WA-34-L Pyxis Drilling and Subsea Installation Environment Plan

June 2023
Revision: 4

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1 INTRODUCTION

1.1 Overview

Woodside Burrup Pty Ltd (Woodside), as Titleholder under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth) (referred to as the Environment Regulations) has prepared this revision to the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (EP) as part of the requirements under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009) (referred to as the Environment Regulations), as administered byy the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

The Petroleum Activities Program addressed under this revised EP proposes to undertake the following activities within Production Licence WA-34-L:

- drilling and completion of one Pluto infill production well (referred to as PLA08)
- installation and pre-commissioning of flowlines, umbilical termination assemblies (UTAs), subsea control modules (SCMs), hydraulic flying leads (HFLs), electrical flying leads (EFLs) and a monoethylene glycol (MEG) jumper relating to PLA08.\
- tie-in to existing subsea infrastructure
- cold commissioning of the new subsea infrastructure
- contingent workover activities for Pyxis, Xena and Pluto wells.

A more detailed description of the activities is provided in **Section 3**. Hydrocarbons from the new Pluto infill production well will be produced through the existing Pluto platform as are hydrocarbons from the existing Pyxis, Xena and Pluto wells.

1.2 Defining the Petroleum Activity

The Petroleum Activities Program (PAP) to be undertaken in Production Licence WA-34-L comprises drilling and installing related subsea infrastructure, which are petroleum activities as defined in Regulation 4 of the Environment Regulations. As such an EP is required. The Petroleum Activity includes cold commissioning of the well and subsea infrastructure up to the introduction of hydrocarbons from the PLA08 well. Introduction of hydrocarbons will be carried out under the accepted Pluto Facility Operations EP.

1.3 Purpose of the 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 (planned (routine and non-routine) and unplanned) that may result from the Petroleum Activities Program are identified
- 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 Activities Program is performed 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* (Cth) (EPBC Act)).

This EP describes the process and resulting outputs of the risk assessment, whereby impacts and risks are managed accordingly.

The EP defines activity-specific environmental performance outcomes (EPOs), environmental performance standards (EPSs) and measurement criteria (MC). These form the basis for monitoring, auditing and managing the Petroleum Activities Program to be performed by Woodside and its contractors. The implementation strategy (derived from the decision support framework tools) specified within this EP provides Woodside and NOPSEMA with the required level of assurance that impacts and risks associated with the activity are reduced to ALARP and are acceptable.

1.4 Scope of the Environment Plan

The scope of this EP covers the activities that define the Petroleum Activities Program, as described in **Section 3**. The spatial boundary of the Petroleum Activities Program has been described and assessed using the Operational Area. The Operational Area defines the spatial boundary of the Petroleum Activities Program, as described, risk assessed and managed by this EP. The Operational Area encompasses a radius of 1000 m from each well centre subsea infrastructure installation locations. A 500 m safety exclusion zone will be maintained around the Mobile Offshore Drilling Unit (MODU) and project vessels during operations.

This EP addresses potential environmental impacts from planned activities, contingent activities and any potential unplanned risks that originate from within the Operational Area. Transit to and from the Operational Area by the MODU, installation vessels and support vessels, as well as port activities associated with these vessels, are not within the scope of this EP. Vessels supporting the Petroleum Activities Program operating outside the Operational Area (e.g., transiting to and from port) are subject to all applicable maritime regulations and other requirements and are not managed by this EP.

1.5 Environment Plan Summary

This WA-34-L Pyxis Drilling and Subsea Installation EP summary has been prepared based on the material provided in this EP. This summarises the items listed in **Table 1-1** as required by Regulation 11(4).

Table 1-1: EP summary

EP Summary Material Requirement	Relevant Section of EP containing EP Summary Material
The location of the activity	**Section 3.3**
A description of the receiving environment	**Section 4**
A description of the activity	**Section 3**
Details of the environmental impacts and risks	**Section 6**
The control measures for the activity	**Section 6**
The arrangements for ongoing monitoring of the titleholder's environmental performance	**Section 7.5**
Response arrangements in the oil pollution emergency plan	**Section 7.9** and **Appendix D**
Consultation already undertaken and plans for ongoing consultation	**Section 5**
Details of the titleholder's nominated liaison person for the activity	**Section 1.8**

1.6 Structure of the Environment Plan

This EP has been structured to reflect the process and requirements of the Environment Regulations as outlined in **Table 1-2**.

Table 1-2: EP process phases, applicable regulations and relevant section of EP

Criteria for acceptance	Content requirements/relevant regulations	Elements	Section of EP
Regulation 10A(a): Is appropriate for the nature and scale of the activity	Regulation 13: *Environmental assessment* Regulation 14: *Implementation strategy for the environment plan* Regulation 16: *Other information in the environment plan*	The principle of 'nature and scale' is applicable throughout the EP.	**Section 2** **Section 3** **Section 4** **Section 5** **Section 6** **Section 7**
Regulation 10A(b): Demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable Regulation 10A(c): Demonstrates that the environmental impacts and risks of the activity will be of an acceptable level	Regulation 13(1)–13(7): *13(1) Description of the activity* *13(2)(3) Description of the environment* *13(4) Requirements* *13(5)(6) Evaluation of environmental impacts and risks* *13(7) Environmental performance outcomes and standards* *Regulation 16(a) to 16(c):* *A statement of the titleholder's corporate environmental policy* *A report on all consultations between the titleholder and any relevant person*	Set the context (activity and existing environment). Define 'acceptable' (the requirements, the corporate policy, relevant persons). Detail the impacts and risks. Evaluate the nature and scale. Detail the control measures – ALARP and acceptable.	**Section 2** **Section 3** **Section 4** **Section 5** **Section 6** **Section 7**
Regulation 10A(d): Provides for appropriate environmental performance outcomes, environmental performance standards and measurement criteria	Regulation 13(7): *Environmental performance outcomes and standards*	Environmental Performance Outcomes (EPO) Environmental Performance Standards (EPS) Measurement Criteria (MC)	**Section 6**
Regulation 10A(e): Includes an appropriate implementation strategy and monitoring, recording and reporting arrangements	Regulation 14: *Implementation strategy for the environment plan*	Implementation strategy, including: • Environmental Management System (EMS) • performance monitoring • Oil Pollution Emergency Plan (OPEP – per Table 7-5) and scientific monitoring • ongoing consultation.	**Section 7** **Appendix D**

Criteria for acceptance	Content requirements/relevant regulations	Elements	Section of EP
Regulation 10A(f): 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 *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	Regulation 13(1)–13(3): *13(1) Description of the activity* *13(2) Description of the environment* *13(3) Without limiting [Regulation 13(2)(b)], particular relevant values and sensitivities may include any of the following:* *(a) the world heritage values of a declared World Heritage property within the meaning of the EPBC Act;* *(b) the national heritage values of a National Heritage place within the meaning of that Act;* *(c) the ecological character of a declared Ramsar wetland within the meaning of that Act;* *(d) the presence of a listed threatened species or listed threatened ecological community within the meaning of that Act;* *(e) the presence of a listed migratory species within the meaning of that Act;* *(f) any values and sensitivities that exist in, or in relation to, part or all of:* *(i) a Commonwealth marine area within the meaning of that Act; or* *(ii) Commonwealth land 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** **Section 4**
Regulation 10A(g): (i) the titleholder has carried out the consultations required by Division 2.2A (ii) the measures (if any) that the titleholder has adopted, or proposes to adopt, because of the consultations are appropriate	Regulation 11A: *Consultation with relevant authorities, persons and organisations, etc.* *Regulation 16(b):* *A report on all consultations between the titleholder and any relevant person*	Consultation undertaken in the preparation of this EP.	**Section 5**
Regulation 10A(h): complies with the Act and the regulations	Regulation 13(4)a: *Describe the requirements, including legislative requirements, that apply to activity and are relevant to the environmental management of the activity* *Regulation 15:* *Details of the Titleholder and liaison person* *Regulation 16(a):* *A statement of the titleholder's corporate environmental policy* *Regulation 16(c):* *Details of all reportable incidents in relation to the proposed activity*	All contents of the EP must comply with the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* and the Environment Regulations.	**Section 2** **Section 3** **Section 4** **Section 5** **Section 6** **Section 7** **Appendix A** **Appendix B** **Appendix D**

1.7 Description of the Titleholder

The nominated Titleholder for this activity is Woodside Burrup Pty Ltd, on behalf of its Pluto LNG joint venture partners, Tokyo Gas Pluto Pty Ltd and Kansai Electric Power Australia Pty Ltd.

Woodside's mission is to deliver superior shareholder returns through realising its vision of becoming a global leader in upstream oil and gas. Wherever Woodside works, it is committed to living its values of integrity, respect, working sustainably, discipline, excellence and working together.

Woodside's operations are characterised by strong safety and environmental performance in remote and challenging locations.

Since 1984, the company has been operating the landmark Australian project, the North West Shelf, and it remains one of the world's premier liquefied natural gas (LNG) facilities. In 2012, Woodside added the Pluto LNG Plant to its onshore operating facilities.

Woodside has an excellent track 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 to ensure they are a partner of choice. Further information about Woodside can be found at http://www.woodside.com.

1.8 Details of Titleholder, Liaison Person and Public Affairs Contact

In accordance with Regulation 15 of the Environment Regulations, details of the titleholder, liaison person and arrangements for notifying of changes are described below.

1.8.1 Titleholder

Woodside Burrup Pty Ltd
11 Mount Street, Perth, Western Australia
Telephone: 08 9348 4000
Fax Number: 08 9214 2777
ABN: 20 120 237 416

1.8.2 Nominated Liaison Person

Shannen Wilkinson
Senior Corporate Affairs Adviser
11 Mount Street, Perth, Western Australia
Phone: 08 9348 4000
Fax Number: 08 9214 2777
feedback@woodside.com.au

1.8.3 Arrangements for Notifying of Change

Should the titleholder, titleholder's nominated liaison person or the contact details for either change, NOPSEMA is to be notified in writing of the change within two weeks or as soon as practicable.

1.9 Woodside Management System

The Woodside Management System (WMS) provides a structured framework of documentation to set common expectations governing how all employees and contractors at Woodside will work. Many of the standards presented in **Section 6** are drawn from the WMS documentation, which comprises four elements: Compass & Policies, Expectations, Processes & Procedures, and Guidelines, outlined below (and illustrated in **Figure 1-1**):

- **Compass & Policies:** Set the enterprise-wide direction for Woodside by governing our behaviours, actions and business decisions and ensuring we meet our legal and other external obligations.
- **Expectations:** Set essential activities or deliverables required to achieve the objectives of the Key Business Activities and provide the basis for developing processes and procedures.
- **Processes & Procedures:** Processes identify the set of interrelated or interacting activities which transforms inputs into outputs, to systematically achieve a purpose or specific objective. Procedures specify what steps, by whom and when to perform an activity or a process.
- **Guidelines:** Provide recommended practice and advice on how to perform the steps defined in Procedures, together with supporting information and associated tools. Guidelines provide advice on how activities or tasks may be performed, information that may be considered, or how to use tools and systems.

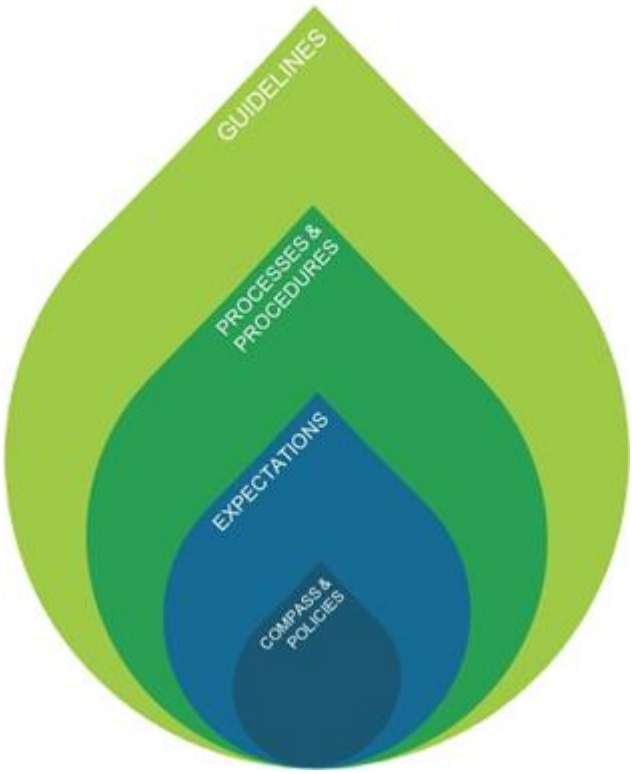

Figure 1-1: The four major elements of the WMS Seed

The WMS is organised within a business process hierarchy based upon key business activities to ensure the system remains independent of organisation structure, is globally applicable and scalable wherever required. These business activities are grouped into management, support and value stream activities as shown in **Figure 1-2**. The value stream activities capture, generate and deliver value−through the exploration and production lifecycle. The management activities influence all areas of the business, while support activities may influence one or more value stream activities.

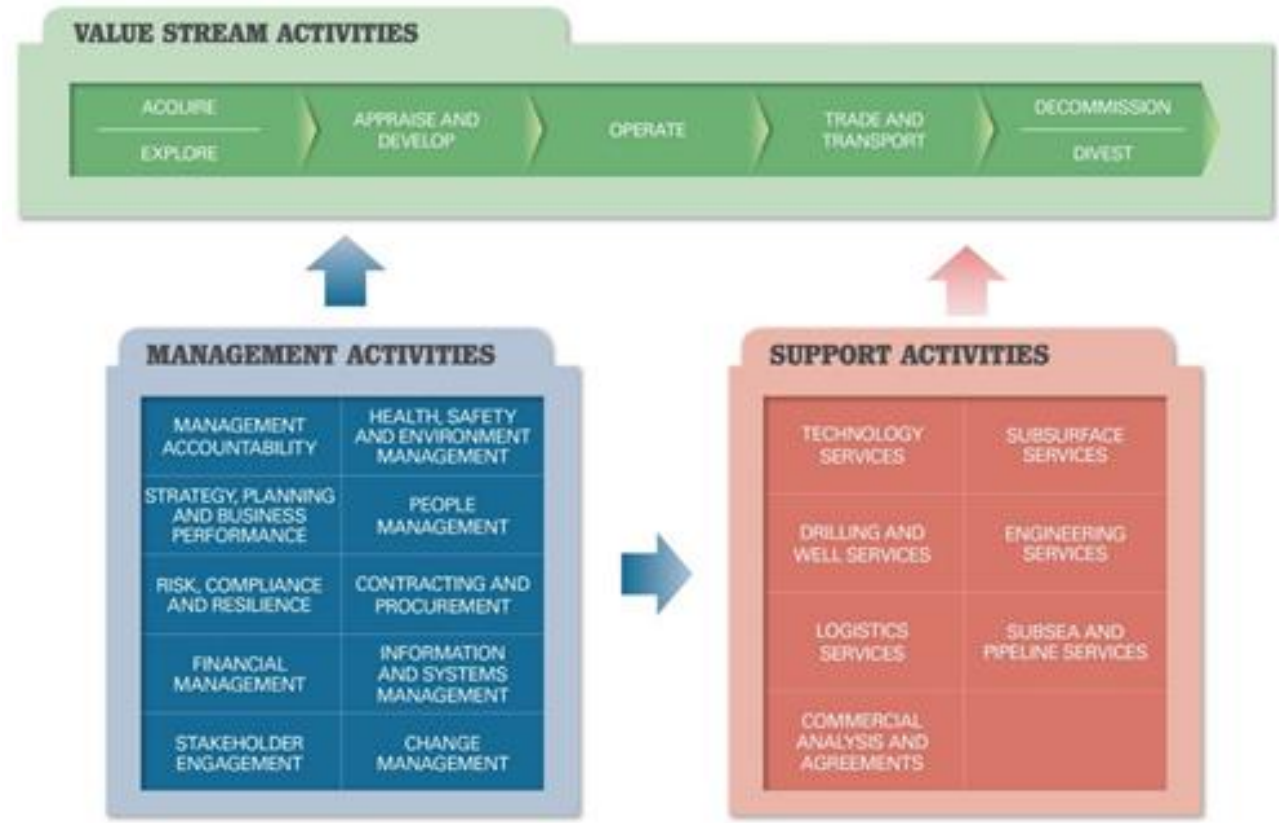

Figure 1-2: The WMS business process hierarchy

1.9.1 Health, Safety, Environment and Quality Policy

In accordance with Regulation 16(a) of the Environment Regulations, Woodside's Corporate Health, Safety, Environment and Quality Policy is provided in **Appendix A** of this EP.

1.10 Description of Relevant Requirements

In accordance with Regulation 13(4) of the Environment Regulations, a description of requirements, including legislative requirements, that apply to the activity and are relevant to managing risks and impacts of the Petroleum Activities Program are detailed in **Appendix B**. This EP will not be assessed under the WA Environment Protection Act 1986 as the activity does not occur on State land or within State waters.

1.10.1 Offshore Petroleum and Greenhouse Gas Storage Act 2006

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (OPGGS Act) regulates petroleum exploration and recovery activities beyond three nautical miles (nm) of the mainland (and islands) to the outer extent of the Australian Exclusive Economic Zone at 200 nm.

The Act manages all offshore petroleum activities, including decommissioning, under Section 572 and 270. While there are no immediate plans for decommissioning (the scope of this EP is for drilling a production well and installation of subsea infrastructure), all equipment being installed above the mudline has been designed to allow removal. Subsection 572(2) provides that while structures,

equipment and other property remain in the title area, they must be maintained in good condition and repair.

The regulatory framework establishes the National Offshore Petroleum Safety and Environment Management Authority as the regulator. Under the OPGGS Act, the Environment Regulations apply to petroleum activities in Commonwealth waters and are administered by NOPSEMA. The objective of the Environment Regulations is to ensure petroleum activities are:

- Carried out in a manner consistent with the principles of ecologically sustainable development (ESD) (as set out in the EPBC Act)
- carried out in a manner by which the environmental impacts and risks of the activity will be reduced to ALARP
- carried out in a manner by which the environmental impacts and risks of the activity will be of an acceptable level.

1.10.2 Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

One of the objectives of the EPBC Act is to protect and manage nationally and internationally important flora, fauna, ecological communities and heritage places in Australia. These are defined under Part 3 of the Act as “Matters of National Environmental Significance” (MNES). The EPBC Act sets a regime which aims to ensure actions taken on (or impacting upon) Commonwealth land or waters are consistent with the principles of ecological sustainable development. When a person proposes to take an action that they believe may need approval under the EPBC Act, they must refer the proposal to the Commonwealth Minister for Environment.

In relation to offshore petroleum activities in Commonwealth waters, in accordance with the “Streamlining Offshore Petroleum Approvals Program” (the Program), requirements under the EPBC Act are now administered by NOPSEMA, commencing February 2014. The Program requires any offshore petroleum activities, authorised by the OPGGS Act to be conducted in accordance with an accepted EP. The definition of ‘environment’ in the Program covers all matters protected under Part 3 of the EPBC Act.

The development of the Pluto gas field was referred as an action for assessment under the EPBC Act in 2006, determined to be a controlled action and assessed at the level of a Public Environmental Report (PER). The action was approved with conditions in 2007, with consolidated conditions following the implementation of the streamlining arrangements published in 2015. Conditions considered relevant to the scope of this EP are provided in **Table 1-3**.

Table 1-3: Conditions from Pluto condensate field (EPBC 2006/2968 relevant to the Petroleum Activities Program

Condition Number	Condition	Relevant Section of EP
1[1]	The person taking the action must submit, for the Minister's approval, a plan (or plans) for managing the offshore impacts of the action. The plan (or plans) must include measures for: a) Drilling operations: i. drilling fluid type and disposal method ii. drill cuttings disposal method iii. fuel and chemical handling and transfer procedures iv. cetacean interaction procedures for supply vessels and aircraft that are consistent with Part 8 of the Environment Protection and Biodiversity Conservation Regulations 2000; and v. cetacean and whale shark (*Rhincodon typus*) sightings reporting.	i. **Section 3.8** and **3.9** ii. **Sections 3.8** and **3.9** iii. **Section 3.10** and **6.6.7** iv. and v. **Section 6.6.3**
	b) Construction and installation: i. design and construction that allow for the decommissioning of all structures and components on the sea floor ii. impacts and management measures for reuse of any spoil ground material iii. details of the final selection of wells, anchor type and placements and flowline paths iv. hydrotest fluid type, handling and risk assessment of disposal impacts v. interaction procedures for supply vessels and aircraft that are consistent with Part 8 of the *Environment Protection and Biodiversity Conservation Regulations 2000* vi. cetacean and whale shark sightings reporting.	i.**Section 3** ii.**Section 3** iii.**Section 6.6.7** iv. and v.**Section 6.6.3**
4	The person taking the action must submit for the Minister's approval an oil spill contingency plan to mitigate the environmental effects of any hydrocarbon spills. The oil spill contingency plan must include: a) the types of dispersants, protective booms, clean up gear, and related equipment to be used in the event of an oil spill and the storage arrangements b) training of staff in oil spill response measures c) identification of sensitive areas, and specific response measures for these areas d) details of the insurance arrangements that have been made in respect of the costs associated with repairing any environmental damage arising from potential oil spills e) the reporting of oil spill incidents. Offshore construction may not commence until the plan is approved. The approved plan must be implemented.	Woodside's Emergency Preparedness and Response arrangements (refer to **Section 7.9**, **Appendix D** and associated documents).

[1] *Conditions 1a), 2 and 3 (not shown) have been met through previous plans.*

Condition Number	Condition	Relevant Section of EP
8	At least twelve months before the expiry of the period for which this approval has effect, the person taking the action must submit a decommissioning plan for approval by the Minister that considers the removal of all structures and components above the sea floor, including subsea wells, manifolds and flowlines and any other associated infrastructure and the disposal and management of any naturally occurring radioactive materials. Decommissioning may not commence until the plan is approved. The approved plan must be implemented.	Decommissioning is outside the scope of this EP.
11	If the person taking the action proposes to undertake any subsea tie-in not included in approved plans pursuant to condition 1, the person taking the action must revise such plans or submit a new plan or plans to address the activities associated with, and potential environmental impacts of, the subsea tie-in. Activities associated with subsea tie-ins may not be commenced until each such plan or revised plan has been approved by the Minister. Each plan or revised plan that has been approved by the Minister must be implemented.	The resubmission and subsequent implementation of this EP is considered to meet this condition (i.e., this EP is submitted as the 'revised plan' to address aspects of condition 1 applicable to the PLA08 subsea tie-in).
12	If the person taking the action wishes to carry out any activity otherwise than in accordance with the plans referred to in conditions 1 ,3, 4, 5, 6 and 8, the person taking the action may submit for the Minister's approval a revised version of any such plan. If the Minister approved a revised plan so submitted, the person taking the action must implement that plan instead of the plan as originally approved.	The implementation of this EP is considered to meet this condition (i.e., this EP is submitted as the 'revised plan' to address aspects of conditions applicable to the PLA08 subsea tie-in.
15	A plan required by conditions 1, 4, 8, 11 or 12 is automatically deemed to have been submitted to, and approved by, the Minister if the measures (as specified in the relevant condition) are included in an environment plan (or environment plans) relating to the taking of the action that: a) was submitted to NOPSEMA after 27 February 2014, and b) either: • is in force under the Environment Regulations, or • has ended in accordance with Regulation 25A of the Environment Regulations.	The implementation of this EP is considered to meet this condition.
15A	Where a plan required by conditions 1, 4, 11 or 12 has been approved by the Minister and the measures (as specified in the relevant condition) are included in an environment plan (or environment plans) that: a) was submitted to NOPSEMA after 27 February 2014, and b) either: • is in force under the OPGGS Environment Regulations, or • has ended in accordance with Regulation 25A of the OPGGS Environment Regulations, the plan approved by the Minister no longer needs to be implemented.	The implementation of this EP is considered to meet this condition and supersedes previously approved plans.
15B	Where an environment plan, which includes measures specified in the conditions referred to in conditions 15 and 15A above, is in force under the OPGGS Environment Regulations that relates to the taking of the action, the person taking the action must comply with those measures as specified in that environment plan.	The implementation of this EP is considered to meet this condition.

