helicopters Tours

**Local tourism and other groups:**

- Port Campbell Visitor Centre
- Apollo Bay Visitor Information Centre
- Warrnambool Visitor Information Centre
- Apollo Bay Chamber of Commerce

Dear *(name inserted here)*

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**Woodside Energy Feedback**

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**Local tourism and other groups:**

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Dear *(insert name)*

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Regards

**Woodside Feedback**

### 3.27 Email sent to Director of National Parks (DNP) — 12 January 2024

Dear Director of National Parks

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Regards

**Woodside Feedback**

### 3.28 Email sent to Deakin University, School of Life and Environmental Sciences — 12 January 2024

Dear Deakin University - School of Life and Environmental Sciences

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Regards

**Woodside Feedback**

### 3.29 Email sent to Department of Transport and Planning (DTP) — 12 January 2024

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**Woodside Energy Feedback**

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Regards

**Woodside Feedback**

## 3.30 Email sent to Parks Victoria — 12 January 2024

Dear Parks Victoria

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- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) - if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

#### 3.30.1 Email sent to Parks Victoria — 25 January 2024

Good morning,

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

Woodside Feedback

### 3.31 Email sent to Australian Fisheries Management Authority (AFMA) — 12 January 2024

Dear AFMA

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

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- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

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**Feedback**

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NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

**Woodside Energy Feedback**

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Regards

**Woodside Feedback**

### 3.32 Email sent to Heritage Victoria — 12 January 2024

Dear Heritage Victoria

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

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approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

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**Feedback**

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**Woodside Energy Feedback**

#### 3.32.1 Email sent to Heritage Victoria — 25 January 2024

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This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
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If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

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Regards

**Woodside Feedback**

### 3.33 Email sent to Victorian Fishery stakeholders — 12 January 2024

- Victorian Fishing Authority (VFA)
- Apollo Bay Fisherman's Co-operative

Dear Fishery Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

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- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) - if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement

our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.
The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **10 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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**Woodside Energy Feedback**

#### 3.33.1 Email sent to the Victorian Fishery Stakeholders — 25 January 2024

- Victorian Fishing Authority (VFA)
- Apollo Bay Fisherman's Co-operative

Dear Fishery Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
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If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.34 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) — 12 January 2024

Dear DCCEEW

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
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- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

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**Woodside Energy Feedback**

#### 3.34.1 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) — 25 January 2024

Dear DCCEEW

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

### 3.35 Email sent to Department of Energy, Environment, and Climate Action (DEECA), Earth Resources Regulator | Resources Victoria — 12 January 2024

Dear DEECA

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:
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- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

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**Woodside Energy Feedback**

#### 3.35.1 Email sent to DEECA, Earth Resources Regulator | Resources Victoria — 12 January 2024

Dear Sandra (DEECA)

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Regards

**Woodside Feedback**

### 3.36 Email sent to Titleholders (Beach Energy, Cooper Energy and Conoco Phillips) — 12 January 2024

Dear Titleholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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**Woodside Energy Feedback**

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Regards

**Woodside Feedback**

### 3.37 Email sent to relevant ports — 12 January 2024

- Port of Melbourne
- Port of Hastings
- Port of Warrnambool

Dear Port of *(insert)*

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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**Woodside Energy Feedback**

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- Port of Melbourne
- Port of Hastings
- Port of Warrnambool

Dear (insert Port)

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- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.38 Email sent to Department of Defence (DoD) — 12 January 2024

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt

several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
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- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.
**Woodside Energy Feedback**

#### 3.38.1 Email sent to Department of Defence (DoD) — 25 January 2024

Dear DoD

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
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Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.39 Email sent to AEP (formerly APPEA) — 12 January 2024

Dear AEP

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

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The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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**Woodside Energy Feedback**

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This update relates to the following Environment Plans:

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Regards

**Woodside Feedback**

### 3.40 Email sent to AHO/AMSA – Marine Safety — 12 January 2024

Dear (Individual 4)

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
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Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

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**Feedback**

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**Woodside Energy Feedback**

#### 3.40.1 Email sent to AHO/AMSA – Marine Safety — 25 January 2024

Dear AHO/AMSA

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

### 3.41 Email sent to Australian Fisheries Management Authority (AFMA) — 12 January 2024

Dear AFMA

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

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**Woodside Energy Feedback**

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Regards

**Woodside Feedback**

### 3.42 Email sent to tour operators and community groups — 12 January 2024

- Great Ocean Road Coast and Parks Authority
- Great Ocean Road Regional Tourism
- Twelve Apostles Tourism and Business Group

Dear (*each tour operator or community group individually addressed*)
Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

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(NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

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NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

**Woodside Energy Feedback**

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- Great Ocean Road Coast and Parks Authority
- Great Ocean Road Regional Tourism
- Twelve Apostles Tourism and Business Group

Dear *(insert name)*
Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:
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Regards

**Woodside Feedback**

### 3.43 Email sent to Port of Portland — 12 January 2024

Dear (Individual 24)

Thank you again for advising Woodside of the Port of Portland's responsibility for pollution response. We committed to provide you with any further updates in relation to our Minerva decommissioning activities.