1.10.2.1 Recovery Plans and Threat Abatement Plans

Under s139(1)(b) of the EPBC Act, the Environment Minister must not act inconsistently with a recovery plan for a listed threatened species or ecological community or a threat abatement plan for a species or community protected under the Act. Similarly, under s268 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, these requirements are implemented by NOPSEMA via the commitments included in the Program. Commitments relating to listed threatened species and ecological communities under the Act are included in the Program Report (Commonwealth of Australia, 2014).

- NOPSEMA will not accept an Environment Plan that proposes activities that will result in unacceptable impacts to a listed threatened species or ecological community.
- NOPSEMA will not accept an Environment Plan 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 in relation to a threatened species or ecological community before accepting an Environment Plan.

1.10.2.2 Australian Marine Parks

Under the EPBC Act, Australian Marine Parks (AMPs), formally known as Commonwealth Marine Reserves, are recognised for conserving marine habitats and the species that live and rely on these habitats. The Director of Marine Parks (DNP) is responsible for managing AMP's (supported by Parks Australia) and is required to publish management plans for them. Other parts of the Australian Government must not perform functions or exercise powers in relation to these parks that are inconsistent with management plans (s.362 of the EPBC Act). Relevant AMPs are identified in **Section 4.7** and described in the Woodside Master Existing Environment. In accordance with Regulation 31 of the Environment Regulations, this Master Existing Environment was accepted on the 14th of October 2021 as Appendix H in the Enfield Plug and Abandonment Environment Plan.

The North-west Marine Parks Network Management Plan (DNP, 2018) describe the requirements for managing the marine parks that are relevant to this EP.

Specific zones within the AMPs have been allocated conservation objectives as stated below (International Union for Conservation of Nature (IUCN) Protected Area Category) based on the Australian IUCN reserve management principles outlined in Schedule 8 of the EPBC Regulations 2000:

- Special Purpose Zone (IUCN category VI)—managed to allow specific activities though special purpose management arrangements while conserving ecosystems, habitats and native species. The zone allows or prohibits specific activities.
- Sanctuary Zone (IUCN category Ia)—managed to conserve ecosystems, habitats and native species in as natural and undisturbed a state as possible. The zone allows only authorized scientific research and monitoring.
- National Park Zone (IUCN category II)—managed to protect and conserve ecosystems, habitats and native species in as natural a state as possible. The zone only allows non-extractive activities unless authorised for research and monitoring.
- Recreational Use Zone (IUCN category IV)—managed to allow recreational use, while conserving ecosystems, habitats and native species in as natural a state as possible. The zone allows for recreational fishing, but not commercial fishing.

- Habitat Protection Zone (IUCN category IV)—managed to allow activities that do not harm or cause destruction to seafloor habitats, while conserving ecosystems, habitats and native species in as natural a state as possible.
- Multiple Use Zone (IUCN category VI)—managed to allow ecologically sustainable use while conserving ecosystems, habitats and native species. The zone allows for a range of sustainable uses, including commercial fishing and mining where they are consistent with park values.

1.10.2.3 World Heritage Properties

Australian World Heritage management principles are prescribed in Schedule 5 of the EPBC Regulations 2000. Management principles that are considered relevant to the scope of this EP are provided in **Table 1-4**.

Table 1-4: Relevant management principles under Schedule 5 – Australian World Heritage management principles of the EPBC Act

Number	Principle	Relevant Section of the EP
3	**Environmental impact assessment and approval** 3.01 This principle applies to the assessment of an action that is likely to have a significant impact on the World Heritage values of a property (whether the action is to occur inside the property or not). 3.02 Before the action is taken, the likely impact of the action on the World Heritage values of the property should be assessed under a statutory environmental impact assessment and approval process. 3.03 The assessment process should: (a) identify the World Heritage values of the property that are likely to be affected by the action; and (b) examine how the World Heritage values of the property might be affected; and (c) provide for adequate opportunity for public consultation. 3.04 An action should not be approved if it would be inconsistent with the protection, conservation, presentation or transmission to future generations of the World Heritage values of the property. 3.05 Approval of the action should be subject to conditions that are necessary to ensure protection, conservation, presentation or transmission to future generations of the World Heritage values of the property. 3.06 The action should be monitored by the authority responsible for giving the approval (or another appropriate authority) and, if necessary, enforcement action should be taken to ensure compliance with the conditions of the approval.	3.01 and 3.02: Assessment of significant impact on World Heritage values is included in **Section 6**. Principles are met by the submitted EP. 3.03 (a) and (b): World Heritage values are identified in **Section 4.8.1.9** and considered in the assessment of impacts and risks for the Petroleum Activity in **Section 6**. 3.03 (c): Relevant consultation and feedback received in relation to impacts and risks to the Ningaloo Coast and Shark Bay World Heritage Properties (which are both within the scope of this EP) are outlined in **Section 6**. 3.04, 3.05 and 3.06: Principles are considered to be met by the acceptance of this EP.

Note that Section 1 – General Principles and 2 – Management Planning of Schedule 5 are not considered relevant to the scope of this EP and, therefore, have not been included.

2 ENVIRONMENT PLAN PROCESS

2.1 Overview

This section outlines the process taken by Woodside to prepare the EP, once an activity has been defined as a petroleum activity (refer **Section 1.2**). This process describes the activity, the existing environment, followed by the environmental risk management methodology used to identify, analyse and evaluate risks to meet ALARP levels and acceptability requirements, and develop environmental performance outcomes (EPOs) and environmental performance standards (EPSs). This section also describes Woodside's risk management methodologies as applied to implementation strategies for the activity.

Regulation 13(5) of the Environment Regulations requires the detailing of environmental impacts and risks, and evaluation appropriate to the nature and scale of each impact and risk associated with the Petroleum Activities Program. The objective of the risk assessment process, described in this section, is to identify risks and associated impacts of an activity so they can be assessed and appropriate control measures applied to eliminate, control or mitigate the impact/risk to ALARP and determine if the impact or risk level is acceptable.

Environmental impacts and risks assessed include those directly and indirectly associated with the Petroleum Activities Program and includes potential emergency and accidental events:

- Planned activities (routine and non-routine) have the potential for inherent environmental impacts.
- An environmental risk is an unplanned event with the potential for impact (termed risk 'consequence').

Herein, potential impact from planned activities are termed 'impacts', and 'risks' are associated with unplanned events with the potential for impact (should the risk be realised), with such impact termed potential 'consequence'.

2.2 Environmental Risk Management Methodology

2.2.1 Woodside Risk Management Processes

Woodside recognises that risk is inherent to its business and that effectively managing risk is vital to delivering on company objectives, success and continued growth. Woodside is committed to managing all risks proactively and effectively. The objective of Woodside's risk management system is to provide a consistent process for recognising and managing risks across Woodside's business. Achieving this objective includes ensuring risks consider impacts across the following key areas of exposure: health and safety, environment, finance, reputation and brand, legal and compliance, and social and cultural. A copy of Woodside's Risk Management Policy is provided in **Appendix A**.

The environmental risk management methodology used in this EP is based on Woodside's Risk Management Procedure. This procedure aligns to industry standards such as international standard ISO 31000:2009. The WMS risk management procedure, guidelines and tools provide guidance on specific techniques for managing risk, tailored for particular areas of risk within certain business processes. Three such procedures applied for environmental risk management include Woodside's:

- Health Safety and Environment Management Procedure
- Impact Assessment Procedure
- Process Safety Management Procedure.

The risk management methodology provides a framework to demonstrate that the risks and impacts are continually identified, reduced to ALARP and assessed to be at an acceptable level, as required

by the Environment Regulations. The key steps of Woodside's Risk Management Process are shown in **Figure 2-1**. A description of each step and how it is applied to the scopes of this activity is provided in **Sections 2.1** to **2.11**.

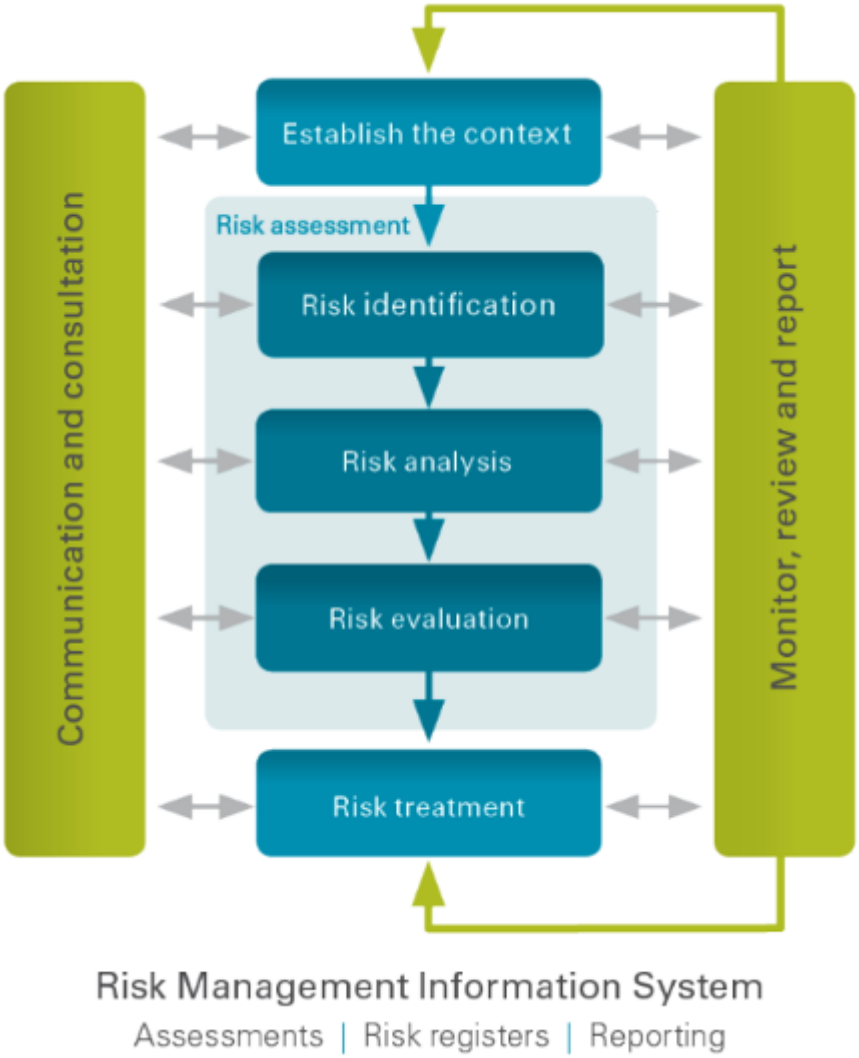

Figure 2-1: Woodside's risk management process

2.2.2 Health, Safety and Environment Management Procedure

Woodside's Health, Safety and Environment Management Procedure provides the structure for managing health, safety and environment (HSE) risks and impacts across Woodside and defines the decision authorities for company-wide HSE management activities and deliverables, and to support continuous improvement in HSE management.

2.2.3 Impact Assessment Procedure

To support effective environmental risk assessment, Woodside's Impact Assessment Procedure (**Figure 2-2**) provides the steps needed to meet required environment, health and social standards by ensuring impacts are assessed appropriate to the nature and scale of the activity, the regulatory context, the receiving environment, interests, concerns and rights of stakeholders, and the applicable framework of standards and practices.

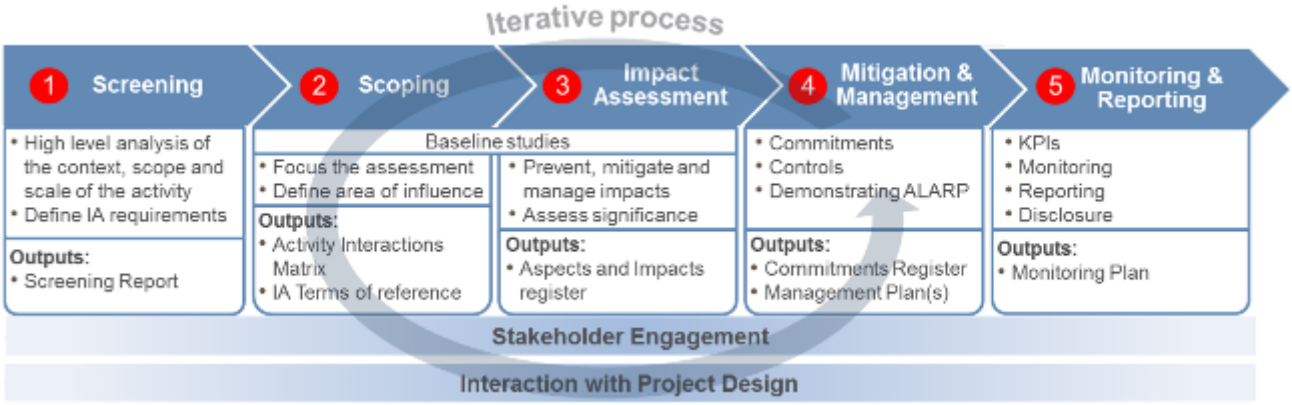

Figure 2-2: Woodside's impact assessment process

2.3 Environment Plan Process

Figure 2-3 illustrates the Environment Plan development process. Each element of this process is discussed further in **Sections 2.4** to **2.11**.

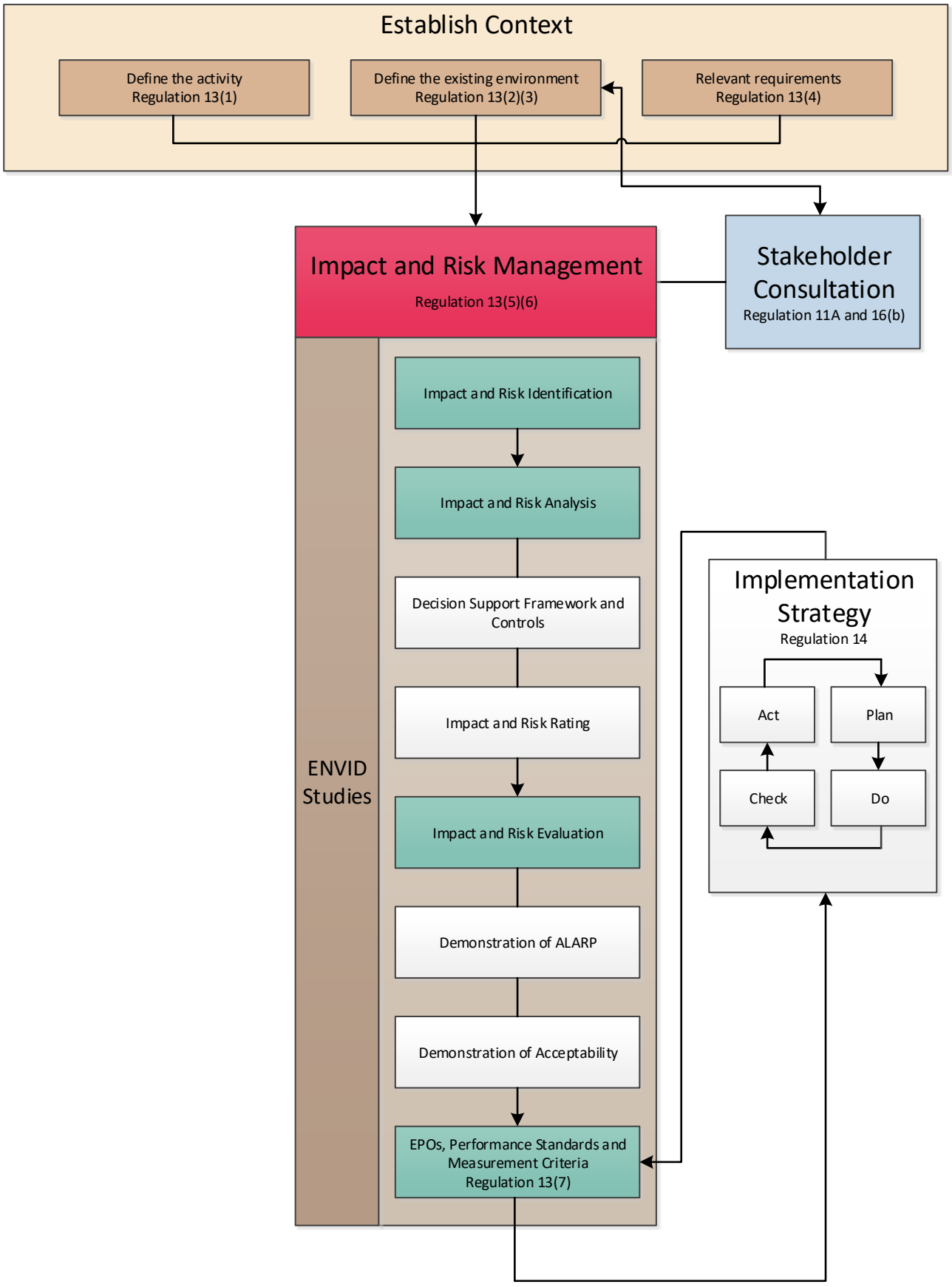

Figure 2-3: Environment plan development process

2.4 Establish the Context

2.4.1 Define the Activity

This first stage involves evaluating whether the activity meets the definition of a 'petroleum activity' as defined in the Environment Regulations.

The activity is then described in relation to:

- the location
- what is to be undertaken
- how it is planned to be undertaken, including outlining operational details of the activity, and proposed timeframes.

The 'what' and 'how' are described in the context of 'environmental aspects'[2] to inform the risk and impact assessment for planned (routine and non-routine) and unplanned (accidents/incidents/ emergency conditions) activities.

The activity is described in **Section 3** and referred to as the Petroleum Activities Program.

2.4.2 Defining the Existing Environment

The existing environment that may be impacted by the Petroleum Activities Program (as described in **Section 4**) is defined by considering the nature and scale of the activities (i.e., size, type, timing, duration, complexity and intensity of the activities). In accordance with Regulation 31(1) of the Environment Regulations, references to the Master Existing Environment, Appendix H in the Enfield Plug and Abandonment EP (hereafter referred to as the Master Existing Environment), have been made throughout this EP. The accepted EP (NOPSEMA EP No: 5632, ID: A803388) is available on the NOPSEMA website: Enfield Plug and Abandonment EP » NOPSEMA. The existing environment may potentially be impacted directly or indirectly by planned and unplanned events. Purpose is to describe the existing environment that may be impacted by the activity, directly or indirectly, by planned or unplanned[3] events.

The Existing Environment section (**Section 4**) is structured to define the physical, biological, socio-economic and cultural attributes of the area of interest in accordance with the definition of 'environment' in Regulation 4(a) of the Environment Regulations. These sub-sections make particular reference to:

- The environmental, and social and cultural consequences as defined by Woodside (refer to **Table 2-1**), which address key physical and biological attributes, as well as social and cultural values of the existing environment. These consequence definitions are applied to the impact and risk analysis (refer **Section 2.6.1.4**) and rated for all planned and unplanned activities. Additional detail is provided for evaluating unplanned hydrocarbon spill risk.
- EPBC Act Matters of National Environmental Significance (MNES), including listed threatened species and ecological communities and listed migratory species. Defining the spatial extent of the existing environment is guided by the nature and scale of the Petroleum Activities Program (and associated sources of environmental risk). This considers the Operational Area and wider environment that may be affected (EMBA), as determined by the hydrocarbon spill risk assessments presented in **Section 6.7**. MNES, as defined within the EPBC Act, are addressed through Woodside's impact and risk assessment (**Section 6**).

[2] *An environmental aspect is an element of the activity that can interact with the environment.*

- Relevant values and sensitivities, which may include world or national heritage listed areas, Ramsar wetlands, listed threatened species or ecological communities, listed migratory species, and sensitive values that exist in or in relation to commonwealth marine area or land.

By grouping potentially impacted environmental values by aspect (as presented in **Table 2-1**), the presentation of information about the receiving environment is standardised. This information is then consistently applied to the risk evaluation section to provide a robust approach to the overall environmental risk evaluation and its documentation in the EP.

Table 2-1: Environmental values potentially impacted by the Petroleum Activities Program which are assessed within the EP

Environmental Value Potentially Impacted *Regulations 13(2)(3)*						
Soil and Groundwater	***Marine Sediment***	***Water Quality***	***Air Quality (incl Odour)***	***Ecosystems/ Habitats***	***Species***	***Socio-Economic***

The existing environment is described in **Section 4**.

2.4.3 Relevant Requirements

The relevant requirements in the context of legislation, other environmental approval requirements, conditions and standards that apply to the Petroleum Activities Program have been identified and reviewed. Relevant requirements are presented in **Appendix B.**

Woodside's Corporate Health, Safety, Environment and Quality Policy is presented in **Appendix A**.

2.5 Impact and Risk Identification

Relevant environmental aspects and hazards have been identified to support the process to define environmental impacts and risks associated with an activity.

The environmental impact and risk assessment presented in this EP has been informed by recent and historic hazard identification studies (e.g., HAZID/Environmental Hazard Identification [ENVID]), Process Safety Risk Assessment processes, reviews and associated desktop studies associated with the Petroleum Activities Program. Risks are 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**). The environmental outputs of applicable risk and impact workshops and associated studies are referred to as 'ENVID' thereafter in this EP.

The ENVID was undertaken by multidisciplinary teams consisting of relevant engineering and environmental personnel with sufficient breadth of knowledge, training and experience to reasonably assure that risks were identified and their potential environmental impacts assessed. Impacts and risks were identified during the ENVID for both planned (routine and non-routine) activities and unplanned (accidents/incidents/emergency conditions) events. During this process, risks identified as not applicable (not credible) were removed from the assessment. This is done by defining the activity and identifying that an aspect is not applicable.

The impact and risk information was classified, evaluated and tabulated for each planned activity and unplanned event. Environmental impacts and risk were 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, standards and measurement criteria. This information is presented in **Section 6**, using the format presented in **Table 2-2**.

Table 2-2: Example of layout of identification of risks and impacts in relation to risk sources

Impacts and Risks Evaluation Summary													
Source of Risk	***Environmental Value Potentially Impacted***							***Evaluation***					
	Soil and Groundwater	***Marine Sediment***	***Water Quality***	***Air Quality (incl Odour)***	***Ecosystems/Habitat***	***Species***	***Socio-Economic***	***Decision Type***	***Consequence/Impact***	***Likelihood***	***Risk Rating***	***ALARP Tools***	***Acceptability***
Summary of source of impact/risk													

2.6 Impact and Risk Analysis

Risk analysis further develops the understanding of a risk by defining the impacts and assessing appropriate controls. Risk analysis considered previous risk assessments for similar activities, reviews of relevant studies, reviews of past performance, external consultation feedback and a review of the existing environment.

The key steps performed for each risk identified during the risk assessment were:

- identify the decision type in accordance with the decision support framework.
- identify appropriate control measures (preventative and mitigative) aligned with the decision type.
- assess the risk rating.

2.6.1 Decision Support Framework

To support the risk assessment process and Woodside's determination of acceptability (**Section 2.7.2**), Woodside's HSE risk management procedures include using a decision support framework based on principles set out in the Guidance on Risk Related Decision Making (Oil and Gas UK, 2014). This concept has been applied during the ENVID, or equivalent preceding processes during historical design decisions, to determine the level of supporting evidence that may be required to draw sound conclusions about risk level and whether the risk is ALARP and acceptable. This is to confirm:

- activities do not pose an unacceptable environmental risk
- appropriate focus is placed on activities where the risk is anticipated to be acceptable and demonstrated to be ALARP
- appropriate effort is applied to manage risks based on the uncertainty of the risk, the complexity and risk rating (i.e., potential higher order environmental impacts are subject to further evaluation/assessment).

The framework provides appropriate tools, commensurate to the level of uncertainty or novelty associated with the risk (referred to as Decision Type A, B or C). The decision type is selected based on an informed discussion around the uncertainty of the risk and documented in ENVID output.

This framework enables Woodside to appropriately understand a risk and determine if the risk is acceptable and can be demonstrated to be ALARP.

2.6.1.1 Decision Type A

Risks classified as a Decision Type A are well understood and established practice. They generally consider recognised good industry practice, which is often embodied in legislation, codes and standards, and use professional judgement.

2.6.1.2 Decision Type B

Risks classified as Decision Type B typically involve greater uncertainty and complexity (and can include potential higher order impacts/risks). These risks may deviate from established practice or have some lifecycle implications, and therefore require further engineering risk assessment to support the decision and ensure the risk is ALARP. Engineering risk assessment tools may include:

- risk-based tools such as cost based analysis or modelling
- consequence modelling
- reliability analysis
- company values.

2.6.1.3 Decision Type C

Risks classified as a Decision Type C typically have significant risks related to environmental performance. Such risks typically involve greater complexity and uncertainty; therefore, requiring adoption of a precautionary approach. The risks may result in significant environmental impact, significant project risk/exposure, or may elicit negative stakeholder concerns. For these risks, in addition to Decision Type A and B tools, company and societal values need to be considered by undertaking broader internal and external consultation as part of the risk assessment process.

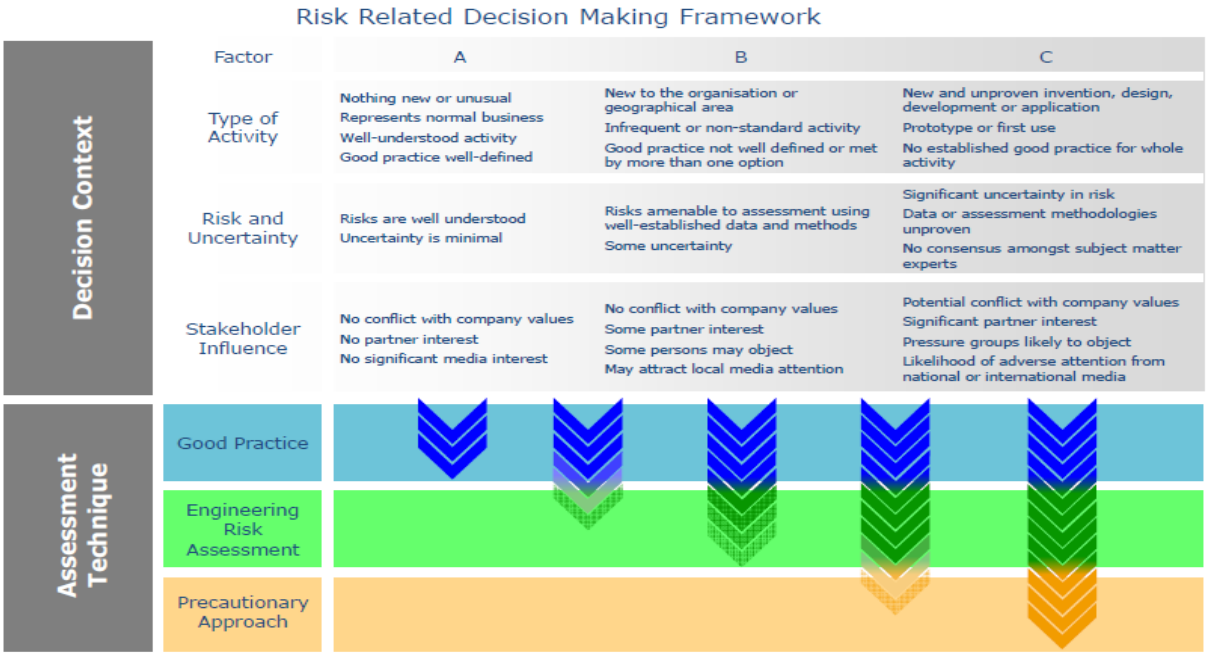

Figure 2-4: Risk related decision-making framework (Oil and Gas UK, 2014)

2.6.1.4 Decision Support Framework Tools

The following framework tools are applied, as appropriate, to assist with identifying control measures based on the decision type described above:

- **Legislation, Codes and Standards (LCS)** – identifies the requirements of legislation, codes and standards which are to be complied with for the activity.
- **Good Industry Practice (GP)** – identifies further engineering control standards and guidelines which may be applied by Woodside above that required to meet the legislation, codes and standards.
- **Professional Judgement (PJ)** – uses relevant personnel with the knowledge and experience to identify alternative controls. Woodside applies the hierarchy of control as part of the risk assessment to identify any alternative measures to control the risk.
- **Risk Based Analysis (RBA)** – assesses the results of probabilistic analyses such as modelling, quantitative risk assessment and/or cost-benefit analysis to support the selection of control measures identified during the risk assessment process.
- **Company Values (CV)** – identifies values identified in Woodside's code of conduct, policies and the Woodside compass. Views, concerns and perceptions are to be considered from internal Woodside stakeholders directly affected by the planned impact or potential risk.
- **Societal Values (SV)** – identifies the views, concerns and perceptions of relevant stakeholders and addresses relevant stakeholder views, concerns and perceptions.

2.6.1.5 Decision Calibration

To determine that the selection of alternatives and the control measures applied are suitable, the following tools may be used for calibration (i.e. checking) where required:

- **Legislation, Codes and Standards/Verification of Predictions** – verification of compliance with applicable legislation, codes and standards and/or good industry practice.
- **Peer Review** – independent peer review of professional judgements, supported by risk-based analysis, where appropriate.
- **Benchmarking** – where appropriate, benchmark against a similar facility or activity type or situation which has been accepted to represent acceptable risk.
- **Internal Consultation** – consultation undertaken within Woodside to inform the decision and verify company values are met.
- **External Consultation** – consultation undertaken to inform the decision and verify societal values are considered.

Where appropriate, additional calibration tools may be selected specific to the decision type and the activity.

2.6.2 Control Measures (Hierarchy of Controls)

Risk reduction measures should be prioritised and categorised in accordance with the hierarchy of controls, where risk reduction measures at the top of the hierarchy take precedence over risk reduction measures further down:

- **Elimination** of the risk by removing the hazard.
- **Substitution** of a hazard with a less hazardous one.

- **Engineering Controls** which include design measures to prevent or reduce the frequency of the risk event, detect or control the risk event (limiting the magnitude, intensity, and duration) such as:
  - Prevention: Design measures that reduce the likelihood of a hazardous event occurring.
  - Detection: Design measures that facilitate early detection of a hazardous event.
  - Control: Design measures that limit the extent/escalation potential of a hazardous event.
  - Mitigation: Design measures that protect the environment should a hazardous event occur.
  - Response Equipment: Design measures or safeguards that enable clean-up/response following the realisation of a hazardous event.
- **Procedures and Administration** which include management systems and work instructions used to prevent or mitigate environmental exposure to hazards.
- **Emergency Response and Contingency Planning** which includes methods to enable recovery from the impact of an event (e.g., protection barriers deployed near to the sensitive receptor).

2.6.3 Impact and Risk Classification

Environmental impacts and risks are assessed to determine the potential impact significance/consequence. The impact significance/consequence considers the magnitude of the impact or risk and the sensitivity of the potentially impacted receptor (represented by **Figure 2-5**).

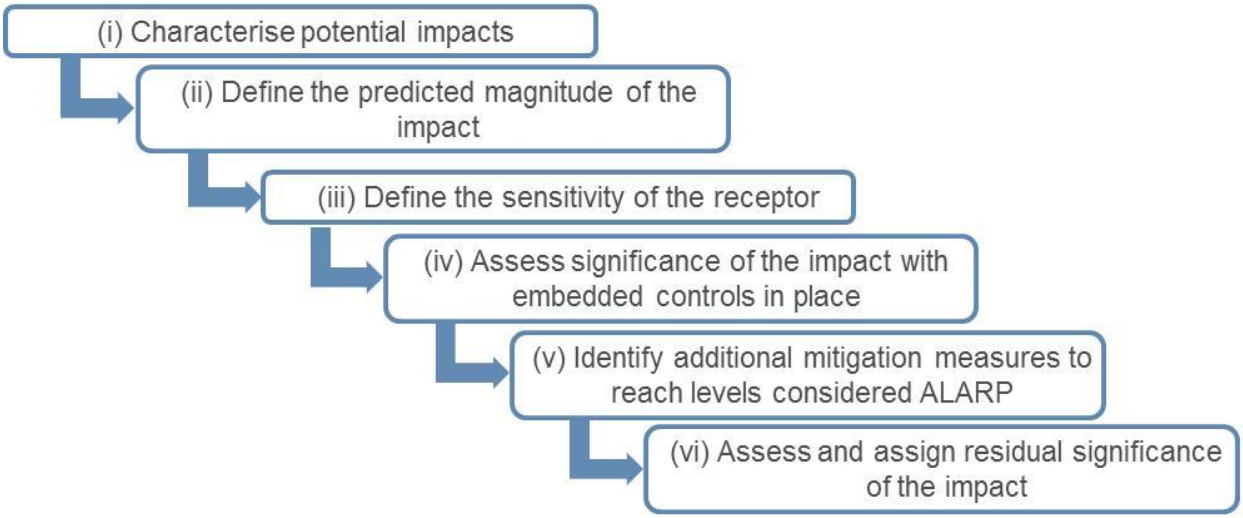

Figure 2-5: Environmental impact and risk analysis

Impacts are classified in accordance with the consequence (**Section 2.3**) outlined in the Woodside Risk Management Procedure and Risk Matrix.

Risks are assessed qualitatively and/or quantitatively in terms of both likelihood and consequence in accordance with the Woodside Risk Management Procedure and Risk Matrix.

The impact and risk information is summarised, including classification, and evaluation information, as shown in the example in **Table 2-2**, are tabulated for each planned activity and unplanned event.

Table 2-3: Woodside risk matrix (environment and social and cultural) consequence descriptions

Environment	Social & Cultural	Consequence Level
Catastrophic, long-term impact (>50 years) on highly valued ecosystems, species, habitat or physical or biological attributes	Catastrophic, long-term impact (>20 years) to a community, social infrastructure or highly valued areas/items of international cultural significance	*A*
Major, long-term impact (10–50 years) on highly valued ecosystems, species, habitat or physical or biological attributes	Major, long-term impact (5–20 years) to a community, social infrastructure or highly valued areas/items of national cultural significance	*B*
Moderate, medium-term impact (2–10 years) on ecosystems, species, habitat or physical or biological attributes	Moderate, medium-term Impact (2–5 years) to a community, social infrastructure or highly valued areas/items of national cultural significance	*C*
Minor, short-term impact (1–2 years) on species, habitat (but not affecting ecosystems function), physical or biological attributes	Minor, short-term impact (1–2 years) to a community or highly valued areas/items of cultural significance	*D*
Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes	Slight, short-term impact (<1 year) to a community or areas/items of cultural significance	*E*
No lasting effect (<1 month); localised impact not significant to environmental receptors	No lasting effect (<1 month); localised impact not significant to areas/items of cultural significance	*F*

2.6.3.1 Risk Rating Process

The risk rating process is performed to assign a level of risk to each risk event, measured in terms of consequence and likelihood. The assigned risk level is therefore determined after identifying the decision type and appropriate control measures.

The risk rating process considers the potential environmental consequences and, where applicable, the social and cultural consequences of the risk. The risk ratings are assigned using the Woodside risk matrix (**Figure 2-6**).

The risk rating process is performed using the following steps:

Select the Consequence Level

Determine the worst-case credible consequence associated with the selected event, assuming all controls (preventative and mitigative) are absent or have failed (**Table 2-3**). Where more than one potential consequence applies, select the highest severity consequence level.

Select the Likelihood Level

Determine the description that best fits the chance of the selected consequence occurring, assuming reasonable effectiveness of the preventative and mitigative controls (**Table 2-4**).

Table 2-4: Woodside risk matrix likelihood levels

Likelihood Description						
Frequency	1 in 100,000–1,000,000 years	1 in 10,000–100,000 years	1 in 1000–10,000 years	1 in 100–1,000 years	1 in 10–100 years	>1 in 10 years
Experience	**Remote**: Unheard of in the industry	**Highly Unlikely**: Has occurred once or twice in the industry	**Unlikely**: Has occurred many times in the industry but not at Woodside	**Possible**: Has occurred once or twice in Woodside or may possibly occur	**Likely**: Has occurred frequently at Woodside or is likely to occur	**Highly Likely**: Has occurred frequently at the location or is expected to occur
Likelihood Level	**0**	**1**	**2**	**3**	**4**	**5**

Calculate the Risk Rating

The risk level is derived from the consequence and likelihood levels determined above in accordance with the risk matrix shown in **Figure 2-6**. A likelihood and risk rating is only applied to environmental risks using the Woodside risk matrix.

This risk level is used as an input into the risk evaluation process and ultimately for prioritising further risk reduction measures. Once each risk is treated to ALARP, the risk rating articulates the ALARP baseline risk as an output of the ENVID studies.

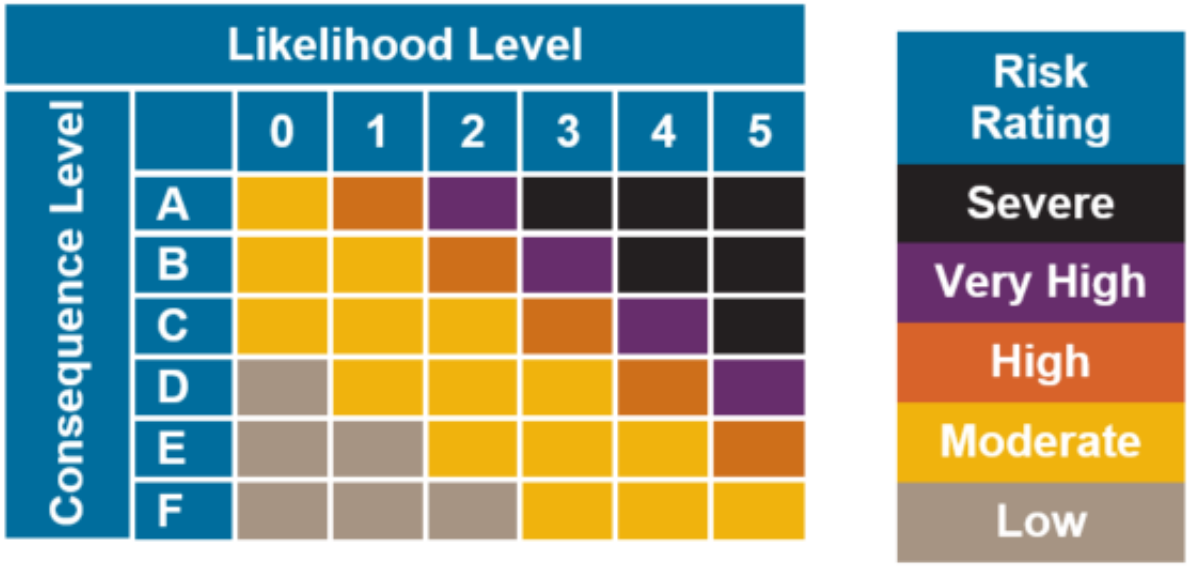

Figure 2-6: Woodside risk matrix: risk level

In support of ongoing risk management (a key component of Woodside's Process Safety Management Framework – refer to (**Section 7**), Woodside uses the concept of 'current risk' and applies a current risk rating to indicate the current or 'live' level of risk, considering the controls that are currently in place and regularly effective. Current risk rating is effective in articulating potential divergence from baseline risk, such as if certain controls fail or could potentially be compromised. Current risk ratings aid in the communication and visibility of the risk events, and ensures risk is continually managed to ALARP by identifying risk reduction measures and assessing acceptability.

2.7 Impact and Risk Evaluation

Environmental impacts and risks, cover a wide range of issues, affected by differing species, persistence, reversibility, resilience, cumulative effects and variability in severity. Determining the degree of environmental risk and the corresponding threshold for whether an impact or risk has been reduced to ALARP and is acceptable, is evaluated to a level appropriate to the nature and scale of each impact or risk. The evaluation considers:

- decision Type
- principles of Ecologically Sustainable Development as defined under the EPBC Act
- internal context – the proposed controls and risk level are consistent with Woodside policies, procedures and standards (**Section 6** and **Appendix A**)
- external context – the environment consequence (**Section 6**) and stakeholder acceptability (**Section 5**) are considered
- other requirements – the proposed controls and risk level are consistent with national and international standards, laws and policies.

In accordance with Regulations 10A(a), 10A(b), 10A(c) and 13(5)(b) of the Environment Regulations, Woodside applies the following process to demonstrate ALARP and acceptability for environmental impacts and risks, appropriate to the nature and scale of each impact or risk.

2.7.1 Demonstration of ALARP

Descriptions have been provided in **Table 2-5** to articulate how Woodside demonstrates different risks, impacts and Decision Types identified within the EP are ALARP.

Table 2-5: Summary of Woodside's criteria for ALARP demonstration

Risk	Impact	Decision Type
Low and Moderate	***Negligible, Slight, or Minor (D, E or F)***	***A***
Woodside demonstrates these risks, impacts and decision types are reduced to ALARP if: • controls identified meet legislative requirements, industry codes and standards, applicable company requirements and industry guidelines • further effort towards impact/risk reduction (beyond employing opportunistic measures) is not reasonably practicable without sacrifices grossly disproportionate to the benefit gained.		
High, Very High or Severe	***Moderate and above (A, B or C)***	***B and C***
Woodside demonstrates these higher order risks, impacts and decision types are reduced to ALARP (where it can be demonstrated using good industry practice and risk-based analysis) that: • legislative requirements, applicable company requirements and industry codes and standards are met • societal concerns are accounted for • the alternative control measures are grossly disproportionate to the benefit gained.		

2.7.2 Demonstration of Acceptability

Descriptions have been provided in **Table 2-6** to articulate how Woodside demonstrates that different risks, impacts and Decision Types identified within the EP are acceptable. (Please also refer to **Figure 2-6** for a visual representation against Woodside's risk matrix).

Table 2-6: Summary of Woodside's criteria for Acceptability

Risk	Impact	Decision Type
Low and Moderate	***Negligible, Slight, or Minor (D, E or F***	***A***
Woodside demonstrates these risks, impacts and decision types are 'Broadly Acceptable' if they meet legislative requirements, industry codes and standards, applicable company requirements and industry guidelines. Further effort towards risk reduction (beyond employing opportunistic measures) is not reasonably practicable without sacrifices grossly disproportionate to the benefit gained.		
High, Very High or Severe	***Moderate and above (A, B or C)***	***B and C***
Woodside demonstrates these higher order risks, impacts and decision types are 'Acceptable if ALARP' if it can be demonstrated using good industry practice and risk-based analysis, if legislative requirements are met and societal concerns are accounted for, and the alternative control measures are grossly disproportionate to the benefit gained. In undertaking this process for Moderate and High current risks, Woodside evaluates: • the Principles of Ecological Sustainable Development as defined under the EPBC Act • the internal context – the proposed controls and consequence/risk level are consistent with Woodside policies, procedures and standards • the external context – the environment consequence (**Section 6**) and stakeholder acceptability (**Section 5**) are considered • other requirements – the proposed controls and consequence/ risk level are consistent with national and international industry standards, laws and policies. Additionally, Very High and Severe risks require 'Escalated Investigation' and mitigation to reduce the risk to a lower and more acceptable level. If after further investigation the risk remains in the Very High or Severe category, the risk requires appropriate business engagement in accordance with Woodside's Risk Management Procedure to accept the risk. This includes due consideration of regulatory requirements.		

2.8 Recovery Plan and Threat Abatement Plan Assessment

To support the demonstration of acceptability, a separate assessment is undertaken to demonstrate that the EP is not inconsistent with any relevant recovery plans or threat abatement plans (refer **Section 1.10.2.2**). The steps in this process are:

- Identify relevant listed threatened species and ecological communities (**Section 4.5**).
- Identify relevant recovery plans and threat abatement plans (Section 3.2 of the Master Existing Environment).
- List all objectives and (where relevant) the action areas of these plans and assess whether these objectives/action areas apply to government, the Titleholder, and the Petroleum Activities Program (**Section 6.8**).
- For those objectives/action areas applicable to the Petroleum Activities Program, identify the relevant actions of each plan, and evaluate whether impacts and risks resulting from the activity are clearly not inconsistent with that action (**Section 6.8**).

2.9 Environmental Performance Objectives/Outcomes, Standards and Measurement Criteria

EPOs/EPSs and measurement criteria have been defined to address the potential environmental impacts and risks and are presented in **Section 6**.

2.10 Implementation, Monitoring, Review and Reporting

An implementation strategy for the Petroleum Activities Program describes the specific measures and arrangements to be implemented for the duration of the Petroleum Activities Program. The

implementation strategy is based on the principles of AS/NZS ISO 14001 Environmental Management Systems, and demonstrates:

- control measures are effective in reducing the environmental impacts and risks of the Petroleum Activities Program to ALARP and acceptable levels
- EPOs and EPSs set out in the EP are met, through monitoring, recording, audit, management of non-conformance and review
- all environmental impacts and risks of the Petroleum Activities Program are periodically reviewed in accordance with Woodside's risk management procedures
- roles and responsibilities are clearly defined, and personnel are competent and appropriately trained to implement the requirements set out in this EP, including in emergencies or potential emergencies
- arrangements are in place for oil pollution emergencies to respond to and monitor impacts
- environmental reporting requirements, including 'reportable incidents', are met
- appropriate consultation is undertaken throughout the activity.

The implementation strategy is presented in **Section 7**.

2.11 Consultation

Woodside undertakes consultation in the course of preparing EPs. The consultation, along with the process for ongoing engagement and consultation throughout the activity, is presented in **Section 5**. A copy of the full text correspondence is provided in **Appendix G**.

3 DESCRIPTION OF THE ACTIVITY

3.1 Overview

This section has been prepared in accordance with Regulation 13(1) of the Environment Regulations, and describes the activities to be performed as part of the Petroleum Activities Program under this EP.

This EP is a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation EP, as outlined in **Section 1.1**. Several of the activities described in the previous revision of this EP have been completed and are no longer within the scope of this EP. Descriptions of these activities have been retained to provide context for the petroleum activities program. The descriptions state whether the activity has been completed or is yet to be completed.

3.2 Project Overview

Woodside currently produces hydrocarbons from the Pluto, Pyxis and the Xena fields in Production Licence WA-34-L.

The Petroleum Activities Program in this EP revision involves drilling (including re-spudding and side-tracking, if required) and completing one Pluto infill production well (PLA08) and contingent workover of several wells within the Pluto, Pyxis and Xena fields if required. The PLA08 well is a new well introduced to the scope of the petroleum activities program in this revision of the EP.