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field (below), which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:
- Minerva Plug and Abandonment (P&A) and Field Management
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**Woodside Energy Feedback**

### 3.43.1 Email sent to Port of Portland — 25 January 2024

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Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

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Regards

**Woodside Feedback**

## 3.44 Email sent to Otway recreational marine users — 12 January 2024

**Group 2:**

- Academy of Scuba
- Allfresh Seafood
- Anglesea Motor Yacht Club
- Boating Industry Association of Victoria
- Diving Industry Victoria
- Beach Patrol 3280
- Paddle Victoria
- Point Leo Boat Club
- Port Fairy Yacht Club
- Rye Yacht Club
- Victoria Game Fishing Club
- Warrnambool Yacht Club
- Western Abalone Divers Association
- Port Campbell Surf Lifesaving Club

Dear Stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 50-60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).

**Minerva Decommissioning and Field Management EP**

- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.
- Removal of the Minerva gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 10-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters -- comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC-PL33(v), in Victorian State waters. The pipeline will be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from shore.

Woodside is consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website-. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and Department of Energy, Environment and Climate Action (DEECA) for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by 12 February 2024.

***Activity summary:***

| **Minerva Decommissioning Activities** | | | |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and Field Management EP** | **Minerva Decommissioning and Field Management EP** | **Minerva (State Waters) Decommissioning EP** |
| **Summary** | Permanent P&A of 4 wells (2 former | Ongoing field management activities | Ongoing pipeline management activities |

| | | | |
|---|---|---|---|
| | productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV). | (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle, well tie-in spools and flying leads, pipeline structures and stabilisation materials. | (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement Date** | P&A start is around Q2 2025. However, it may commence Q1 2025, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (three to five months in total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPs)** | P&A and Facilities Removal SIMOPs are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | 1,500 m radius around each of the wells. | 1,000 m buffer along the pipeline route and around subsea infrastructure. | |
| **Exclusion Zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. | |
| **Estimated duration** | Two to three months | Three to five months (removal activities in Commonwealth and State waters) | |

| | | | |
|---|---|---|---|
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• 2 ~85 m Gas Production Spools and a 1.6 km crossover spool<br>• 2 ~85 m Chemical Injection Spools<br>• 2 lengths of Electric Flying Leads (EFLs)<br>• 2 lengths of Hydraulic Flying Leads (HFLs)<br>Pipeline bundle, rigid spools and flying leads will be cut with hydraulic | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 EHU<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a CFE tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| | | shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible MODU.<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback-**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 12 February 2024.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) and the *Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

### 3.44.1 Email sent to Otway recreational marine users — 25 January 2024

**Group 2:**

- Academy of Scuba
- Allfresh Seafood
- Anglesea Motor Yacht Club
- Boating Industry Association of Victoria
- Diving Industry Victoria
- Beach Patrol 3280
- Paddle Victoria
- Point Leo Boat Club
- Port Fairy Yacht Club
- Rye Yacht Club
- Victoria Game Fishing Club
- Warrnambool Yacht Club
- Western Abalone Divers Association

Dear *(insert business name)*

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.45 Email sent to Friends of the Earth — 15 January 2024

Dear (Individual 25)

Woodside previously provided information to you via my colleague Stephen Munday in relation to the decommissioning of the Minerva gas field. The consultation information sheet previously sent is available here.

Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
- Vessel speed limitations within the operational area during January to March and at other times when whales are observed
- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) - if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

Best regards

### 3.46 Email sent to Local Conservation Groups –– 12 January 2024

- Otway Climate Emergency Action Network (OCEAN)
- Otway Water

- Warrnambool Coastcare Landcare Network
- Apollo Bay Landcare

Dear *(insert name)*

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:
- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:
- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
- Vessel speed limitations within the operational area during January to March and at other times when whales are observed
- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) - if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required

under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.
**Woodside Energy Feedback**

#### 3.46.1 Email sent to Local Conservation Groups — 25 January

- Otway Climate Emergency Action Network (OCEAN)
- Otway Water
- Warrnambool Coastcare Landcare Network
- Apollo Bay Landcare

Dear *(insert name*)

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:
- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.47 Email sent to Department of the Premier and Cabinet (DPC) - First Nations State Relations — 15 January 2024

Hi (Individual 26),

In advance of our discussion on Wednesday, please see below and attached our consultation information for the Minerva decommissioning Environment Plans.

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 50-60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).

**Minerva Decommissioning and Field Management EP**

- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.
- Removal of the Minerva gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 10-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters -- comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC-PL33(v), in Victorian State waters. The pipeline will be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from shore.

Woodside is consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website-. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and Department of Energy, Environment and Climate Action (DEECA) for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by 12 February 2024.

***Activity summary:***

| **Minerva Decommissioning Activities** | | | |
|---|---|---|---|
| **Environment Plan** | **Minerva Plug and Abandonment and** | **Minerva Decommissioning and Field Management EP** | **Minerva (State Waters) Decommissioning EP** |

| | | | |
|---|---|---|---|
| | **Field Management EP** | | |
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV). | Ongoing field management activities (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle, well tie-in spools and flying leads, pipeline structures and stabilisation materials. | Ongoing pipeline management activities (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement Date** | P&A start is around Q2 2025. However, it may commence Q1 2025, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (three to five months in total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPs)** | P&A and Facilities Removal SIMOPs are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | 1,500 m radius around each of the wells. | 1,000 m buffer along the pipeline route and around subsea infrastructure. | |
| **Exclusion Zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. | A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. | |

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|---|---|---|---|
| **Estimated duration** | Two to three months | Three to five months (removal activities in Commonwealth and State waters) | |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• 2 ~85 m Gas Production Spools and a 1.6 km crossover spool<br>• 2 ~85 m Chemical Injection Spools<br>• 2 lengths of Electric Flying Leads (EFLs)<br>• 2 lengths of Hydraulic Flying Leads (HFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 EHU<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a CFE tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

| | | | |
|---|---|---|---|
| | | Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible MODU.<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback-**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 12 February 2024.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) and the *Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

### 3.48 Email sent to AMSA – Marine Pollution — 12 January 2024

Dear (Individual 4)

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
- Vessel speed limitations within the operational area during January to March and at other times when whales are observed
- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) - if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

**Woodside Energy Feedback**

#### 3.48.1 Email sent to AMSA – Marine Pollution — 25 January 2024

Dear AMSA – Marine Pollution

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.
This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

### 3.49 Email sent to Port Campbell Community Group – 12 January 2024

Dear Port Campbell Community Group

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field, which is available here. Planning work to decommission the field is progressing, and as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

Due to weather constraints in the region, Woodside anticipates the Minerva decommissioning activities may require additional time.

Equipment removal activities in Commonwealth and Victorian waters are expected to commence in the third quarter of 2024 and require approximately three to five months; we previously advised a start in early 2024.

A rig has been contracted for the well plugging activities, which are currently anticipated to commence in the second quarter of 2025. It is anticipated the rig activities will take two to three months. Activity timing and duration is subject to weather conditions, vessel and rig availability, and regulatory approvals which may result in an earlier start. Commencing in the period between January and March 2025 allows for the opportunity to undertake activities during calmer ocean conditions.

The January to March period is a peak foraging period for pygmy blue whales in the region, and Woodside had previously indicated work during this period was not required. Woodside will adopt several additional mitigation measures to limit potential impacts to whales given that works may now overlap the peak in pygmy blue whale foraging in the region, including:

- Dedicated trained marine fauna observers on vessels during January to March to monitor for whale presence, with trained vessel crew observing for marine fauna outside this period
- Vessel speed limitations within the operational area during January to March and at other times when whales are observed
- Additional adaptive management measures when whales are detected, such as monitoring for whales prior to support vessels coming alongside the mobile offshore drilling unit (MODU) - if applicable
- Using only moorings to maintain the MODU position, with no use of MODU thrusters.

We will continue to assess additional mitigation measures as required and are committed to reducing impacts to whales to a level that is as low as reasonably practicable and acceptable.

While Woodside has identified that works may be required during the January to March period, our intention is to avoid works during this period where practicable. Woodside will continue to implement our standard controls to manage impacts to whales, such as complying with relevant requirements and communicating whale sightings to government agencies.