The previous revision of this EP included the drilling of one Pyxis hub well (PYA01), one Pluto infill production well (PL-PYA02), two Xena infill production wells (XNA02 and XNA03) and performing subsea installation and cold commissioning to enable hydrocarbons from these wells to be produced through the existing nearby Pluto field flowlines. The XNA03 well, which was included within the previous revision of this EP, has been removed from this petroleum activities program .

All other wells within the scope of the previous revision of this EP have been drilled and completed in accordance with the accepted previous revision of this EP. Commissioning and operation of the wells drilled under this or the previous revision of this EP will be performed in accordance with the accepted Pluto Offshore Facility Operations EP.

If required, Woodside may also intervene or workover the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Production Licence WA-34-L to monitor and maintain their integrity, and/or mechanically alter them as required.

An overview of the Petroleum Activities Program is provided in **Table 3-1**, with a generalised schematic of the Pyxis Hub development provided in **Figure 3-1**.

Table 3-1: Petroleum Activities Program overview

Item	Description
Petroleum Title	WA-34-L
Location	North West Shelf
Water depth	About 170 m to 990 m
Number of wells	***Existing Wells*** • Pyxis Hub wells: one production well (PYA01); one infill production well (PL-PYA02) • Xena wells: (XNA01 and XNA02)Pluto wells (PLA01, PLA02, PLA03, PLA04, PLA05, PLA06 and PLA07) ***Proposed Well*** • One Pluto infill production well (PLA08)

Item	Description
Subsea infrastructure	***PLA08 infrastructure**** • one subsea xmas tree (XT) • one subsea control module (SCM) and foundation skid, Stabcon connector to tie into existing Pluto manifold (10 m x 5 m), • one production flexible (Pluto Production Manifold to XT) – 8” 350 m • one MEG Jumper (Pluto Production Manifold to SCM Support Structure) – 2” 350 m • hydraulic flying lead (HFLs) and electric flying leads (EFLs): – one HFL from Pluto Production Manifold to SCM Support Structure – 8” 300 m – two HFLs from SCM Support Structure to XT – 8” 100 m each – two EFLs from Pluto Production Manifold to SCM Support Structure – 2” 350 m each – three EFLs from SCM Support Structure to XT – 100 m each • mattresses/grout bags and mud mats (approx. 12, nominally 6 x 3 m each)
MODU	Options include a semi-submersible dynamically positioned (DP) MODU, DP drill ship or other DP MODU, depending on availability and suitability for the well locations and activities.
Vessels	• installation vessels for installing the subsea infrastructure (project vessels) • well intervention vessel as an option for well intervention, subsea installation or contingent activities • support vessels including general supply/support vessels.
Key activities	• development drilling and completions • installation of subsea infrastructure • tie-in to existing subsea infrastructure • cold commissioning of the new subsea infrastructure • contingent well unloading • contingent intervention or workover of existing wells or re-drill of new well.

** Some changes to the subsea layout may occur during the engineering phase for the tie-back, infrastructure presented here is indicative.*

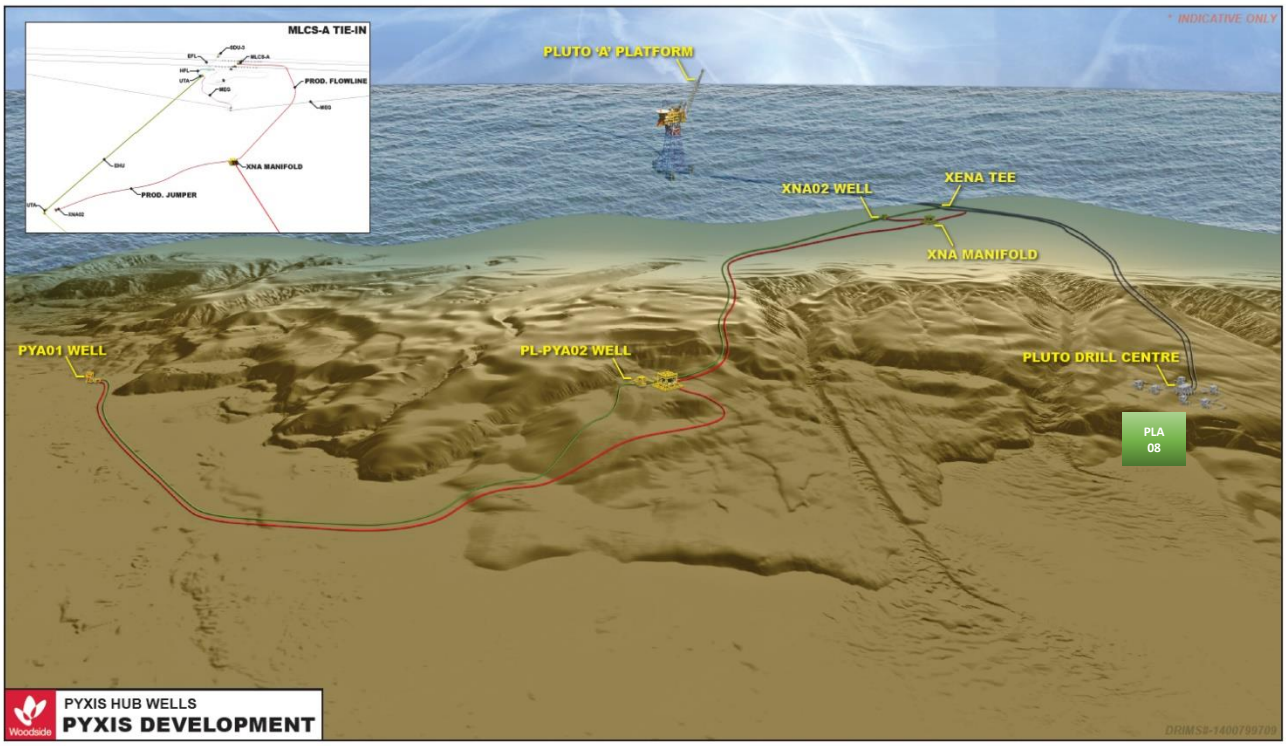

Figure 3-13-: Generalised schematic of the Pluto subsea infrastructure

3.3 Location

The Petroleum Activities Program is located in Production Licence WA-34-L in Commonwealth waters about 170 km north-west of Dampier. The closest landfall to the Petroleum Activities Program is the Montebello Islands, about 50 km south-east at their closest point (**Figure 3-2**). Approximate location details for the Petroleum Activities Program are provided in **Table 3-2** with connections via subsea infrastructure (e.g., flowlines, umbilicals etc.). The proposed PLA08 well location is subject to refinement during detailed engineering but will be within 1 km of the coordinates provided in **Table 3-2**.

Table 3-2: Approximate location for the Petroleum Activities Program

Activity	Water Depth (Approx. m LAT)	Latitude	Longitude
New Wells			
PLA08*	820 m	19° 54’ 42.003” S	115° 08’ 02.424” E
Existing Subsea Infrastructure			
Pluto manifold	830m	19° 54' 48.924" S	115° 7' 55.2" E
PYA manifold	844 m	19°52'46.2896”S	115°09’00.0179”E
XNA manifold	182 m	19°57'52.6141”S	115°12’54.6816”E
Existing Wells			
PLA01 well	830 m	19°54'49.220”S	115°07'54.497”E
PLA02 well	830 m	19°54'48.226”S	115°07'54.151”E
PLA03 well	830 m	19°54'48.200”S	115°07'54.765”E
PLA04 well	830 m	19°54'48.566”S	115°07'55.798”E
PLA05 well	830 m	19°54'48.694”S	115°7'56.3530”E
PLA06 well	830 m	19°54'48.686”S	115°07'55.577”E
PLA07 well	830 m	19°54’47.584”S	115°07’55.000”E
PYA01 well	985 m	19°49'40.371”S	115°10'34.956”E
PL-PYA02 well	862 m	19°52'34.908”S	115°09'00.666”E
XNA01 well	180 m	19°58'13.579”S	115°12'46.195”E
XNA02 well	182 m	19°57’49.116”S	115°13’02.735”E

**The exact location of PLA08 infill well is to be determined, although will be within 1 km of the coordinates provided.*

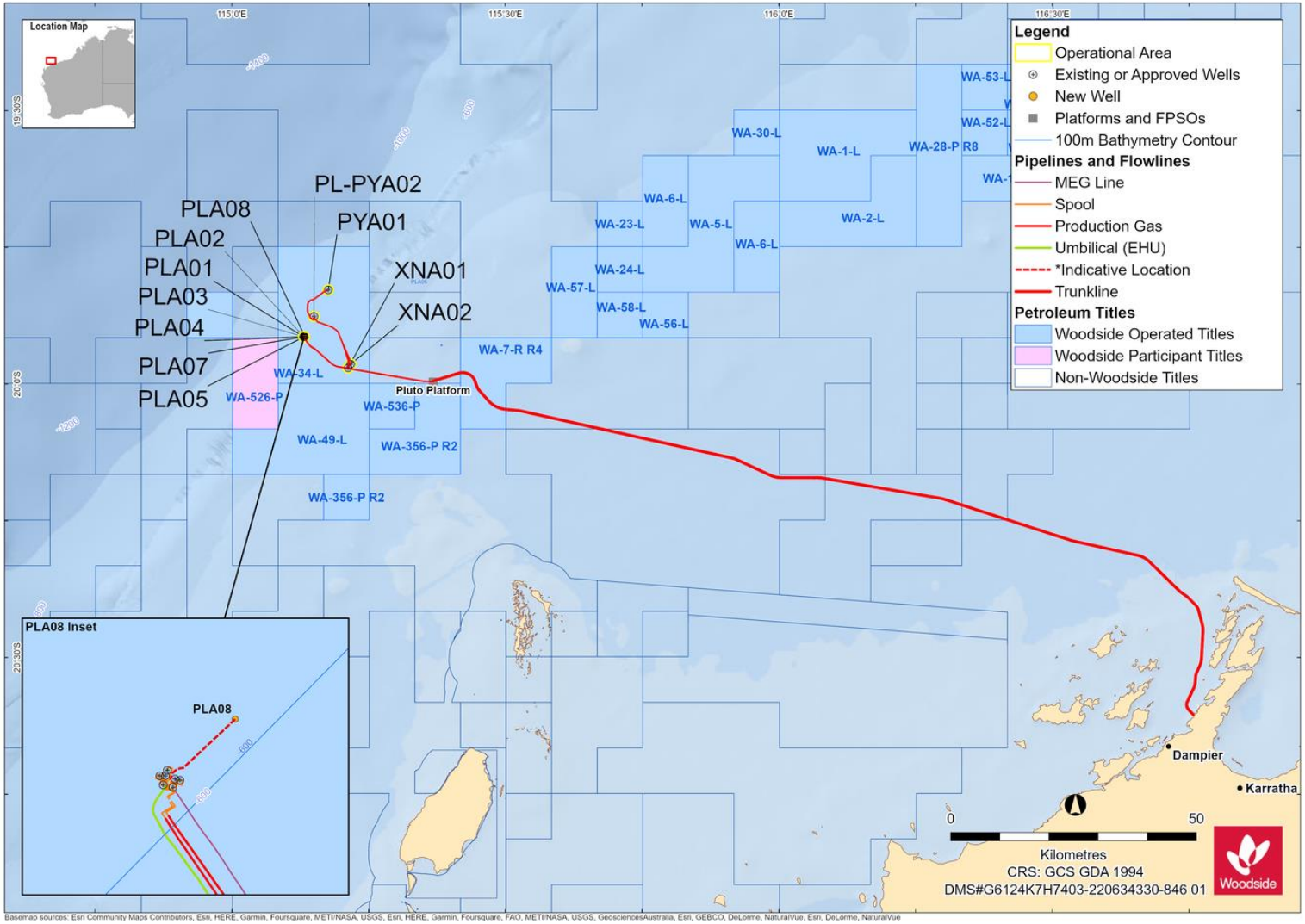

Figure 3-2: Location of Petroleum Activities Program Operational Area

The spatial boundary of the Petroleum Activities Program has been described and assessed using one 'area', the Operational Area. The Operational Area defines the spatial boundary of the Petroleum Activities Program, as described, risk-assessed and managed by this EP, including vessel-related petroleum activities[4].

For the purposes of this EP, the following operational areas apply, which are referred to as a single Operational Area:

- For a dynamically positioned MODU/drillship, the Operational Area encompasses a radius of 1000 m from each well centre, in which drilling related petroleum activities will take place and will be managed under this EP.
- An Operational Area of 1000 m will be applied around subsea installation locations (PLA08 to Pluto manifold), while activities are taking place.

The Operational Area for drilling activities includes a 500 m safety exclusion zone around the MODU to manage vessel movements. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The 1000 m (radius) Operational Area around subsea installation allows for the movement and positioning of large vessels and also includes a 500 m radius safety exclusion zone around installation vessels.

Vessel-related activities within the operational area will comply with this EP.

3.4 Timing

The Petroleum Activities Program is planned to commence in Q3/4 2023 with the drilling of the Pluto infill well (PLA08) and related subsea installation. Drilling operations for the production well are expected to take approximately 50 days to complete, including mobilisation, demobilisation and contingency. Installation of subsea connections and cold commissioning is anticipated to commence within 1-9 months from when the well has been completed and is expected to have a cumulative duration of about four weeks (including mobilisation, demobilisation and contingency).

Well intervention or workover activities will notionally require 70 days per well and may be undertaken at any time during the in-force period of this EP, if required.

When underway, activities will be 24 hours per day, seven days per week. There are no planned concurrent drilling activities under the EP. Simultaneous Operations (SIMOPS) activities with subsea installation will not take place. Timing and duration of all activities is subject to change due to project schedule requirements, MODU/vessel availability, unforeseen circumstances and weather.

The EP has risk assessed drilling activities, subsea infrastructure installation, cold commissioning activities and intervention, workover, or re-drilling activities throughout the year (all seasons) to provide operational flexibility for requirements and schedule changes and vessel/MODU availability.

Woodside may continue to undertake activities in accordance with the previous revision of this EP, which has been accepted by NOPSEMA, until Woodside notifies NOPSEMA that this revision of the EP has commenced.

3.5 Project Vessels

Several vessel types will be required to complete the activities associated with the Petroleum Activities Program. These are discussed in further detail in the following section and will include:

- MODU – In this EP, the term MODU refers to any mobile offshore drilling unit; options include a semi-submersible Dynamically Positioned (DP) MODU or DP drillship, depending on availability

[4] Vessels supporting the Petroleum Activities Program operating outside of the Operational Area (e.g. transiting to and from port) are subject to all applicable maritime regulations and other requirements, which are not managed under this EP

and suitability for the well location (e.g., water depth). No moored MODUs will be used to undertake the Petroleum Activities Program. The PLA08 well will be drilled by a DP MODU.

- Installation vessel(s) for installing and cold commissioning the XT, flowline, HFLs, EFLs, jumpers, and other subsea infrastructure and hardware
- Support vessels including:
  - Activity Support Vessels for transporting hardware from port/staging area to the Operational Area and installation vessels, and for general re-supply and support for the MODU and installation vessel(s)
  - Subsea Support Vessel for light well intervention (LWI) operations associated with contingent well intervention, subsea installation and other activities

Some support vessels may be required ad hoc to support periods of high activity.

All project vessels are subject to the Marine Offshore Assurance process and review of the Offshore Vessel Inspection Database (OVID). 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 1978 (MARPOL) and other International Maritime Organization (IMO) standards.

For power generation, vessels may use diesel-powered generators and/or LNG. All vessels 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*. The MODU and support vessels will be lit to maintain operational safety on a 24-hour basis.

3.5.1 MODU

The PLA08 well will be drilled by a DP MODU. Contingent well intervention activities may be performed by a semi-submersible DP MODU or drillship. Typical specifications for a DP MODU are provided in **Table 3-3**. These are collectively referred to as MODU for the remainder of the document unless specific risks for different MODU types have been identified. Due to variabilities such as contractual and operational matters, the MODU used may be subject to change.

Table 3-3: Typical DP MODU specifications ranges for *Valaris DPS-1*

Component	Specification Range
Rig Type/Design/Class	Ultra-deepwater semi-submersible MODU
Accommodation	189 persons (maximum persons on board)
Station Keeping	Dynamically positioned
Bulk Mud and Cement Storage Capacity	1000 m^3
Liquid Mud Storage Capacity	2663 m^3
Fuel Oil Storage Capacity	3640 m^3
Drill Water Storage Capacity	3482 m^3

3.5.2 Installation Vessels

The Petroleum Activities Program subsea installation scopes of work may require various installation vessels, with sufficient capacity to accommodate hardware and equipment such as flowlines, flexible jumpers, umbilicals and the cold commissioning/dewatering spreads.

A typical installation vessel for subsea and flowline installation would be a DP vessel (usually DP2 Class) equipped with a primary differential global surface positioning system (DGPS) and an independent secondary DGPS backup. The specification of a typical subsea installation vessel is provided in **Table 3-4**.

Installation vessels are typically equipped with various material handling equipment, which includes cranes, winches, remotely operated vehicles (ROVs) and ROV launch and recovery systems, vertical lay system (VLS) with either vertical reel drive or horizontal reel drive (carousel) and cold commissioning spread.

Lifting operations may involve loading and unloading equipment from support and supply vessels onto the installation vessel and subsequently onto the seabed. Cranes are typically equipped with active heave compensation and auto tension, modes and have lifting capacities in excess of lifting loads expected to be encountered during operations.

Table 3-4: Typical DP2 Class subsea installation vessel for *Deep Orient*

Component	Specification Range
Vessel Type	DP2 Class as a minimum
Crane Capacity	250 T active heave compensation crane as minimum
ROVs	Two Work Class ROVs
Deck Space	Approximately 1900 m²
Deck Strength	Approximately 15 T/m²
Accommodation	Approximately 120 people
Fuel Oil	Approximately 2200 m³
Potable Water	Approximately 800 m³

3.5.3 Subsea Support Vessel for LWI Activities

During the Petroleum Activities Program, a subsea support vessel for light well intervention (LWI) operations may be used as an option for contingent well intervention, subsea installation and other activities. An example of this vessel type is the *Sapura Constructor*, which is a 117 m long subsea support vessel equipped with a saturation dive system, two Work Class ROVs, well intervention equipment, a helideck, moon pool and accommodation for 120 persons. The final vessel selection, if required, will be subject to commercial and/or operational considerations.

3.5.4 Support and Other Vessels

During the Petroleum Activities Program, the MODU and installation vessel will be supported by other vessels, such as general support vessel(s).

Support vessels are used to transport equipment and materials between the MODU/installation vessel and port (e.g., Dampier, Onslow, Exmouth). When required a support vessel will perform standby duties at the MODU. At any given time, support vessels will make regular trips between the Operational Area to port for routine, non-routine and emergency operations.

Support vessels will be using their DP system within the Operational Area during the project's activities.

The support vessels are also available to assist in implementing the Oil Pollution First Strike Plan (**Appendix E**), should an environmental incident occur (e.g., spills).

3.5.5 Vessel Mobilisation

Vessels may mobilise from the nearest Australian port or directly from international waters to the Operational Area, in accordance with biosecurity and marine assurance requirements.

3.6 Other Support

3.6.1 Remotely Operated Vehicles

The MODU, installation vessel(s) and support vessels may be equipped with an ROV system that is maintained and operated by a specialised contractor aboard the vessel. ROVs may be used during drilling operations and subsea installation, for activities such as:

- pre-drill seabed and hazard survey
- blowout preventer (BOP) land-out and recovery
- BOP well control contingency
- visual observations at seabed during riserless drilling operation
- pre and post installation survey
- horizontal subsea xmas tree control systems hook-up and contingency control
- installation, testing and cold commissioning of subsea infrastructure.

An ROV can be fitted with various tools and camera systems that can be used to capture permanent records (both still images and video) of the operations and immediate surrounding environment. Specifically, during installation, the ROV will be fitted with hydraulically driven tools to facilitate flowline tie-in.

An ROV may also be used in the event of an incident to deploy the Subsea First Response Toolkit. This is discussed further in **Appendix D**.

3.6.2 Helicopters

During the Petroleum Activities Program, crew changes may be performed using helicopters as required. Helicopter operations within the Operational Area are limited to helicopter take-off and landing on the helideck. Helicopters may be refuelled on the helideck. This activity will take place within the Operational Area and has been included in the risk assessment for this EP.

3.7 Project Vessel-based Activities

3.7.1 Holding Station: Dynamic Positioning MODU

DP uses satellite navigation and radio transponders in conjunction with thrusters to maintain the position of the MODU at the required location. Information about the position of the MODU is provided via a number of seabed transponders, which emit signals that are detected by receivers on the MODU and used to calculate position. The transponders are typically deployed in an array on the seabed, using clump weights comprising concrete, for the duration of the drilling at each well, and are recovered at the end, generally by ROV. If clump weights are used they are recovered .

3.7.2 MODU and Support Vessel Activities

A variety of materials are routinely bulk transferred from support vessels to the MODU including drilling fluids (e.g., muds), base fluids, cements and drill water. A range of dedicated bulk transfer

stations and equipment are in place to accommodate the bulk transfer of each type of material. There is also a capacity to bulk transfer waste oil from the MODU to the support vessel, for back-loading and disposal on shore.

The loading and back-loading of equipment, materials and wastes is one of the most common supporting activities conducted during drilling programs. Loading and back-loading is performed using cranes on the MODU to lift materials in appropriate offshore rated containers (e.g., ISO tanks, skip bins, containers) between the MODU and support vessel.

Seawater is pumped on board and used as a heat exchange medium for cooling machinery engines and high temperature drilling fluid on the MODU. It is subsequently discharged from the MODU at the sea surface at potentially a higher temperature. Alternately, MODUs may use closed loop cooling systems.

Potable water, primarily for accommodation and associated domestic areas, may be generated on vessels using a reverse osmosis plant. This process will produce brine, which is diluted and discharged at the sea surface.

The MODU and support vessels will also discharge deck drainage from open drainage areas, bilge water from closed drainage areas, putrescible waste and treated sewage and grey water. Solid hazardous and non-hazardous wastes generated during the Petroleum Activities Program are disposed of onshore by support vessels.

The MODU and support vessels may also take on or discharge ballast water in order to maintain vessel stability. All ballast water exchanges will be undertaken in accordance with relevant requirements, such as the Australian Ballast Water Management Requirements.

3.7.3 Subsea Installation and Support Vessel Activities

An installation vessel may be used for various activities such as pre and post installation survey, installation of subsea structures, installation of the flowline, installation of interconnecting HFL, EFL and MEG jumper, tie-in to existing infrastructure, and cold commissioning activities.

Other support vessels may also be used to transport equipment, hardware and MEG from shore to the installation vessel.

3.7.4 Refuelling

The MODU will be refuelled via support vessels approximately once a month, or as required. Refuelling will occur within the Operational Area and has been included in the risk assessment for this EP. Other fuel transfers that may occur on board the MODU may include refuelling of cranes, helicopters or other equipment as required.

As the base case, refuelling of installation vessels is planned to occur outside of the Operational Area during interim mobilisation/demobilisation.

3.8 Drilling Activities

Well construction activities are conducted in a number of stages, as described below. Detailed well designs will be submitted to the Well Integrity department of NOPSEMA as part of the Approval to Drill and the accepted Well Operation Management Plan (WOMP), as required under the *Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011.*

3.8.1 Cement Unit Test

Upon arrival on location at the Operational Area, the MODU may need to perform a cement unit test, or 'dummy cement job', to test the functionality of the cement unit and the MODU's bulk cement delivery system before performing an actual cement job. This operation is usually performed after a MODU has been out of operation for an amount of time (warm-stack), if maintenance on the cement unit has been performed, or if it is the first time a MODU is being used in-country and commissioning of the cement unit system is required.

A 'dummy cement job' involves mixing a sacrificial 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 (which may be up to 10 m above the sea level) or through drill pipe below sea level as a cement slurry. The slurry is usually a mix of cement and water; however, may sometimes contain stabilisers or additives. The indicative volume of cement that may be discharged to sea during a cement unit test is approximately 100 bbl.

3.8.2 Top Hole Section Drilling

Petroleum Activities Program drilling commences with the top hole section as follows:

- The MODU arrives and establishes position over the well site.
- Top-hole sections are drilled riserless using seawater with pre-hydrated bentonite sweeps/XC Polymer sweeps or drilling fluids to circulate drilled cuttings from the wellbore. As a contingency, Water Based Mud (WBM) may be used in the presence of a shallow gas anomaly.
- Once the top hole sections of the well have been drilled, steel tubulars (called conductor or casing) are inserted into the wellbore to form the surface/intermediate casing and secured in place by pumping cement into the annular space above the casing shoe or to surface (seabed), which will involve discharging excess cement at the seabed.

3.8.3 Blowout Preventer and Marine Riser Installation

After setting the surface or intermediate casing, a BOP is installed on the wellhead, and the marine riser above it, to provide a physical connection between the well and MODU. This enables a closed circulation system to be maintained, where weighted drilling fluids and cuttings can be circulated from the wellbore back to the MODU, via the riser.

In addition, the BOP provides a means for sealing, controlling and monitoring the well during drilling operations. The BOP components operate using open hydraulic systems, using water-based BOP control fluids.

Each time a BOP pressure and function test schedule is undertaken approximately 3620 L of water-based fluid is released to the marine environment, of this approximately 4% is control fluid additive. BOP operation includes function and pressure testing approximately every 21 days, and a function test (approximately 2665 L) approximately every seven days, excluding the week a pressure test is conducted.

Hydraulic fluid used for operating the BOP rams is subject to the chemical assessment process outlined in **Section 3.10**.

3.8.4 Bottom Hole Section Drilling

A closed system (riser in place) is used for drilling bottom hole sections to the planned wellbore Total Depth (TD). The bottom hole sections will be drilled using water-based mud (WBM) drilling fluids, although contingency non-water-based muds (NWBM) may be used if WBM cannot meet technical requirements (**Section 3.10**).

Protective steel tubulars (casings and liners) are inserted as required. The size, grade, weight, length and inclination of the casing/liner sections within the wellbore are determined by factors such as the geology/subterranean pressures likely to be encountered in the area and any specific information or resource development requirements.

After a string of casing/liner has been installed into the wellbore, it is cemented into place. The casing/liner is then pressure tested. Once the pressure testing is passed, drilling of the next section can resume with the riser in place to circulate drill cuttings and drilling fluids back to the MODU.

Cementing operations can be performed to:

- provide annular isolation between hole sections and structural support of the casing/liner as required
- set a plug in an existing well to sidetrack
- plug a well so it can be suspended/abandoned.

Cement is transported as dry bulk to the MODU by the support vessels, mixed as required by the cementing unit on the MODU and pumped by high pressure pumps to the surface cementing head then directed down the well.

Excess cement (dry bulk) after well operations are completed will either be held onboard and used for subsequent wells, provided to the next operator at the end of the program, or discharged to the marine environment. Excess cement that does not meet technical requirements during the Petroleum Activities Program may also be bulk discharged to the environment. Bulk discharges of cement may occur as a slurry through the usual cement discharge line or blown as dry bulk and discharged.

3.8.5 Formation Evaluation

Formation evaluation is the interpretation of a combination of measurements taken inside a wellbore to detect and quantify hydrocarbon presence in the rock adjacent to the well. Formation Evaluation While Drilling (FEWD) is the process by which the presence and quantity of hydrocarbon in a reservoir is measured according to its response to radioactive and electrical input. It may include extracting small cores, wireline logging, full diameter cores and other down-hole technologies, as required. FEWD tools will be incorporated into the drillstring during development drilling and may include gamma ray, directional deep resistivity, callipers, density-neutron, sonic and tools which can measure formation pressures. Some FEWD tools contain radioactive sources; however, no radioactive material will be released to the environment and radiation fields are not generally detectable outside the tool when the tool is not energised. Therefore, they do not present an environmental risk.

3.8.6 Wellbore Clean Out

As required throughout activities with the riser connected, wells will be displaced from one drilling fluid system to another, or from the drilling fluid system to completion brine. A chemical clean-out pill or fluids train will be circulated between the two fluids. Brine is typically a filtered brine with < 70 NTU or < 0.05% total suspended solids (TSS). This results in a brine and seawater discharge after this operation.

Clean-out fluids and completion brine will be captured and stored on the MODU and discharged if oil concentration is < 1% by volume or returned to shore if discharge requirements cannot be met.

3.8.7 Xmas Tree Installation/Tubing Head Spool Installation

Before the upper completion is installed into the wells, the xmas tree and flow base/tubing head will be installed from either an installation vessel or directly from the MODU. Due to the subsea well layout, if installation was to occur from the installation vessel, the MODU will be required reposition away from the drill centre to allow the installation vessel to install the xmas tree and flow base/tubing head. Once the xmas tree and flow base/tubing head have been installed, they will be pressure tested- to confirm integrity before the MODU BOP is reconnected to continue with drilling and completions activities.

The xmas tree and flow base/tubing head will be installed with a preservation mixture in the production and annulus bore.

3.8.8 Completions Activities

Once the well has been drilled, well completion activities will be performed which may include the installation of the lower completion, intermediate completion, production tubing and subsea tree and/or tubing head spool. The well is then pressure-tested for integrity before well suspension.

The well will be completed with a conventional upper completion. The well will be suspended with two crown plugs installed in the tubing hanger. Crown plugs will be individually pressure-tested to verify suspension barriers before removing the BOP.

3.8.9 Well Unload

3.8.9.1 General Description

During well unloading activities, all completion and reservoir fluids will be directed to the Pluto facility and be handled by the systems onboard the platform, in accordance with the accepted Pluto Facility Operations Environment Plan

In the event that fluids from well unloading cannot be directed to the Pluto facility, they may be flared or discharged to the environment via the well test package onboard the MODU. The base oil column, completion fluid, hydrocarbons and produced/condensed water will be measured, handled, separated, treated for overboard discharge (non-hydrocarbon) and flared/burned (hydrocarbon) through the temporary production system on the MODU. Note that the opportunity to unload to the Pluto facility is Woodside's preferred option, which could eliminate or reduce well unloading to the MODU.

3.8.9.2 Produced/Reservoir Water Disposal

If fluids from well unloading are directed to the MODU, the well test water treatment package will be used to treat produced/reservoir water before discharge. Prior to discharging, the fluids are cycled through an oilbond filtration system and gauge tank. Water filtration is standard practice for well unloading operations. Fluids that cannot be treated or flared will be sent onshore in tanks for disposal.

3.8.9.3 Emissions

If well unloading is performed to the MODU, it is expected that condensate, diesel and methanol in the wellbore will be flared. The flare may be extinguished due to water ingress, lack of fuel (propane), weather impact or equipment failure resulting in cold venting of gas from the flare for several minutes before the flare can be restarted or venting stopped. After the objectives of the well testing and flowback are achieved, the flow is stopped and the well may be cleaned using a brine that can include several chemicals, such as biocide and surfactant.

3.9 Subsea Installation and Cold Commissioning Activities

3.9.1 Existing Subsea Infrastructure

The PLA08 well will tie in to a slot on the existing Pluto subsea production manifold. This manifold, and associated upstream infrastructure are described in the Pluto Offshore Facility Operations EP and are beyond the scope of this EP.Proposed Subsea Infrastructure

The subsea installation scope of work may include installing and cold commissioning the infrastructure summarised in **Table 3-5**. The Petroleum Activities Program includes directly installing flowlines and infrastructure from the installation vessel. There will be potential for small discharges associated with the testing and connection activities of the subsea systems during hook-up and cold commissioning of the PLA08 well . Examples include:

- Discharge of small volumes of flowline contents during tie-in.
- Initial dissolving of chemical sticks prior to connectors being closed.
- Isolation testing resulting in small volumes of hydrocarbon gas being discharged.

Table 3-5: Subsea installation component summary

Description	Detail	Dimensions (approx.) L × W × H
PLA08 Well		
Well	Xmas tree	5 × 4 × 4 m
	Tree cap	3 × 3 × 3 m
Subsea flowlines	8” flexible flowline between PLA08 xmas tree and existing Pluto production manifold	350 m in length
	2” MEG jumper	350 m in length
Subsea control	One SCM and foundation skid for tie-in to existing Pluto manifold	10 m x 5 m
	Various EFLs	Up to ~350 m in length
	Various HFLs	Up to ~300 m in length
Subsea structures	Mudmats, mattresses, grout bags etc.	Various
	SDUs and UTAs mudmats	5 × 4 × 2 m

3.9.2 Pre-lay Survey

The flowline installation contractor may perform a pre-lay survey before starting the flowline installation. The pre-lay survey may be performed by a dedicated pre-lay survey vessel, which is typically similar in size to support vessels or potentially the installation vessel.

The pre-lay survey is a debris and hazard identification survey and not a full geophysical survey along the pre-determined route or proposed design route. A number of site surveys have already been performed and it is not anticipated that any debris will need to be removed before flowline installation. If required, these activities will fall under this EP and will be performed by an installation vessel, or alternatively, a support vessel or similar.

The pre-lay survey is expected to be performed by an ROV or autonomous underwater vehicle (AUV) using side scan sonar and/or video. The survey methods are non-intrusive and the equipment, under planned operation, will not disturb the seabed. Information is transferred to the vessel via an umbilical or downloaded when the instrument is recovered (if an AUV is used). The pre-lay survey may also be done using a side scan sonar fish towed behind the pre-lay survey vessel, designed to tow cleanly and with stability, and typically incorporates a safety line for emergency recovery.

A multi-beam echo sounder (MBES) may also be used and is a common survey tool for offshore surveys. MBES uses a technique of sound pulses to establish the profile of the seabed. Most systems work by transmitting a broad acoustic pulse from a hull or pole-mounted transducer.

3.9.3 Underwater Acoustic Positioning

An array of a long baseline transponders (LBL) and/or ultra-short baseline transponders (USBL) may be installed on the seabed as required by the installation activities. The USBL subsea transponder transmits an acoustic pulse back to the vessel receiver, hence providing an accurate positioning of the subsea transponder location. The LBL array provides accurate positioning by measuring ranges to three or more transponders deployed at known locations on the seabed and structures. These transponders will be used to correctly position the flowline and pre-lay structures and will be recovered at the end of the installation program. Transmissions are not continuous but consist of short 'chirps' with a duration that ranges from 3 to 40 milliseconds. Transponders will not emit any sound when on standby and are planned to only actively emit sound for about six hours per well. When required for general positioning, they will emit one chirp every five seconds (estimated to be required for four hours at a time). When required for precise positioning, they will emit one chirp every second (estimated to be required for two hours at a time).

The LBLs may be moored to the seabed by a clump weight. The standard clump weights used will likely weigh about up to 100 kg. On completion of the positioning operation, the array transponders and the clumps will be recovered to deck. The USBLs are mounted to the subsea infrastructure and will be removed post installation.

3.9.4 Sediment, Mobilisation and Relocation

Sediment mobilisation and relocation techniques such as jetting, and mass flow excavation etc. may also be used to support subsea installation, such as to create a short corridor to submerge flowlines and umbilicals for crossings.

3.9.5 Installation of Supporting Structure

If required, supporting structures (e.g., mudmats, fixed datum points) will be installed by the installation vessel or pre-lay survey vessel before commencing or post subsea installation.

Transponder(s) will be fitted on each structure before deployment. Structures will be deployed using the installation vessel's main crane to a pre-determined depth before engaging the ROV to guide it to the correct position. The structures will be positioned accurately on the seabed using the installed LBL array or USBL.

Additional pre-deployed clump weights may potentially be used to provide further assurance that the structure will be positioned in the correct location and orientation. These clump weights will be recovered post installation.

3.9.6 General Flowline Installation

The installation contractor will mobilise an installation vessel to the field to install the flowlines and jumpers to the seabed. The installation vessel will operate in DP throughout the campaign.

Optimum flowline and umbilical routes will be selected by considering seabed bathymetry, pre-installation surveys and installation risk management, including dropped object risks and buckling/walking impacts. This may require shifting the existing PLA07 HFL with an ROV to allow for flowline installation.

Due to the water depth, the PLA08 flowline will be installed using a vertical lay system. The indicative installation methodology and principle applied when installing the flowline is as follows:

- the flowline will be reeled onto either horizontal or vertical reels.
- VLS will be installed on the vessel to lay flowline.
- during installation, a hydraulically driven centre reel drive will be engaged to the reel to rotate the reel in synchronised speed with the VLS.
- installation sequence for flowline is as follows:
  - prepare connection system and VLS onboard the vessel.
  - perform tests and pre-deployment checks.
  - deploy flowline, crane and connect ROV to tail end.
  - continue flexible flowline lay as per lay route while monitoring touchdown with ROV until the total length of flowline has been laid to its connection point on the manifold.

The flexible flowline and/or jumpers may be installed using a lighter installation spread on the installation vessel, via a deck-mounted powered reel system in combination with a deployment chute mounted on the side of the installation vessel and temporary installation aids placed on the seabed. In the event the flexible flowline needs to make a turn, a temporary small bulkabag filled with sand are deployed to act as the turning bollard. Turning bollards (if required) would have their contents (sand locally sourced) left on the seabed and the bags recovered to the installation vessel.

3.9.7 General HFL, EFL and Jumper Installation

The Petroleum Activities Program includes installing new subsea components that will tie in the PLA08 well to the existing infrastructure of the Pluto gas fields as listed in **Table 3-5**. The HFLs and EFLs will be configured into deployment basket(s) and landed on the seabed using a crane. ROVs will complete the final subsea tie-in. The jumper will be deployed and installed as per **Section 3.9.6**. Water jetting and/ or acid injection may be used to clean the connections on the infrastructure prior to tie-in.

3.9.8 Span/Scouring Rectification and Stabilisation

Spans are undulations in the seabed that do not provide sufficient support to the flowline. Spans are generally mitigated by installing structures, such as concrete mattresses, before installing the flowline. Engineering validation will determine if concrete mattresses need to be installed to mitigate spans.

Scouring is the movement of seabed sediment (e.g., silt, sand and gravel) from around the base of the subsea structure to further afield due to prevailing hydrodynamic conditions, compromising the integrity of a structure. Scouring is generally mitigated by installing mattresses along the perimeter of the installed structure.

The dimensions for each concrete mattress are typically 6 m by 3 m. The concrete mattresses will be transported either directly by installation vessel or by a support vessel to the installation vessel on site or during mobilisation for installation. The mattresses will be lifted off the installation vessel and lowered to the seabed by the vessel's main crane. The ROV from the installation vessel will be used to orientate the mattresses during installation.

Post-lay span rectification may also be required after subsea installation. This process typically involves placing grout bags under the span section. The empty bag is moved into position using ROV, then filled with grout supplied from a mixing and pumping spread on the vessel via a downline, or multiple pre-filled 25 kg grout bags may be used. Typical pumped grout volumes depend on the size of the span and may vary from about 200 kg to 2000 kg per span. Concrete mattresses may also be used for post-lay span rectification, with the dimensions of mattresses and the process for installation likely to be similar to those described above for pre-lay span rectification.

If grout bags are used, the downline recovery time risks exceeding the grout curing time. If grout cures within the downline and pump, the equipment is likely to be rendered unserviceable, as well as the downline not being safely recoverable in the normal way. Therefore, after grouting activities at each span site, the downline and pump will need to be purged using seawater. This results in an amount of grout, approximately equivalent to the downline volume (5 m^3), being discharged to the ocean. This flushing is required once per grout site. The actual number is not known until the line is laid and need for span rectification determined, if any.

Stabilisation is a post lay activity to ensure light items, such as HFL, EFL and jumpers, remain at their installed positions; i.e., not being shifted due to strong seabed current. Stabilisation is generally mitigated by installing sand bags on top of HFLs, EFLs and jumpers at a predetermined distance apart. Sand bags generally come in a standard size with 20 kg to 40 kg weight.

3.9.9 Flood, Clean, Gauge and Hydrotesting Pressure Testing

Pressure testing is performed to test the integrity of subsea infrastructure, test isolations and identify any leaks. Pressure is usually applied to the component from the Pluto facility but can also be applied via a downline from a support vessel. Failure of testing equipment or integrity of the tested infrastructure may lead to a loss of hydrotest fluids to the marine environment.

All chemicals used in flood, clean and gauge testing (FCGT) activities will be subject to the chemical selection assessment process described in **Section 3.10.1**.

3.9.9.1 Flooding

All flexible jumpers will be installed filled with chemically treated with up to 90 wt% MEG/water. The MEG concentration must be Fibre-grade (99.9 wt%) before mixing with water. All production flexible flowlines will not require further flooding post installation.

3.9.9.2 Hydrotesting

A leak test/system pressure test will be performed to confirm the integrity of subsea connections, flowlines, and jumper as required by DNVGL-ST-F101 and API-RP-17B. During leak testing there may be small volumes of test fluids discharged to environment during connection and disconnection of hot stabs.

3.9.9.3 Cleaning, Gauging and Dewatering

The flexible flowline and jumper will not be dewatered and inerted after installation, nor will any cleaning or gauging be carried out.

3.9.10 Preservation Post Subsea Connection Break Out

During tie-in and cold commissioning activities, any subsea connection break-outs will be preserved with chemical sticks.

3.9.11 Tie-in of Flowlines at Pluto and Xena Manifolds

Prior to tie-in of the PLA08 flowline and MEG jumper to Pluto manifold, , verification testing of any leakage from the manifold branch isolation valves may be undertaken. This testing will verify that suitable isolations for safe tie-in are available, thereby preventing a major hydrocarbon release during tie-in. This verification may result in the release of hydrocarbons and MEG to the environment. The hydrocarbons are predominately gas with a small quantity of condensate. Additionally, when the flowline tie-ins take place, a quantity of hydrocarbons may be released. A conservative estimate of hydrocarbons that may be released during each flowline tie-in at the manifolds is up to 200 L of

condensate and residual gas over a 48 hour period. Water jetting and/ or acid injection may be used to clean the connections on the infrastructure prior to tie-in.

3.9.12 Cold Commissioning of Subsea Infrastructure

The commissioning associated with subsea infrastructure prior to the introduction of hydrocarbons (referred to as cold commissioning) generally includes subsea control systems verification and function testing of valves to verify that the HFLs and EHLs are ready for entry into the commissioning phase.

3.10 Project Fluids

3.10.1 Assessment of Project Fluids

All chemicals that may be operationally released or discharged to the marine environment by the Petroleum Activities Program are 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.

All approved drilling and completions 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 (UK) 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 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 two schemes (as shown in **Figure 3-3**):

1. Hazard Quotient (HQ) Colour Band: Gold, Silver, White, Blue, Orange or Purple (listed in order of increasing environmental hazard), or
2. 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.

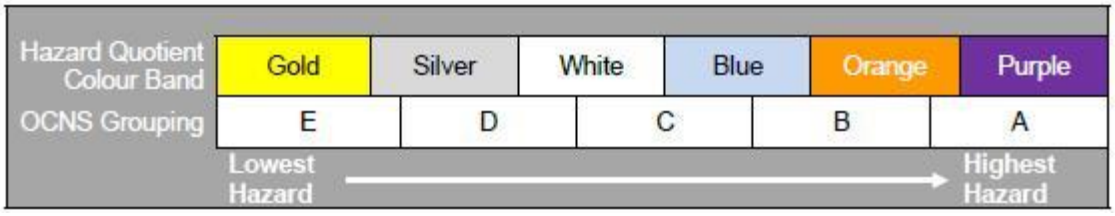

Figure 3-3: OCNS ranking scheme

Chemicals fall into the following assessment types:

- No further assessment: Chemicals with an 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 an HQ band of White, Blue, Orange or Purple or an OCNS ranking of A, B or C
  - chemicals with an OCNS product or substitution warning.

3.10.1.1 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.*

Ecotoxicity

Chemical ecotoxicity is assessed using the criteria used by CEFAS to group chemicals based on ecotoxicity results (**Table 3-6**). 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 3-6: 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	>100-1000	>1000
Result for sediment toxicity data (ppm)	<10	>10-100	>100-1000	>1000-10,000	>10,000

Note: Aquatic toxicity refers to the Skeletonema constatum *EC_{50},* Acartia tonsa *LC_{50} and* Scophthalmus maximus *(juvenile turbot) LC_{50} toxicity tests; sediment toxicity refers to* Corophium volutator *LC_{50} test.*

Biodegradation

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

CEFAS categories biodegradation into the following groups:

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

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

Bioaccumulation

The bioaccumulation of chemicals is assessed using the CEFAS bioaccumulation criteria, which aligns 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, the following options are considered:

- 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.

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 an HQ band of Gold or Silver, or OCNS 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 to ensure the risk is ALARP and acceptable.

Decision

Once the further assessment/ALARP justification has been completed, the relevant environment adviser must concur that the environmental risk as a result of chemical use is ALARP and acceptable.

3.10.2 Drilling Fluid System

3.10.2.1 Water Based Mud System

The Petroleum Activities Program will use a water drilling fluid system as the planned option.

In addition to the base fluid, drilling muds contain a variety of chemicals, incorporated into the selected drilling fluid system to meet specific technical requirements (e.g., mud weight required to manage pressure, or for borehole stability). All chemicals selected for use have been assessed under Woodside's internal guidelines to ensure potential impacts are acceptable, ALARP and meet Woodside's expectation for environmental performance.

The WBM drilling fluid will either be mixed on the MODU or received pre-mixed, then stored and maintained in a series of pits aboard the MODU. The top hole sections will be drilled riserless with seawater containing pre-hydrated gel sweeps, with cuttings and drilling fluids returned to the seabed. If shallow hydrocarbons are encountered, a WBM may be used to kill the shallow hydrocarbon flow. The bottom hole sections may be drilled using WBM in a closed circulation system which enables reuse of the WBM drilling fluids.

WBM drilling fluids that cannot be reused (e.g., due to bacterial deterioration or do not meet required drilling fluid properties) or are mixed in excess of required volumes, may be operationally discharged to the ocean under the MODU's Permit to Work (PTW) system. Opportunities to reuse the WBM drilling fluids at the end of the Petroleum Activities Program are reviewed across current Woodside drilling activities.

WBM may not be able to be reused between drilling sections due to the drilling sequence, technical requirements of the mud (i.e., no tolerance for deterioration of mud during storage) and maintenance of productivity/injectivity.

A number of factors unique to each drilling program will determine the quantities of WBM drilling fluids required and subsequent discharge volumes if no suitable reuse option is available.

3.10.2.2 Mud Pits

There are typically a number of mud pits (tanks) on the MODU that provide a capacity to mix, maintain and store fluids required for drilling activities. The mud pits form part of the drilling fluid circulating system. The mud pits and associated equipment/infrastructure are cleaned out at the end of drilling and completions operations. Mud pit wash residue is operationally discharged with less than 1% oil contamination by volume. Mud pit residue over 1% oil volume is sent to shore for disposal.