The revised Consultation Information Sheet to reflect these updates is attached.

**Feedback**

If you have feedback specific to this updated information, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.
Your feedback and our response will be included in our EPs for the proposed activities, which will be submitted to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation. Your feedback may also be used to support other regulatory processes associated with the planned activities (which may or may not be confidential).
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

NOPSEMA has published a brochure entitled Consultation on offshore petroleum environment plans – Information for the Community to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

**Woodside Energy Feedback**

### 3.50 Email sent to Australian Marine Conservation Society (AMCS) — 12 January 2024

Dear Stakeholder

Woodside is planning to undertake subsea decommissioning activities for the Minerva Field located in Commonwealth and State waters, approximately 11 km south-southwest (SSW) of the township of Port Campbell, Victoria in water depths ranging from approximately 50-60 m.

Regulatory approvals are being sought for the following activities in Commonwealth and State waters:

**Minerva Plug and Abandonment (P&A) and Field Management EP**

- Well P&A of two former production wells and two exploration wells in Commonwealth waters by placing cement plugs in the wells to permanently prevent hydrocarbon release using a moored Mobile Offshore Drilling Unit (MODU).
- Removal of well infrastructure above the mudline (wellheads and subsea xmas trees).

**Minerva Decommissioning and Field Management EP**

- Ongoing field management activities (inspection and monitoring) for the Minerva subsea and well infrastructure until final decommissioning.
- Removal of the Minerva gas pipeline bundle in Commonwealth waters. The pipeline comprises of approximately 4.9 km of 10-inch concrete coated rigid-steel flowline, bundled with an electro-hydraulic umbilical and two 2-inch steel chemical injection lines and stabilisation materials.
- Removal of Minerva subsea infrastructure within VIC-L22 in Commonwealth waters -- comprising of five inline pipeline structures, two tie-in spools and associated stabilisation material.

**Minerva (State Waters) Decommissioning EP**

- Removal of the Minerva pipeline bundle and stabilisation materials in VIC-PL33(v), in Victorian State waters. The pipeline will be recovered up to the horizontal directional drill (HDD) location, approximately 800 m from shore.

Woodside is consulting relevant persons whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For these EPs, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release to the environment as result of a vessel collision or a loss of well containment during P&A activities.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website-. You can also subscribe to receive updates on our consultation activities by subscribing here.

The National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) has published a brochure entitled *Consultation on offshore petroleum environment plans – Information for the Community* to help community members understand consultation requirements for Commonwealth EPs and how to participate in consultation.

The following provides an overview of proposed activities under each of the three EPs. Feedback as part of current consultation activities will be included in revisions to the EPs, which will be submitted to NOPSEMA and Department of Energy, Environment and Climate Action (DEECA) for assessment.

If you have feedback specific to the proposed activities described under the activity summary below or in the Consultation Information Sheet, we would welcome this at Feedback@woodside.com.au or 1800 442 977 by 12 February 2024.

***Activity summary:***

| **Minerva Decommissioning Activities** |
|---|

| Environment Plan | Minerva Plug and Abandonment and Field Management EP | Minerva Decommissioning and Field Management EP | Minerva (State Waters) Decommissioning EP |
|---|---|---|---|
| **Summary** | Permanent P&A of 4 wells (2 former productions wells, 2 exploration wells).<br>Removal of wellhead and subsea trees, by the MODU or Construction Support Vessel (CSV). | Ongoing field management activities (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle, well tie-in spools and flying leads, pipeline structures and stabilisation materials. | Ongoing pipeline management activities (monitoring and inspection) prior to removal.<br>Removal of the pipeline bundle within State waters.<br>Note: the shore crossing will not be removed as part of this campaign |
| **Commencement Date** | P&A start is around Q2 2025. However, it may commence Q1 2025, subject to approvals, MODU vessel availability and weather constraints. P&A must be completed by no later than 30 June 2025, pursuant to General Direction 831. | Planned removal activities are anticipated to commence from Q3 2024, subject to environmental approvals, vessel availability and weather constraints.<br>Removal will be undertaken in State and Commonwealth waters as a single campaign (three to five months in total).<br>Equipment removal in Commonwealth waters must be completed no later than 30 June 2025, pursuant to General Direction 831. | |
| **Simultaneous Operations (SIMOPs)** | P&A and Facilities Removal SIMOPs are not planned but may occur depending on vessel and equipment availability | | |
| **Petroleum Title** | VIC-L22 | VIC-L22, VIC-PL33 | VIC-PL33(v) |
| **Operational Area** | 1,500 m radius around each of the wells. | 1,000 m buffer along the pipeline route and around subsea infrastructure. | |
| **Exclusion Zones** | A temporary 1,000 m exclusion zone will apply around the MODU and the associated project | A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. | |