3.10.3 Drill Cuttings

Drill cuttings generated from the well are expected to range from very fine to very coarse (<1 cm) particle/sediment sizes. Cuttings generated during drilling of the top hole sections are discharged at the seabed. Estimated volumes of drill cuttings that may be discharged during the Petroleum Activities Program are presented in **Section 6.6.5**.

The bottom hole sections will be drilled with a marine riser that enables cuttings and drilling fluid to be circulated back to the MODU, where the cuttings are separated from the drilling fluids by the Solids Control Equipment (SCE). The SCE comprises but is not limited to shale shakers, cuttings dryer(s) and centrifuges. The SCE uses shale shakers to remove coarse cuttings from the drilling mud. After being processed by the shale shakers, the recovered mud from the cuttings may be directed to centrifuges, which are used to remove fine solids (4.5 to 6 µm). The cuttings are usually discharged below the water line and the mud is recirculated into the fluid system.

If contingency NWBM is needed to drill a well section, the cuttings which are separated from the NWBM via the shakers will also pass through a cuttings dryer and associated SCE, to reduce the average oil on cuttings for the entire well (only sections using NWBM) to 6.9% wt/wt or less on wet cuttings, prior to discharge. Woodside is not planning to use NWBM and their use is retained as a contingency only. The approval process within Woodside to permit the use of NWBM is described in **Section 3.11.4**.

3.11 Contingent Activities

The following sections present contingencies that may be required, if operational or technical issues occur during the Petroleum Activities Program. These contingencies have been considered within the relevant impact assessment sections and do not represent significant additional risks or impacts, but may generate additional volumes of drilling fluids and cuttings being discharged operationally.

3.11.1 Respud

A respud may be required for a number of reasons, such as if the conductor or well head slumps or fails installation criteria (typically during top hole drilling). Re-spudding involves moving the MODU to a suitably close location (e.g., ~50 m from the original location) to recommence drilling. A respud activity would result in repeating top hole drilling (**Section 3.8.2**).

The environmental aspects of re-spudding are the same as those for drilling and are considered to be adequately addressed by this EP (**Section 6.6**), with no significant changes to existing environmental risks or any additional environmental risks likely. The net environmental effect will be limited to an increase in the volume of cuttings generated (**Section 6.6.5**) and discharged at the

seabed, from the repeat drilling of the top hole section, plus an increase in the quantity of cement discharged at seabed from cementing the conductor and surface casing strings.

3.11.2 Sidetrack

The option of a sidetrack instead of a respud may be required if operational issues are encountered. The environmental aspects of a sidetrack well are the same as those for routine drilling activities, which are considered to be adequately addressed by this EP (**Section 6.6**), with no significant changes to existing environmental risks or any additional environmental risks likely. The net environmental effect will be limited to an increase in the volume of cuttings generated (**Section 6.6.5**), potential increase in the use of drilling fluids and the additional emissions (atmospheric and waste) associated with an extended drilling program.

3.11.3 Workover

The existing or previously approved production wells (PLA01 to PLA07, XNA01, XNA02, PYA01, PL-PYA02) and proposed development well (PLA08) may be worked over. A workover or intervention may be required to restore production or integrity due to a failed completion or component in the well. The environmental aspects of a workover operation are the same as those for well completion activities and are considered to be adequately addressed by this EP, with no significant changes to existing environmental risks or any additional environmental risks likely.

3.11.4 Non-water Based Mud System

The PLA08 well is planned to be drilled entirely using WBM, however NWBM may be required for bottom hole sections as a contingency. The decision to use NWBM drilling fluids for the bottom hole sections of a well is based on a variety of technical factors relevant to wellbore conditions, such as well temperature, well shape and depth, reactivity of the formation to water and well friction. The technical justification to use NWBM includes environment, health, safety and waste management considerations.

The use of NWBM drilling fluids is subject to a formal written commercial and/or technical justification approved in accordance with the Best Practice – Overburden Drilling Fluids Environmental Requirements. The main ingredient of NWBM is base oil, and similar to a WBM system, a range of standard solid and liquid additives may be added in the pits to alter specific mud properties for each section of the well, dependent on the conditions encountered while drilling.

The NWBM drilling fluid will be primarily mixed onshore (new or reuse of existing stock) and transferred to the MODU by a support vessel, where it is stored and maintained in the mud pits. During drilling operations, the NWBM drilling fluid, like the WBM, is pumped by high pressure pumps down the drill string and out through the drill bit, returning via the annulus between the drill string and the hole/casing back to the MODU via the riser.

The used NWBM pumped back to the MODU contains drill cuttings and is pumped to the solid control equipment (SCE), where the drill cuttings are removed before the NWBM is pumped back to the pits ready for reuse. The technical properties of the NWBM drilling fluids are maintained/altered (e.g., to increase weight) using additives as required when in the mud pits.

The NWBM drilling fluids that cannot be re-used (i.e., do not meet required drilling fluid properties or are mixed in excess of required volumes) are recovered from the mud pits and returned to the shore base for onshore processing, recycling and/or disposal. The mud pits and associated equipment/infrastructure are cleaned when NWBM is no longer required, with wash water treated onboard through SCE before discharge with mud pit washings, or returned to shore for disposal if discharge criteria cannot be achieved (refer to **Section 3.10.2.2**).

3.11.5 Well Suspension

During drilling activities, a well may need to be temporarily suspended. 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. Suspension may be short term (e.g., in the case of a cyclone) or longer term (more than one year). On return to a well after suspension, the MODU reconnects to the well via the riser, and with BOP in place, barriers are removed and drilling and completions activity resumes.

3.11.6 Wireline Logging

Wireline contingencies that may be in place for development drilling include gamma ray and casing collar locator for depth correlation, ultrasonic imaging tool and cement bond log to measure cement integrity, formation pressures (XPT), density, neutron and resistivity and punch perforators/tubing cutters suitable for all tubing sizes. Wireline contingency work will be performed with appropriate isolation barriers in place, i.e., an overbalanced fluid column. If wireline work is required to occur in a live well, or where there is a risk of barrier failure, the operation will be performed with full pressure control equipment at the surface.

Some logging tools may contain low activity radiation sources. Radiation fields are not generally detectable outside the tool when the tool is not energised; therefore, they do not present an environmental risk.

3.11.7 Well Intervention

An intervention may be performed on any of the Petroleum Activities Program wells. Interventions may be performed due to down-hole equipment failure or to address underperformance of a well. Key well intervention methods include wire-line and coiled tubing. Potential environmental impacts from intervention activities have been included in this EP, including discharge of suspension fluids and brines and small volume gas releases subsea due to removal of a tree cap which may be in place if the well was previously suspended.

3.11.8 Well Abandonment

The Petroleum Activities Program covers the drilling and intervention of production wells, which are not envisaged to be abandoned until the end of the production field life. For technical reasons, the lower section of a well may need to be abandoned, before sidetracking, or if a respud is required.

Well abandonment activities are conducted in accordance with Woodside's internal standards. Base oil may be used for inflow testing before abandonment, to verify barrier integrity. Base oil would be pumped down the drill string and reverse -circulated back to the rig, with fluids collected for disposal onshore. If stored in a mud pit, the base oil and other fluids associated with the test may result in pit wash water contaminated with hydrocarbons. If this is the case, mud pit wash water would be discharged in accordance with requirements in this EP; with a hydrocarbon content <1% by volume.

If required, wells will be abandoned with abandonment cement plugs, including verification of cement plug by tagging and/or pressure testing through a prescribed program. A lower section of a well may also be abandoned before sidetracking.

After abandonment activity, the marine riser and BOP will be removed and every reasonable attempt made to retrieve the wellhead. Conventional wellheads are removed by deploying a cutting device on drill pipe which then cuts through the casing and conductor, allowing the wellhead to be retrieved to the surface. Backup cutting equipment is sent offshore as a contingency should the primary set of equipment fail. The conductor cutting equipment is very reliable with a high success rate of cutting wellheads.

If these recognised removal techniques are ineffective, the wellhead may be left in-situ. The integrity of the wellbore is not affected by the wellhead assembly remaining in-situ.

3.11.9 Wellhead Assembly Left In-situ

If a well is abandoned due to the requirement to respud, the wellhead assembly may be left in-situ if recognised removal techniques are ineffective. Well abandonment activities would be performed as outlined in **Section 3.11.8** but the well assembly would remain. The integrity of the wellbore is not affected by the wellhead assembly remaining in-situ. The environmental aspects of the wellhead assembly remaining in-situ as a contingent activity are considered to be adequately addressed by this EP (**Section 6.6**), with no significant changes to existing environmental risks or any additional environmental risks likely.

Final decommissioning of the development wellhead assembly and other subsea infrastructure at the end of field life will be subject to a separate EP.

3.11.10 Sediment Mobilisation and Relocation

If required, an ROV-mounted suction pump/dredging unit may be used to relocate sediment/cuttings around the wellhead or other infrastructure, to keep the area clear and safe for operations and equipment. This activity has the potential to generate plumes of suspended sediment during pumping and disturb benthic fauna in the immediate area.

3.11.11 Venting

During drilling of the well, a kick may occur. A kick is an undesirable influx of formation fluid into the wellbore. To maintain well integrity in this situation, a small volume of greenhouse gas is released to the atmosphere via the degasser, in a well control operation known as ‘venting’.

3.11.12 Emergency Disconnect Sequence

An emergency disconnect sequence (EDS) may be implemented if the 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 wellhead/BOP and MODU. Common examples of when this system may be initiated include the movement of the MODU outside of its operating circle (e.g., due to a failure of the DP system) or the movement of the MODU to avoid a vessel collision (e.g., third-party vessel on collision course with the MODU). EDS aims to leave the wellhead and BOP in a secure condition but will result in loss of the drilling fluids/cuttings in the riser after disconnection.

4 DESCRIPTION OF THE EXISTING ENVIRONMENT

4.1 Overview

In accordance with Regulations 13(2) and 13(3) of the Environment Regulations, this section describes the existing environment that may be affected by the activity (planned and unplanned) as described in Section 3. As per **Section 2.4.2**, references to the Master Existing Environment have been made throughout this EP.

The Environment that May Be Affected (EMBA) is the largest spatial extent where unplanned events could have an environmental consequence on the surrounding environment. For this EP, the EMBA is the potential spatial extent of surface and in-water hydrocarbons at concentrations above ecological impact thresholds, in the event of the worst-case credible spill. The ecological impact thresholds used to delineate the EMBA are defined in **Section 6.7.1.2**. The worst-case credible spill scenario for this EP is a loss of well containment from the PLA08 well during drilling operations.

Woodside recognises that hydrocarbons may be visible beyond the EMBA at lower concentrations than the ecological impact thresholds defined in **Section 6.7.1.2**. 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), National and Commonwealth Heritage Listed places, areas of tourism and recreation, and commercial and traditional fisheries.

For this EP, the socio-cultural EMBA for surface hydrocarbons encompasses an area fully within 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 for surface and in-water hydrocarbons

Hydrocarbon Type	EMBA[1]	Socio-cultural EMBA[1]	Planning Area for Scientific Monitoring
Surface	10 g/[2] 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 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.	NA
Dissolved	50 ppb 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.		10 ppb This low exposure value establishes the planning area for scientific monitoring (based on potential for exceedance of water quality triggers) (NOPSEMA, 2019). This area
Entrained	100 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 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.		is described further in Appendix D: Figure 5-1. In the event of a spill, DNP will be notified of AMPs which may be contacted by hydrocarbons at this threshold Table 5-3.
Shoreline	100 g/m^2 This represents the threshold that could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat.	10 g/m^2 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

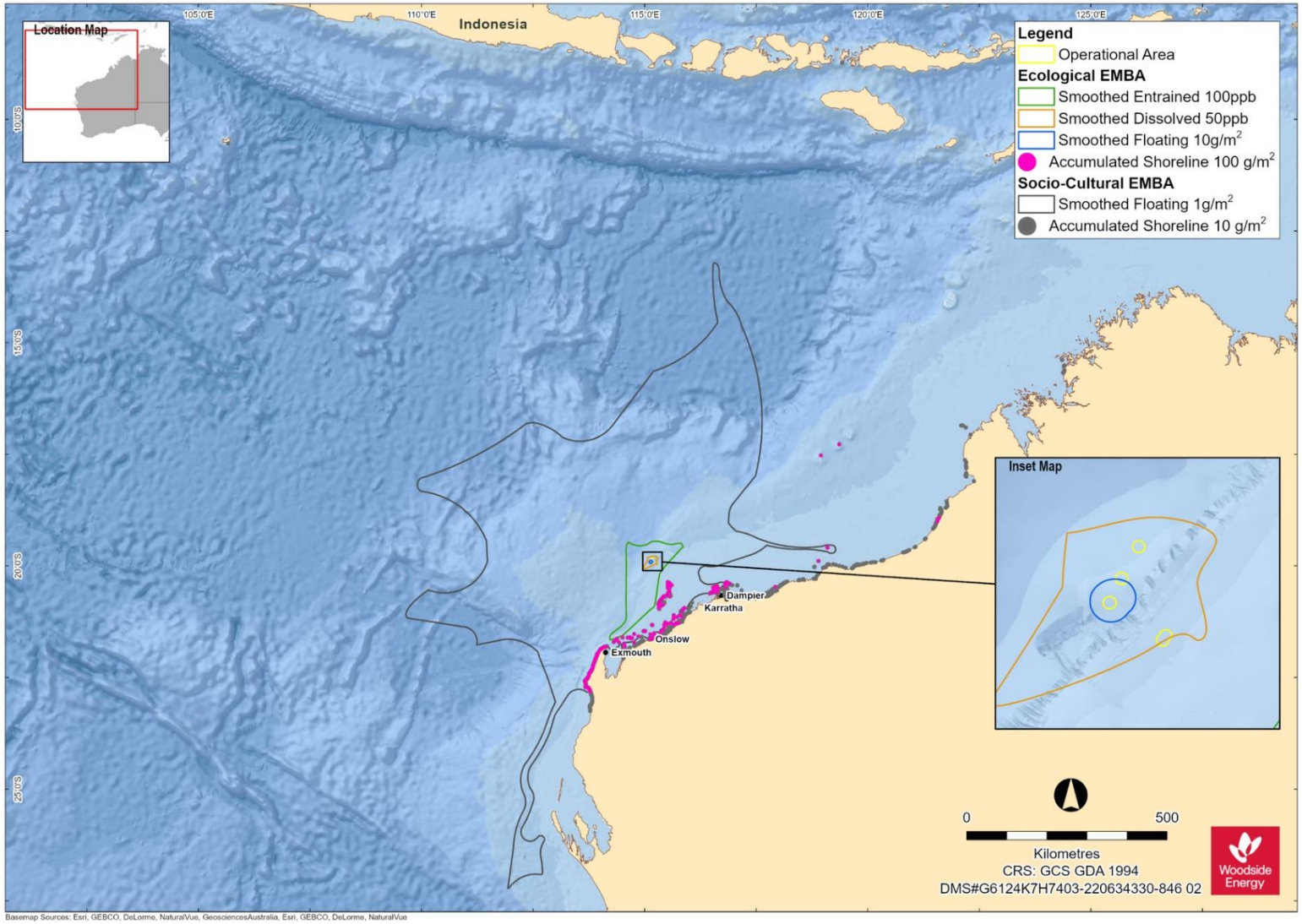

Figure 4-1: Environment that may be affected by the Petroleum Activities Program

4.2 Regional Context

The North West Marine Region (NWMR) habitats range from nearshore benthic primary producer habitats such as seagrass beds, coral communities and mangrove forests, to offshore soft sediment seabed habitats and submerged and emergent reef systems. These habitats support biological communities that range from low density sessile and mobile benthos, such as sponges, molluscs and echinoids (with noted areas of sponge hotspot diversity) in offshore soft sediment habitat (DSEWPAC, 2012a) to complex, diverse, remote coral reef systems.

Benthic primary producer habitats, such as seagrass beds, coral communities and mangrove forests within the South West Marine Region, are described as a mixture of tropical and temperate species, due to the seasonal influences of the tropical waters carried south by the Leeuwin Current and the temperate waters carried north by the Capes Current (DSEWPAC, 2012b).

The North Marine Region shares similar habitat types to the NWMR. The predominant habitat of the region includes soft, muddy sediments on relatively flat terrain. Other habitat types include seagrasses, reefs, shoals and coastal habitats such as mangroves and coastal wetlands (Rochester et al., 2007).

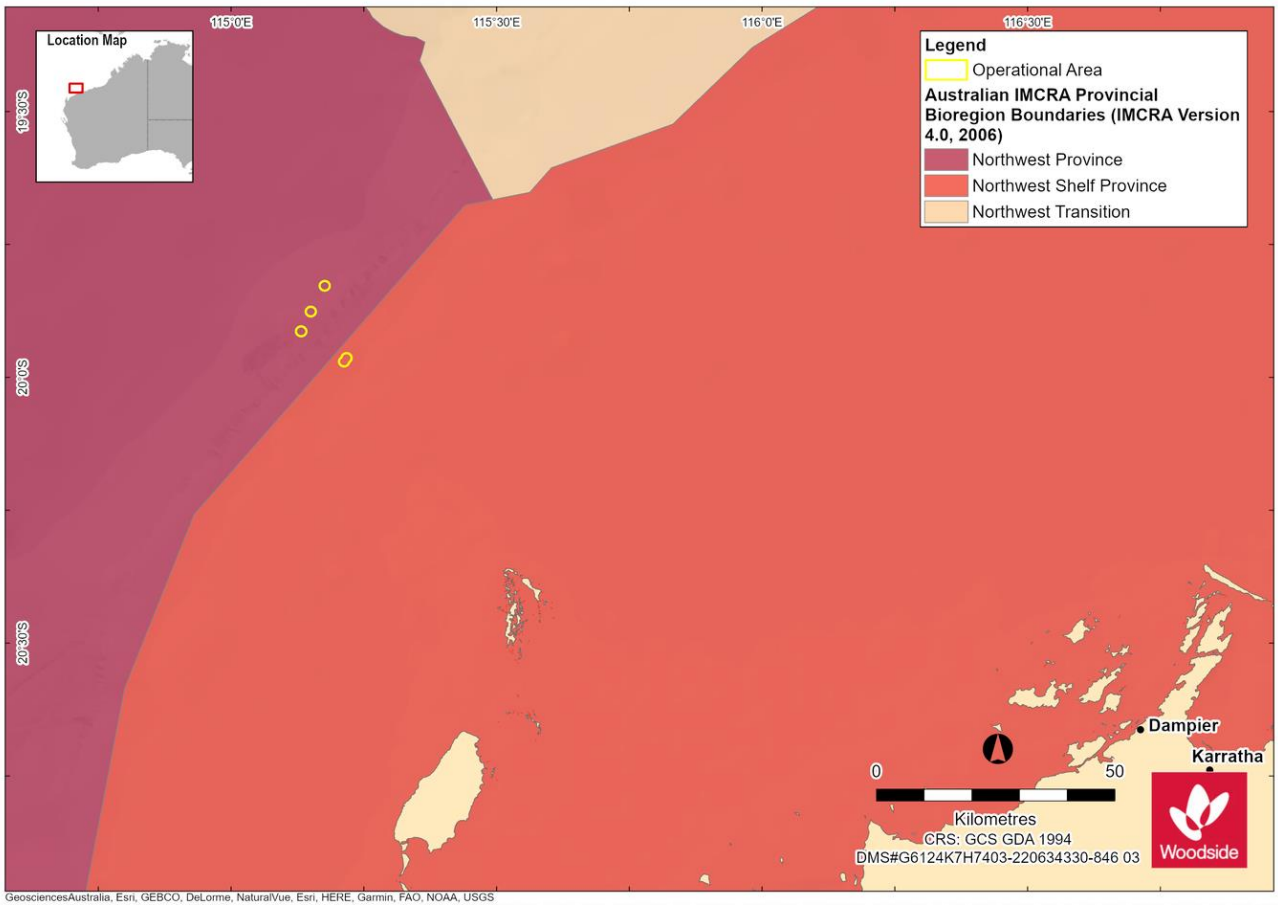

Figure 4-2: Location of the Operational Area and relevant marine bioregions

4.3 Matters of National Environmental Significance (EPBC Act)

Table 4-2 and **Table 4-3** summarise the Matters of National Environmental Significance (MNES) overlapping the Operational Area and EMBA, respectively, according to Protected Matters Search Tool (PMST) results (**Appendix C**). It should be noted the PMST is a general database that conservatively identifies areas in which protected species have the potential to occur.

Additional information on these MNES is provided in subsequent sections of this chapter and are described in detail in the Master Existing Environment.

Table 4-2: Summary of MNES identified by the EPBC Act PMST as potentially occurring within the Operational Area

MNES	Number	Relevant Section
World Heritage Properties	0	4.8.1.9
National Heritage Places	0	4.8.1.9
Wetlands of International Importance (Ramsar)	0	Not applicable
Commonwealth Marine Area	1	4.2
Listed Threatened Ecological Communities	0	Not applicable
Listed Threatened Species*	23	4.6
Listed Migratory Species*	38	4.5.1

Table 4-3: Summary of MNES identified by the EPBC Act Protected Matters Search Tool potentially occurring within the EMBA

MNES	Number	Relevant Section
World Heritage Properties	1	4.8.1.9
National Heritage Places	3	4.8.1.9
Wetlands of International Importance (Ramsar)	1	
Commonwealth Marine Area	3	4.2
Listed Threatened Ecological Communities	0	Not applicable
Listed Threatened Species	40	4.5.1
Listed Migratory Species	68	4.5.1

4.4 Physical Environment

The NWMR is part of the Indo-Australian Basin, the ocean region between the north-west coast of Australia and the Indonesian islands of Java and Sumatra. Dominant currents in the Region include (DEWHA, 2007):

- the South Equatorial Current
- the Indonesian Throughflow
- the Eastern Gyral Current
- the Leeuwin Current (DEWHA, 2007a)

The NWMR experiences a tropical monsoonal climate towards the northern extent of the region, transitioning to tropical arid and subtropical arid within the central and southern areas of the region (DSEWPAC, 2012a). The seafloor of the NWMR consists of four general feature types: continental shelf slope; continental rise; and abyssal plain and is distinguished by a range of topographic features including canyons, plateaus, terraces, ridges, reefs, and banks and shoals.

Seabed surveys undertaken in support of the Pluto LNG Development Draft Public Environment Report / Public Environmental Review (Sinclair Knight Merz, 2007) reported a series of pinnacles between 300 m and 500 m water depth. These pinnacles lie within Production Licence WA-34-L but beyond the Operational Area and will not credibly be impacted by the Petroleum Activities Program.