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| | vessels during P&A activities. | | |
| **Estimated duration** | Two to three months | Three to five months (removal activities in Commonwealth and State waters) | |
| **Location and water depth** | ~10.45 km south south-west of Port Campbell in ~59 m water depth | ~5.5 km to 10.45 km south south-west of Port Campbell in ~53 m to 59 m water depth | ~1.7 km to 5.5 km south southwest of Port Campbell in ~15 m to 53 m water depth |
| **Infrastructure** | 2 x production wells, including xmas tree completion.<br>2 x exploration wells.<br>The P&A covers the removal of well infrastructure below or as close as practical to the mudline including wellheads and xmas trees that may be conducted on the MODU or otherwise be covered during the facilities removal campaign by the CSV.<br>The EP includes ongoing field maintenance activities, such as inspection, as required until equipment is removed. | Pipeline bundle encompassing:<br>• 4.95 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 length of Electro-Hydro Umbilical (EHU)<br>• 821 Piggyback clamps<br>• Stabilisation structures<br>Inline field equipment comprising:<br>• 2 Umbilical Termination Assemblies and protection structures<br>• 2 Subsea Safety Isolation Valve Assemblies and protection structures<br>• 1 Pipeline End Module Assembly and protection structure<br>Equipment from wells to the pipeline bundle:<br>• 2 ~85 m Gas Production Spools and a 1.6 km crossover spool<br>• 2 ~85 m Chemical Injection Spools<br>• 2 lengths of Electric Flying Leads (EFLs) | Pipeline bundle encompassing:<br>• 5.0 km of 10-inch steel pipeline<br>• 2 lengths of Chemical Injection Lines<br>• 1 EHU<br>• 832 Piggyback clamps<br>• Stabilisation structures<br>The recovery method options being considered for each group of equipment are as follows:<br>• Pipeline bundle will be cut with hydraulic shears and recovered after deburial using a CFE tool.<br>• Recovery methods may use diver assist and/or Remotely Operated Vehicle (ROV) in the shallow water. |

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|---|---|---|---|
| | | • 2 lengths of Hydraulic Flying Leads (HFLs)<br>Pipeline bundle, rigid spools and flying leads will be cut with hydraulic shears and recovered after deburial using a control flow excavator (CFE) tool.<br>Flowline and stabilisation structures will be recovered by reverse install method by the CSV crane with minor cuts made, as required. | |
| **Vessels** | • Semi-submersible MODU.<br>• MODU supported by 2 – 3 offshore support vessels | • Multipurpose CSV<br>• Supply Vessel | • Multipurpose CSV<br>• Supply Vessel<br>• Small Size Dive Air Vessel for operations near the shoreline, should diving operations be required |
| **Distance to nearest marine park/mature reserve** | ~8.5 km from The Arches Marine Sanctuary (Minerva-1 well)<br>~6.2 km from the Twelve Apostles Marine National Park (Minerva-1 well) | ~5.44 km from The Arches Marine Sanctuary<br>~4.74 km from the Twelve Apostles Marine National Park | ~1.69 km from The Arches Marine Sanctuary<br>~5 km from the Twelve Apostles Marine Park |

**Feedback-**

If you have feedback specific to the proposed activities described under the proposed EPs, we would welcome your feedback at: Feedback@woodside.com.au or 1800 442 977 **by 12 February 2024.**

Please note that feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) or the Department of Energy, Environment and Climate Action (DEECA) as required under legislation.

Your feedback and our response will be included in the Environment Plans for the proposed activities, which will be submitted to NOPSEMA or DEECA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 (Cth) and the *Victorian Offshore Petroleum and Greenhouse Gas Storage Act 2010*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

#### 3.50.1 Email sent to Australian Marine Conservation Society (AMCS) — 25 January 2024

Dear Stakeholder

Woodside previously provided information to you in relation to the decommissioning of the Minerva gas field. Planning work to decommission the field is progressing and, as part of our Environment Plan consultation, below is updated information on our planned activities.

This update relates to the following Environment Plans:

- Minerva Plug and Abandonment (P&A) and Field Management
- Minerva Decommissioning and Field Management
- Minerva (State Waters) Decommissioning

If you have feedback specific to this updated information, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **12 February 2024**.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EPs, in order for this information to remain confidential to NOPSEMA.