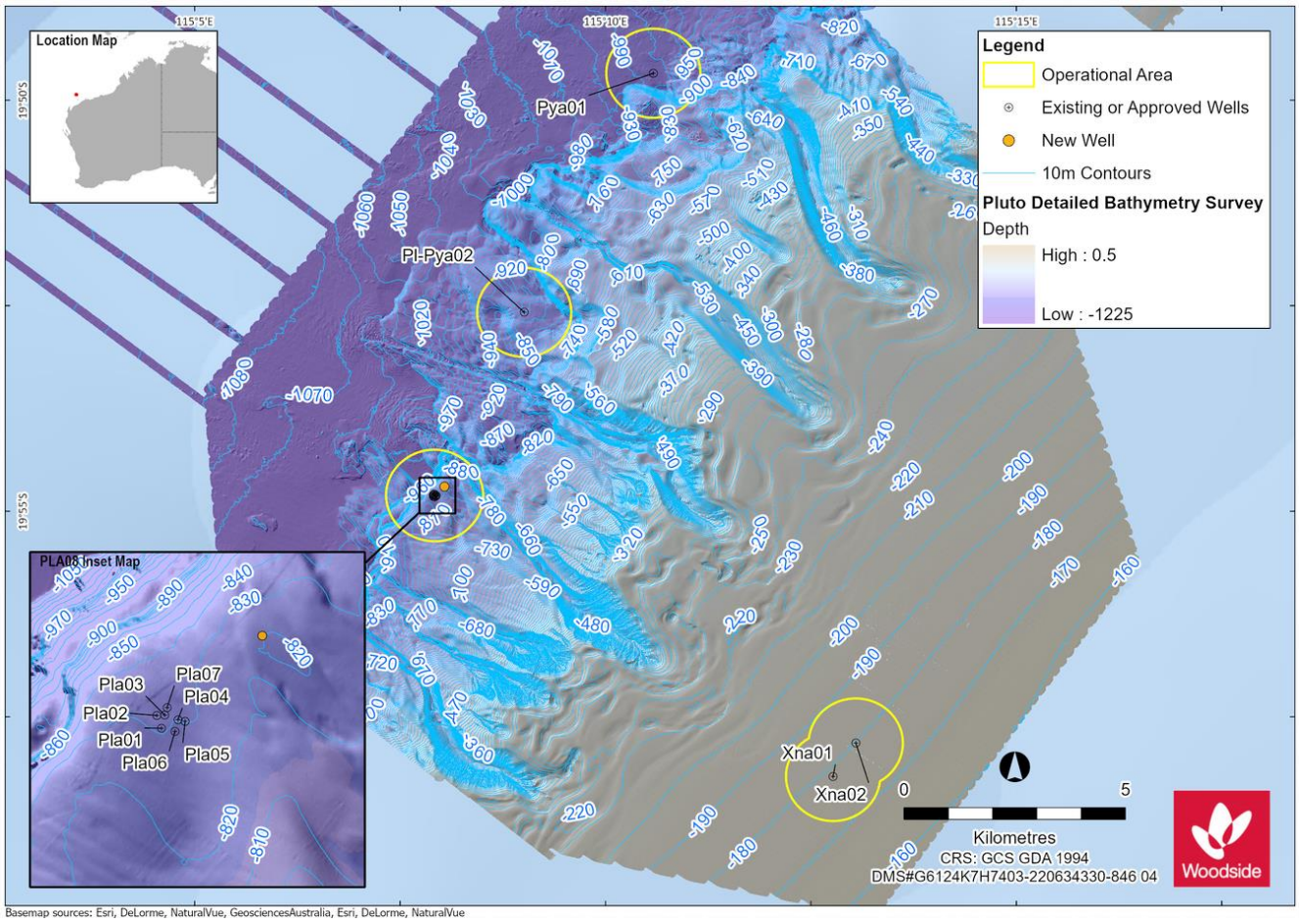

Figure 4-3: Bathymetry of the Operational Area

4.5 Habitats and Biological Communities

Key habitats and ecological communities within the EMBA are identified in **Table 4-4** and described in Section 4 of the Master Existing Environment.

Table 4-4: Habitats and communities within the EMBA

Habitat/Community	Key Locations Within the EMBA
Marine Primary Producers	
Coral	• Ningaloo Reef • Barrow Island • Montebello Islands

Habitat/Community	Key Locations Within the EMBA
	• Glomar Shoal • Rankin Bank • Muiron Islands
Seagrass beds and macroalgae	• Montebello, Lowendal and Barrow Island Groups • Ningaloo Reef
Mangroves	Mangrove stands occur throughout the Pilbara mainland coastline. Isolated areas of mangroves may be impacted by shoreline accumulation above impact thresholds.
Other Communities and Habitats	
Wetlands of International Importance (Ramsar)	• Eighty Mile Beach
Plankton	Plankton within the Operational Area is expected to reflect the conditions of the NWMR. Primary productivity of the NWMR appears to be largely driven by offshore influences, with periodic upwelling events and cyclonic influences driving coastal productivity with nutrient recycling and advection. Refer to Appendix H: Section 4.3 for a description of planktonic communities in the NWMR.
Pelagic and demersal fish populations	In the EMBA, fish diversity and abundance is typically correlated with habitat distribution, with complex habitats, such as coral and rocky reefs, hosting more diverse and abundant assemblages. Notable habitats hosting diverse fish assemblages include Ningaloo Reef (Stevens et al., 2009), Glomar Shoals, Rankin Bank (Australian Institute of Marine Science, 2014; Wahab et al., 2018), Barrow Island and the Montebello Islands (de Lestang and Jankowski, 2015). Refer to Appendix H: Section 5.5 for a description of pelagic and demersal fish populations in the NWMR.
Epifauna and infauna	The EMBA contains deep and shallow water habitats dominated by soft sediments and sparse benthic biota. The benthic communities inhabiting the predominantly soft, fine sediments of the deepwater benthic habitats are characterised by infauna such as polychaetes and sparsely distributed sessile and mobile epifauna. Refer to Appendix H: Section 5.5 for a description of epifauna and infauna in the NWMR.

4.5.1 Marine Primary Producers

Sea floor communities in deeper shelf waters receive insufficient light to sustain ecologically sensitive primary producers such as seagrasses, macroalgae or zooxanthellate corals. Given the depth of water for the Operational Area (between about 170–990 m), these benthic primary producer groups will not occur in the Operational Area but may occur within the EMBA in shallower waters (typically <30 m water depth) near offshore islands, reefs and sedimentary banks.

4.5.1.1 Coral Reefs

Coral reef habitats have a high diversity of corals, associated fish and other species of both commercial and conservation importance. Hard corals in the region typically have a distinct spawning season, with most species spawning during autumn (March/April) (Rosser and Gilmour, 2008; Simpson et al., 1993). Key coral reefs within the EMBA are identified in **Table 4-4.**

4.5.1.2 Seagrass Beds/Macroalgae

Seagrass beds and benthic macroalgae reefs are a main food source for many marine species and also provide key habitats and nursery grounds (Heck Jr. et al., 2003; Wilson et al., 2010). In the northern half of Western Australia, these habitats are restricted to sheltered and shallow waters due to large tidal movement, high turbidity, large seasonal freshwater run-off and cyclones. No seagrass beds or macroalgae occur in the Operational Area as the seabed depth receives insufficient

photosynthetically active radiation to support such communities. However, seagrass beds and macroalgae habitats are widespread in shallow waters in the region. Key seagrass beds and macroalgae in the EMBA are listed in **Table 4-4**. The nearest such areas are the offshore islands of the Montebello/Barrow/Lowendal islands (approximately 50 km south at the closest point).

4.5.2 Wetlands of International Importance (Ramsar)

One Wetland of international importance (Eighty Mile Beach) was identified in the EMBA (**Table 4-4**). The Eighty Mile Beach Ramsar site, located between Port Headland and Broome, is comprised of Eighty Mile beach and Mandora Salt Marsh, 40 knm to the east (DCCEEW, 2022). The EMBA overlap extends to the coastal Eighty Mile Beach component of the Ramsar site, and not the Mandora Salt Marsh.

Eighty-mile Beach is a section of coastline 220 km long and adjacent intertidal mudflats. The extensive mudflats are known to support an abundance of macroinvertebrates, providing food for significant numbers of shorebirds. The site is especially important as a landfall for waders migrating south for the austral summer (DAWE, 2020).

4.5.3 Plankton

Phytoplankton within the Operational Area and EMBA is expected to reflect the conditions of the NWMR. Primary productivity of the NWMR appears to be largely driven by offshore influences (as reported by Brewer et al., 2007), with periodic upwelling events and cyclonic influences driving coastal productivity with nutrient recycling and advection. There is a tendency for offshore phytoplankton communities in the NWMR to be characterised by smaller taxa (e.g. bacteria), whereas shelf waters are dominated by larger taxa such as diatoms (Hanson et al., 2007).

Zooplankton within the Operational Area and EMBA may include organisms that complete their lifecycle as plankton (e.g., copepods, euphausiids) as well as larval stages of other taxa such as fishes, corals and molluscs. Peaks in zooplankton such as mass coral spawning events (typically in March and April) and fish larvae abundance (Marine Parks and Reserves Authority and Department of Conservation and Land Management, 2005) can occur throughout the year (Marine Parks and Reserves Authority and Department of Conservation and Land Management, 2005; Rosser and Gilmour, 2008; Simpson et al., 1993).

4.5.4 Pelagic and Demersal Fish Populations

Similar to survey findings at the Goodwyn facility (McLean et al., 2017), the presence of subsea infrastructure within the Operational Area has likely resulted in the development of demersal fish communities that would otherwise not occur in the Operational Area. The type and number of fish present is also highly variable and also depends on the relative position of the pipeline above the seabed. Partially buried pipelines do not appear to provide the same habitat complexity and opportunity that suspended or resting pipelines provide (McLean et al., 2017). Fish assemblages and colonising invertebrate habitats on these artificial hard substrates also vary with depth and age. Generally speaking, the structures that are located in shallower water (< 135 m) had a greater diversity of fish compared to habitats at 350 m depth, where the number of fish species and abundance declined markedly (Bond et al., 2018). The study by Bond et al. (2018) also confirmed that compared to adjacent natural seabed habitats, pipeline fish fauna were characterised by higher relative abundance and biomass of commercially important species.

Given continental shelf waters overlap the Operational Area, pelagic species will also be present. The Continental Slope Demersal Fish Communities KEF overlaps the Operational Area and the Ancient Coastline at 125 m Depth Contour KEF is in close proximity (less than 200 m at its closest point). These KEFs include areas of hard substrate that are known or are likely to support a higher diversity of demersal fish assemblages. Rankin Bank (36 km east of the Operational Area) and

Glomar Shoals (143 km east of the Operational Area) have also been identified as supporting high demersal fish richness and abundance (Australian Institute of Marine Science, 2014; Wahab et al., 2018).

4.5.5 Epifauna and Infauna

Filter feeder epifauna such as sponges, ascidians, soft corals and gorgonians generally live in areas that have strong currents and hard substratum and are closely associated with substrate type, with areas of hard substrate typically supporting more diverse epibenthic communities (Heyward et al., 2001). Conversely, higher diversity infauna is mainly associated with soft unconsolidated sediment and infauna communities are considered widespread and well represented along the continental shelf and upper slopes of the NWMR (Brewer et al., 2007; Rainer, 1991; Sinclair Knight Merz, 2007; Woodside Energy Limited, 2006). Over the continental shelf section of the Operational Area, discrete areas of hard substrate hosting sessile filter feeding communities may be associated with the Continental Slope Demersal Fish Communities KEF and the nearby Ancient Coastline at the 125 m Depth Contour KEF.

4.6 Protected Species

A total of 65[5] species listed under the EPBC Act as threatened, migratory, or both, were identified as potentially occurring within the EMBA, of which a subset of 44 species were identified as potentially occurring within the Operational Area. The PMST reports identified a number of terrestrial species that will not credibly be impacted (e.g., terrestrial mammals and freshwater fishes). This is an artefact of the spill modelling results partially overlapping the terrestrial environment in some places. These terrestrial species have been excluded from consideration in this EP. These species are MNES. The full list of marine species identified from the PMST report(s) is provided in **Appendix C**, including several MNES that are not considered to be credibly impacted (such as terrestrial species within the EMBA). Two conservation dependent species have been identified with a potential to occur within the EMBA: the southern bluefin tuna and the scalloped hammerhead shark. Species identified as potentially occurring within the Operational Area and EMBA and biologically important areas (BIAs) or Habitat Critical to their Survival (Habitat Critical) which overlap the Operational Area and EMBA are listed in **Table 4-5** to **Table 4-12**, and a description of species is included in Sections 5 to 8 of the Master Existing Environment. **Figure 4-4** to **Figure 4-9** show the spatial overlap with relevant BIAs and Habitat Critical areas and the Operational Area and EMBA.

[5] The PMST reports identified a number of terrestrial species that will not credibly be impacted. These species have been excluded from consideration in this EP.

4.6.1 Fishes, Sharks and Rays

Table 4-5: Threatened and migratory fish, shark and ray species predicted to occur within the Operational Area and EMBA

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Anoxypristis cuspidata	Narrow Sawfish, Knifetooth Sawfish	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
Carcharhinus longimanus	Oceanic Whitetip Shark	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
Carcharias taurus (west coast population)	Grey Nurse Shark (west coast population)	Vulnerable	N/A	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
Carcharodon carcharias	White Shark, Great White Shark	Vulnerable	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
Centrophorus uyato	Little Gulper Shark	Conservation Dependent	N/A	N/A	Species or species habitat likely to occur within area
Isurus oxyrinchus	Shortfin Mako, Mako Shark	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
Isurus paucus	Longfin Mako	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
Lamna nasus	Porbeagle, Mackerel Shark	N/A	Migratory	N/A	Species or species habitat may occur within area

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Mobula alfredi	Reef Manta Ray, Coastal Manta Ray	N/A	Migratory (as *Manta alfredi*)	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
Mobula birostris	Giant Manta Ray	N/A	Migratory (as *Manta birostris*)	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
Pristis clavata	Dwarf Sawfish, Queensland Sawfish	Vulnerable	Migratory	Species or species habitat known to occur within area	Species or species habitat known to occur within area
Pristis pristis	Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish	Vulnerable	Migratory	Species or species habitat may occur within area	Species or species habitat likely to occur within area
Pristis zijsron	Green Sawfish, Dindagubba, Narrowsnout Sawfish	N/A	N/A	Species or species habitat known to occur within area	Species or species habitat known to occur within area
Rhincodon typus	Whale Shark	Vulnerable	Migratory	Foraging, feeding or related behaviour known to occur within area	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini	Scalloped Hammerhead	Conservation Dependent	N/A	Species or species habitat known to occur within area	Species or species habitat known to occur within area
Thunnus maccoyii	Southern Bluefin Tuna	Conservation Dependent	N/A	Breeding known to occur within area	Breeding known to occur within area

Table 4-6: Fish, shark and ray BIAs within the EMBA

Species	BIA Type	Approximate Distance and Direction from Operational Area (km)
Whale Shark	Foraging	Overlaps Operational Area
Whale Shark	Foraging (high prey density) (Ningaloo Marine park and adjacent Commonwealth waters)	237 south

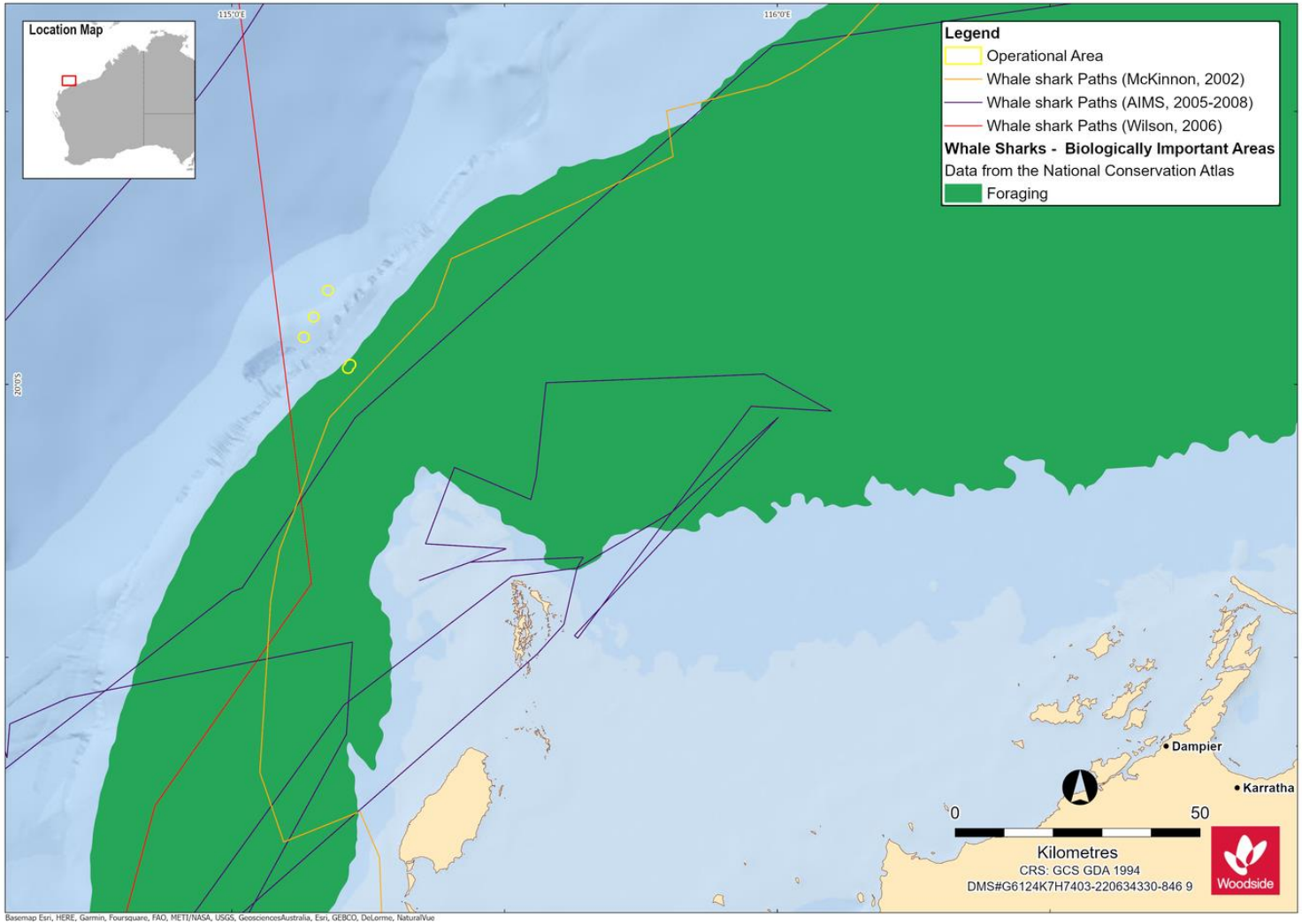

Figure 4-4: Whale shark BIAs relative to the Operational Area and satellite tracks of whale sharks tagged between 2005 and 2008 (Meekan and Radford, 2010)

Marine Reptiles

Table 4-7: Threatened and migratory marine reptile species predicted to occur within the Operational Area and EMBA

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Aipysurus apraefrontalis	Short-nosed Seasnake	Critically Endangered	N/A	Species or species habitat may occur within area	Species or species habitat known to occur within area
Aipysurus foliosquama	Leaf-scaled Seasnake	Critically Endangered	N/A	N/A	Species or species habitat known to occur within area
Caretta caretta	Loggerhead Turtle	Endangered	Migratory	Species or species habitat known to occur within area	Breeding known to occur within area
Chelonia mydas	Green Turtle	Vulnerable	Migratory	Species or species habitat known to occur within area	Breeding known to occur within area
Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth	Endangered	Migratory	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour known to occur within area
Eretmochelys imbricata	Hawksbill Turtle	Vulnerable	Migratory	Species or species habitat known to occur within area	Breeding known to occur within area
Natator depressus	Flatback Turtle	Vulnerable	Migratory	Congregation or aggregation known to occur within area	Breeding known to occur within area

Table 4-8: Marine turtle Habitat Critical and BIAs within the EMBA

Species	HC/BIA Type	Approximate Distance and Direction from Operational Area (km)
Flatback turtle	BIA – Internesting buffer	Overlaps Operational Area
	Critical Habitat – Nesting	Overlaps Operational Area
	BIA – Foraging	48 km south
	BIA – Mating	48 km south
	BIA – Nesting*	48 km south
	BIA – Internesting	52 km south
	BIA – Aggregation	52 km south
	BIA – Migration corridor*	145 km south-east
Green turtle	BIA – Internesting buffer	24 km south
	BIA – Internesting	44 km south
	BIA – Mating	44 km south
	BIA – Nesting*	44 km south
	BIA – Foraging	44 km south
	Critical Habitat – Nesting	32 km south
	BIA – Aggregation	52 km south-east
	BIA – Basking	74 km south
	BIA – Migration corridor*	145 km south-east
Hawksbill turtle	BIA – Internesting buffer	28 km south
	BIA – Foraging	48 km south
	BIA – Mating	48 km south
	BIA – Nesting	48 km south
	Critical Habitat – Nesting	30 km south
	BIA – Internesting	72 km south

Species	HC/BIA Type	Approximate Distance and Direction from Operational Area (km)
	BIA – Migration corridor*	145 km south-east
Loggerhead turtle	BIA – Internesting buffer	37 km south
	BIA – Nesting*	56 km south
	Critical Habitat – Nesting*	207 km south east
	BIA – Foraging*	371 km east

* BIA or critical habitat identified by stochastic modelling shoreline accumulation only, with no contact predicted with in-water hydrocarbon phases.