Regards

**Woodside Feedback**

#### 3.50.2 Email sent to Flinders Island Aboriginal Association Inc. – 14 May 2024

Good afternoon Flinders Island Aboriginal Association

My name is, (Individual 27) and I am the First Nations Engagement Adviser in the First Nations Relations team at Woodside Energy. It's nice to virtually meet you.

Woodside Energy is reaching out to Flinders Island Aboriginal Association to consult with you about the removal of subsea infrastructure located approximately 11 km south-southwest of Port Campbell, Victoria.

For context. In previous engagements with Bunurong Land Council Aboriginal Corporation it was suggested we should reach out to you.

The Minerva Gas Plant ceased operation 2019 and we are now proposing to remove the gas pipeline and subsea infrastructure that connected the Minerva Gas Plant to the Minerva Gas Field. This work will also include the permanent plugging of four gas wells that were part of the Minerva Gas Field.

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in an Environmental Plan.

I have attached a summary information sheet that explains the activities we plan to undertake, and a detailed consultation information sheet can be found here.

Woodside is seeking to understand the nature of the interests that Gunaikurnai and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values.
- Your concerns about the proposed activities and what do you think we should do about those concerns.
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by **Friday 31 May 2024** and please also advise of your preferred method of consultation and any support you may require.

Flinders Island Aboriginal Association can also provide feedback directly to me on the details below, to Feedback@woodside.com.au or by calling 1800 442 977, or directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority to communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached documents to Flinders Island Aboriginal Association members or other people who you think may be interested as required.

We look forward to hearing from you and guidance on next steps regarding consultation and engagement.

Kind regards

# Appendix G Cultural Heritage Search Results

Heritage Sites within EMBA (Source: Victorian Heritage Database https://vhd.heritagecouncil.vic.gov.au/)

| Hermes ID | VHI Number | VHR Number | Site Name |
|---|---|---|---|
| 6593 | H7121-0011 | NA | Cape Bridgewater Road |
| 4950 | NA | H1773 | Cape Nelson Lightstation |
| 12694 | H7221-0300 | NA | Quarantine Complex & Quarry |
| 12242 | H7221-0301 | NA | USAF B57 |
| 12208 | H7221-0289 | NA | Twin Engine - Lady Percy Island |
| 6717 | H7321-0005 | NA | Rabbiters Rockshelter |
| 6719 | H7321-0007 | NA | Griffith Island Hut |
| 2711 | NA | H1659 | Griffiths Island |
| 149549 | H7321-0096 | NA | Port Fairy Whim Foundations |
| 2386 | NA | H1504 | Battery Hill |
| 162055 | H7321-0098 | NA | Government Tramway, Bridge and Jetty |
| 155115 | H7321-0060 | NA | Coastal Government Jetty Site |
| 149742 | H7321-0088 | NA | Middle Island Lightstation Complex |
| 1619 | NA | H2124 | Warrnambool Breakwater |
| 149739 | H7321-0091 | NA | Lady Bay Tramway and Tramway Jetty Site |
| 14228 | NA | H2261 | Great Ocean Road |
| 1914 | NA | H1222 | Cape Otway Lightstation |
| 120452 | H7620-0014 | NA | Wye River Jetty |
| 12711 | NA | H2032 | Bells Beach Surfing Recreation Reserve |
| 1693 | NA | H1517 | Point Lonsdale Maritime and Defence Precinct |
| 8635 | H7821-0031 | NA | The White Lighthouse (and associated features) |
| 200972 | NA | H2367 | Shortlands Bluff |
| 8607 | H7821-0002 | NA | Queenscliff Fort |
| 2596 | NA | H1515 | Steamer Pier & Lifeboat Shed |
| 14113 | H7821-0094 | NA | Queenscliff Bight Fishermen's Moorings |
| 8628 | H7821-0024 | NA | Popes Eye Fort |
| 12390 | H7821-0073 | NA | Chinaman's Hat - Caisson M |
| 3256 | NA | H2030 | Point Nepean |
| 12209 | H7721-0076 | NA | RAAF - B25 |
| 12206 | H7721-0075 | NA | RAAF - Mitchell |
| 10260 | H7921-0031 | NA | Flinders Cave 1 |
| 208208 | NA | H2413 | Flinders Telegraph Cable Complex and Pier |
| 4942 | NA | H1842 | Wilsons Promontory Lightstation |