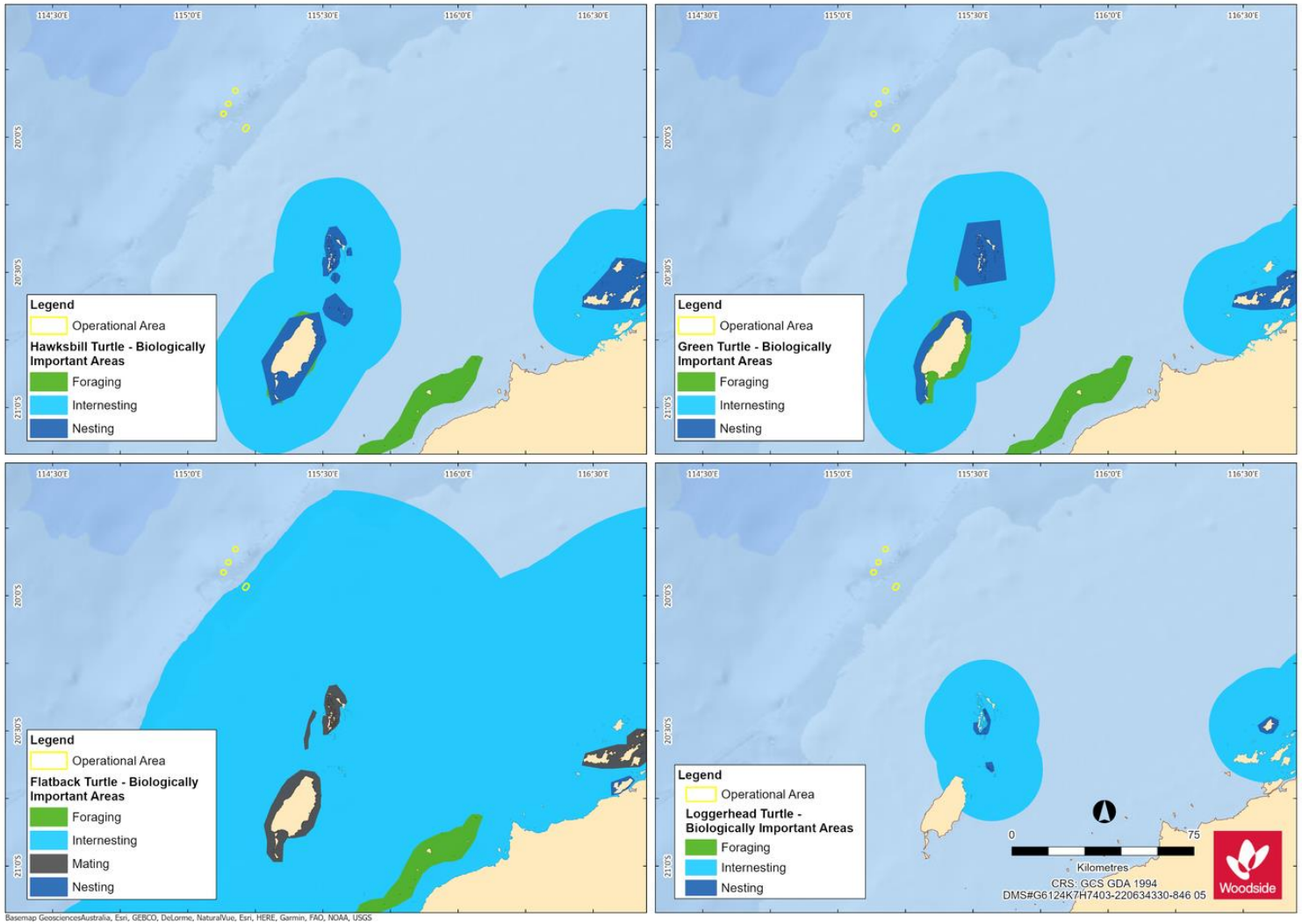

Figure 4-5: Marine turtle BIAs relative to the Operational Area

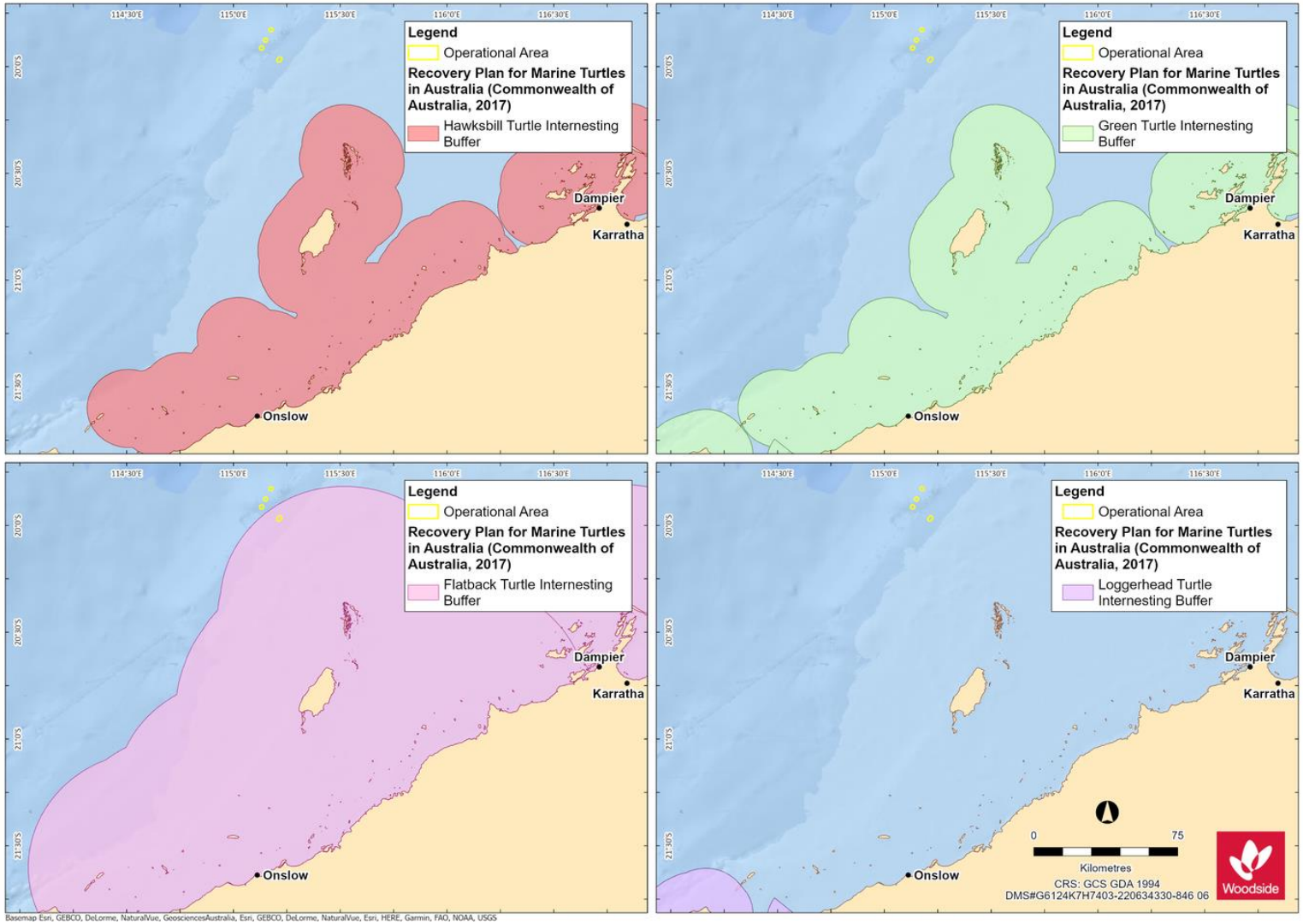

Figure 4-6: Habitat Critical for the survival of marine turtles relative to the Operational Area

4.6.2 Marine Turtles

The closest known turtle nesting beaches to the PAA are Barrow Island, the Montebello Islands and the islands of the Dampier Archipelago. Rosemary Island has the most significant nesting beaches, determined as mean number of hawksbill, green and flatback turtle tracks per day (Pendoley et al., 2016) and is recognised as an internationally significant rookery for hawksbill turtles, with one of the largest nesting populations in Australia and globally (Limpus, 2009). Barrow Island hosts the second largest flatback rookery in the Pilbara Region, however significantly larger nesting beaches occur further north in the Kimberley region (Pendoley et al., 2016).

Seasonality of nesting differs between flatback, green and hawksbill turtles. A study by Whiting (2018) provides defined seasonality specific nesting data for Rosemary Island and found that hawksbill turtles have a much earlier peak (October/November) compared to flatback turtles (December/January). Seasonality for green turtles was not well defined from the available data (Whiting, 2018).

Pendoley et al. (2016) did not find evidence of loggerhead nesting activity in the Dampier Archipelago over 20 years of track data. The northernmost key loggerhead nesting areas include the North West Cape and Muiron Islands. Any nesting activity by loggerhead turtles in the Dampier Archipelago will not represent significant rookeries for this species (PENV, 2020). No major leatherback turtle rookeries are known to occur in Australia, with scattered nesting reported in Queensland (Limpus and MacLachlan, 1979; Limpus et al., 1984) and the Northern Territory (Hamann et al., 2006) only.

4.6.3 Marine Mammals

Table 4-9: Threatened and migratory marine mammal species predicted to occur within the Operational Area and EMBA

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Balaenoptera bonaerensis	Antarctic Minke Whale, Dark-shoulder Minke Whale	N/A	Migratory	N/A	Species or species habitat likely to occur within area
Balaenoptera borealis	Sei Whale	Vulnerable	Migratory	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni	Bryde's Whale	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
Balaenoptera musculus	Blue Whale	Endangered	Migratory	Migration route known to occur within area	Migration route known to occur within area
Balaenoptera physalus	Fin Whale	Vulnerable	Migratory	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour likely to occur within area
Dugong dugon	Dugong	N/A	Migratory	N/A	Breeding known to occur within area
Eubalaena australis	Southern Right Whale	Endangered	Migratory (as *Balaena glacialis australis*)	N/A	Species or species habitat likely to occur within area
Megaptera novaeangliae	Humpback Whale	N/A	Migratory	Breeding known to occur within area	Breeding known to occur within area
Orcaella heinsohni	Australian Snubfin Dolphin	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Orcinus orca	Killer Whale, Orca	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Physeter macrocephalus	Sperm Whale	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Sousa sahulensis	Australian Humpback Dolphin	N/A	Migratory (as *Sousa chinensis*)	Species or species habitat may occur within area	Species or species habitat known to occur within area
Tursiops aduncus (Arafura/Timor Sea populations)	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat known to occur within area

Table 4-10: Marine mammal BIAs within the EMBA

Species	BIA Type	Approximate Distance and Direction from Operational Area (km)
Pygmy Blue Whale	Migration	Overlaps Operational Area
Pygmy Blue Whale	Foraging	240 km south-east
Humpback Whale	Migration (north and south)	34 km south-east
Humpback Whale	Resting	220 km south-east

4.6.3.1 Pygmy Blue Whales

The blue whale (*Balaenoptera musculus*) is currently listed as Endangered, Migratory and Cetacean under the EPBC Act and Endangered under the WA Biodiversity Conservation Act 2016 (BC Act, September 2018), refer to the Master Existing Environment.

The important biological habitats for critical life stages of the pygmy blue whale life cycle are presented in the Blue Whale CMP (Commonwealth of Australia, 2015) and the National Conservation Values Atlas (NCVA). The foraging areas correspond to blue whale Biologically Important Areas (BIAs) based on foraging of varying density and likelihood and the NCVA also includes an area of offshore waters in Western Australia that represents the migratory corridor or Migratory BIA for pygmy blue whales, refer to **Figure 4-7**. The distribution range is a spatially defined area representing presence certainty and not biologically important behaviour (e.g. breeding, foraging, migration) as presented in the Blue Whale CMP. The distribution range acknowledges the migratory movement of pygmy blue whales to the west and east of the Migratory BIA, however the majority of the important migration areas for north-west Australia are within the migratory BIA (Thums et al. 2022).

Considering the overlap of the pygmy blue whale migration BIA with the Operational Area, it is likely that the migrating individuals may journey past the Operational Area during the north and south bound migratory seasons (April to July and October to January, respectively) (migratory seasons defined as per McCauley, 2011, Double et al. 2014; Gavrilov et al. 2018 and Thums et al, 2022). Migrating northbound pygmy blue whales display predominantly relatively fast, directed travel interspersed with relatively short periods of low move persistence indicative of foraging (Thums et al. 2022). The migratory BIA encompassed the majority of important migration areas for northbound pygmy blue whales, however Thums et al. (2022) did report that most tagged pygmy blue whales migrate much futher offshore along the north-west, event out to the abyssal plain. The distribution, movement and behaviour of migrating southbound pygmy blue whales is less well understood but based on acoustic detection as reported by McCauley (2011) migrating whales are detected over a short period of time off the continental slope, implying individual whales travel rapidly through the area. Furthermore, Gavrilov et al. (2018) reported southbound migrating pygmy blue whale distribution extended up to 400 km off the mainland inferring a much wider southbound migratory corridor than defined by the migratory BIA. Thums et al. (2022), also reported shorter residency times on the southern migration but only based on data from two pygmy blue whales and only low density detection of singing whales from October to December implying use of different migration routes to travel south, vocalization not as active southbound or some combination.

The Operational Area is unlikely to support important foraging areas for migrating pygmy blue whales, such as areas where upwelling occurs and prey (krill) availability is recorded. Based on an overlap of three different metrics (occupancy, number of whales in a cell and move persistence) Thums et al. (2022) identified the most important foraging areas for pygmy blue whales in offshore waters for north-west Australia. The modelling results indicated there were open ocean areas off the shelf edge extending from Ningaloo Reef to the Rowley Shoals utilized by pygmy blue whales in opportunistic foraging bouts.

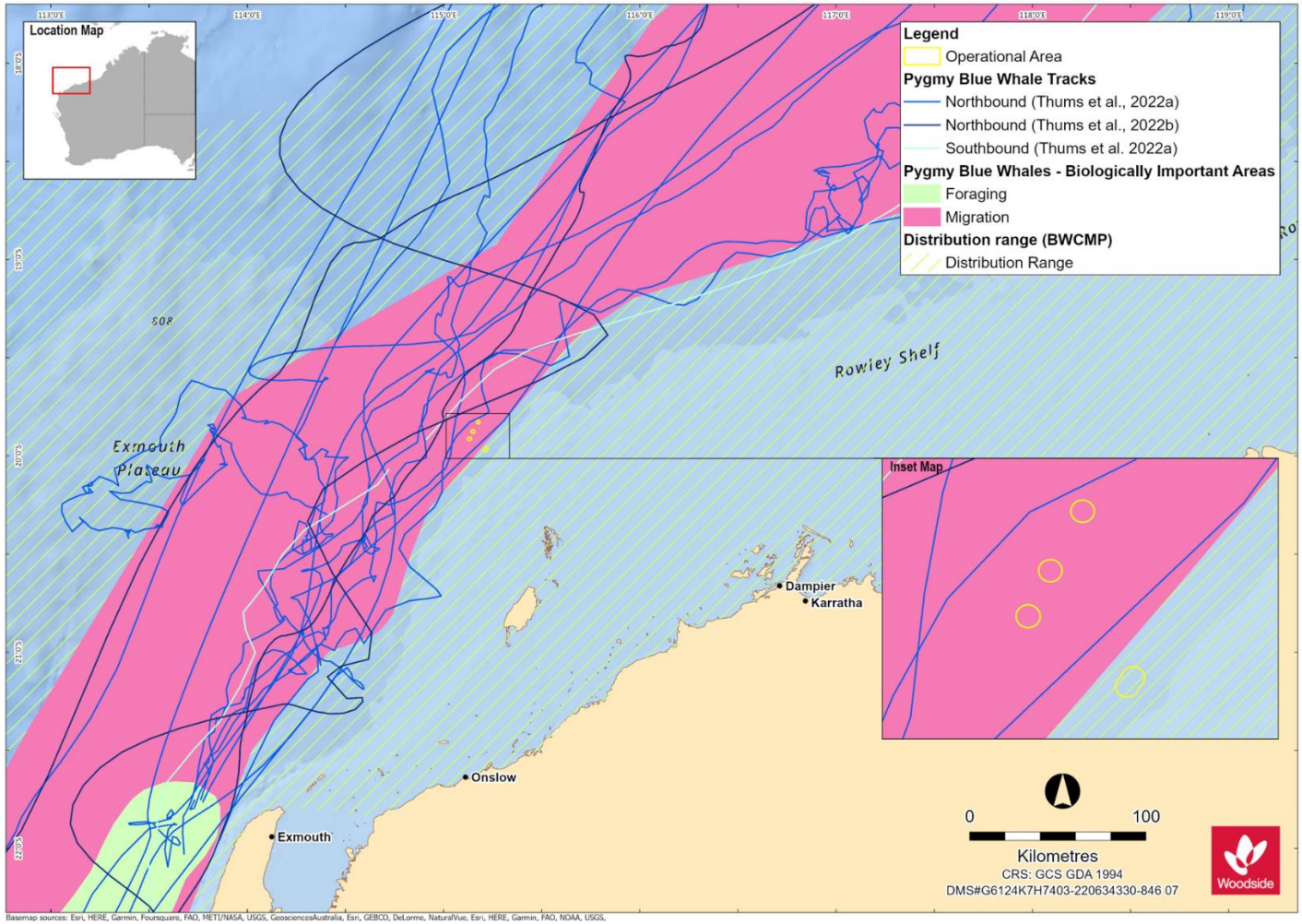

Figure 4-7: Pygmy blue whale migratory BIA relative to the Operational Area and satellite tag tracks for pygmy blue whales (source: Thums et al. 2022)

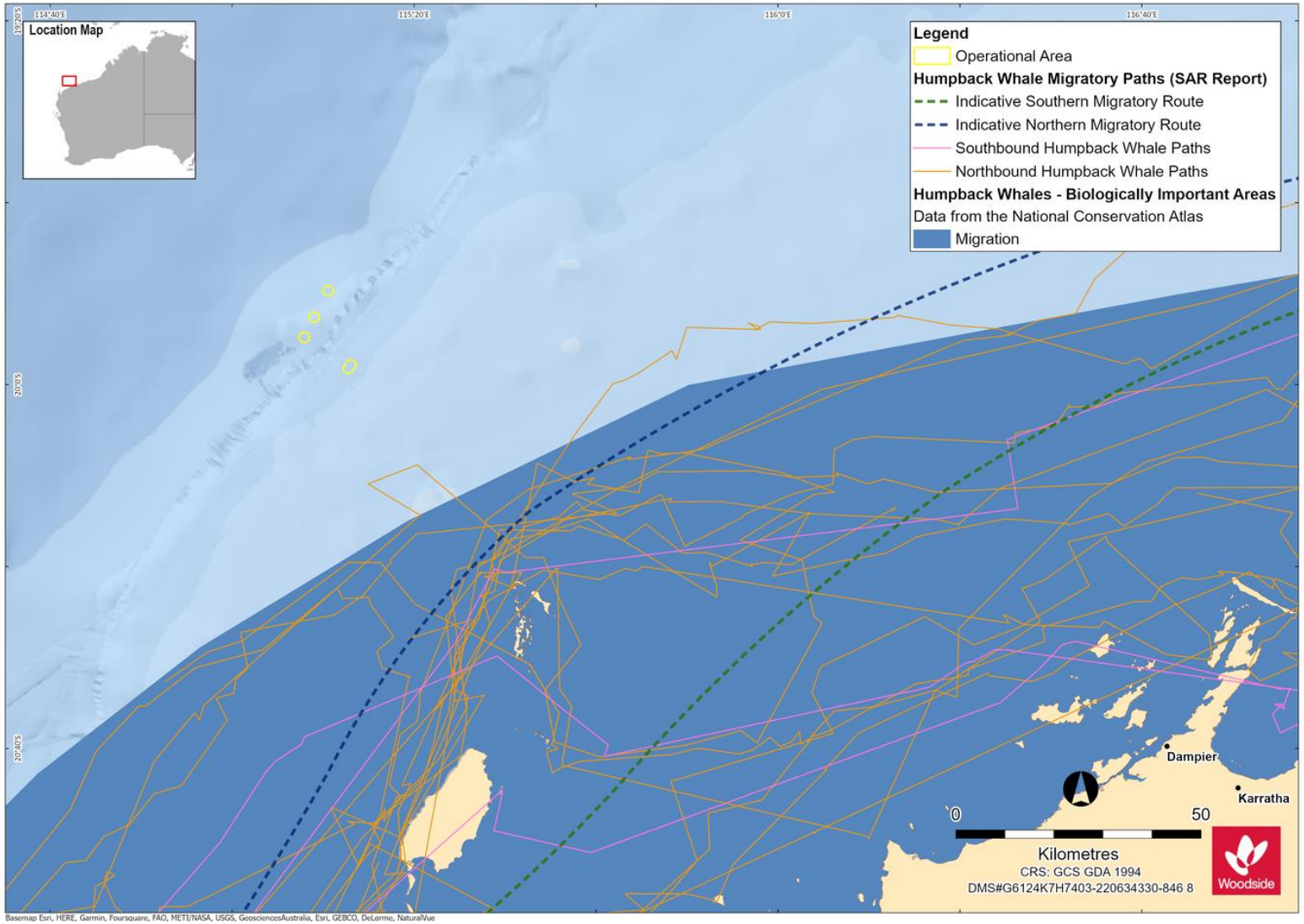

Figure 4-8: Humpback whale BIAs relative to the Operational Area

4.6.4 Seabirds and Migratory Shorebirds

Table 4-11: Threatened and migratory seabird and migratory shorebird species predicted to occur within the Operational Area and EMBA

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Seabirds					
Anous stolidus	Common Noddy	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat likely to occur within area
Anous tenuirostris melanops	Australian Lesser Noddy	Vulnerable	N/A	Species or species habitat may occur within area	Species or species habitat may occur within area
Ardenna carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater	N/A	Migratory	Species or species habitat unlikely to occur within area	Species or species habitat likely to occur within area
Ardenna pacifica	Wedge-tailed Shearwater	N/A	Migratory	Species or species habitat known to occur within area	Breeding known to occur within area
Calonectris leucomelas	Streaked Shearwater	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
Fregata ariel	Lesser Frigatebird, Least Frigatebird	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
Fregata minor	Great Frigatebird, Greater Frigatebird	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Hydroprogne caspia	Caspian Tern	N/A	Migratory	Species or species habitat may occur within area	Breeding known to occur within area
Macronectes halli	Northern Giant Petrel	Vulnerable	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Onychoprion anaethetus	Bridled Tern	N/A	Migratory	Species or species habitat may occur within area	Breeding known to occur within area
Phaethon lepturus	White-tailed Tropicbird	N/A	Migratory	Species or species habitat unlikely to occur within area	Species or species habitat known to occur within area
Sterna dougallii	Roseate Tern	N/A	Migratory	Species or species habitat may occur within area	Breeding known to occur within area
Sternula albifrons	Little Tern	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Sternula nereis nereis	Australian Fairy Tern	Vulnerable	N/A	Foraging, feeding or related behaviour likely to occur within area	Breeding known to occur within area
Sula dactylatra	Masked Booby	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Sula leucogaster	Brown Booby	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Thalasseus bergii	Greater Crested Tern	N/A	Migratory	Species or species habitat may occur within area	Breeding known to occur within area
Oceanites oceanicus	Wilson's storm petrel	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Hydrobates matsudairae	Matsudaira's storm petrel	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Migratory shorebirds					
Actitis hypoleucos	Common Sandpiper	N/A	Migratory	N/A[6]	Species or species habitat known to occur within area
Calidris acuminata	Sharp-tailed Sandpiper	N/A	Migratory	N/A	Species or species habitat known to occur within area
Calidris canutus	Red Knot, Knot	Endangered	Migratory	N/A	Species or species habitat known to occur within area
Calidris ferruginea	Curlew Sandpiper	Critically Endangered	Migratory	N/A	Species or species habitat known to occur within area
Calidris melanotos	Pectoral Sandpiper	N/A	Migratory	N/A	Species or species habitat may occur within area
Charadrius veredus	Oriental Plover, Oriental Dotterel	N/A	Migratory	N/A	Species or species habitat may occur within area
Tringa nebularia	Common Greenshank, Greenshank	N/A	Migratory	N/A	Species or species habitat likely to occur within area
Glareola maldivarum	Oriental Pratincole	N/A	Migratory	N/A	Species or species habitat may occur within area
Limnodromus semipalmatus	Asian Dowitcher	N/A	Migratory	N/A	Species or species habitat likely to occur within area

[6] *No habitat for migratory birds within the Operational Area*

Species Name	Common Name	Threatened Status	Migratory Status	Potential for Interaction	
				Operational Area	EMBA
Limosa lapponica menzbieri	Bar-tailed Godwit (*menzbieri*)	N/A	Migratory	N/A	Species or species habitat known to occur within area
Numenius madagascariensis	Eastern Curlew, Far Eastern Curlew	Critically Endangered	Migratory	N/A	Species or species habitat known to occur within area
OTHER					
Pandion haliaetus	Osprey	N/A	Migratory	N/A	Breeding known to occur within area
Apus pacificus	Fork-tailed swift	N/A	Migratory	N/A	Species or species habitat likely to occur within area

Table 4-12: Seabird and migratory shorebird BIAs within the EMBA

Species	BIA Type	Approximate Distance and Direction from Operational Area (km)
Brindled Tern	Foraging (in high numbers)	760 km south-east
Brown Booby	Breeding*	380 km east
Fairy Tern	Breeding	42 km south
Lesser Crested Tern	Breeding	47 km south
Lesser Frigatebird	Breeding*	371 km east
Little Tern	Resting*	468 km east
Roseate Tern	Breeding	48 km south
	Resting*	670 km east
Wedge-Tailed Shearwater	Breeding	Overlaps Operational Area
	Foraging (in high numbers)	684 km south-west
White-tailed Tropicbird	Breeding*	468 km east

* BIA or critical habitat identified by stochastic modelling shoreline accumulation only, with no contact predicted with in-water hydrocarbon phases.

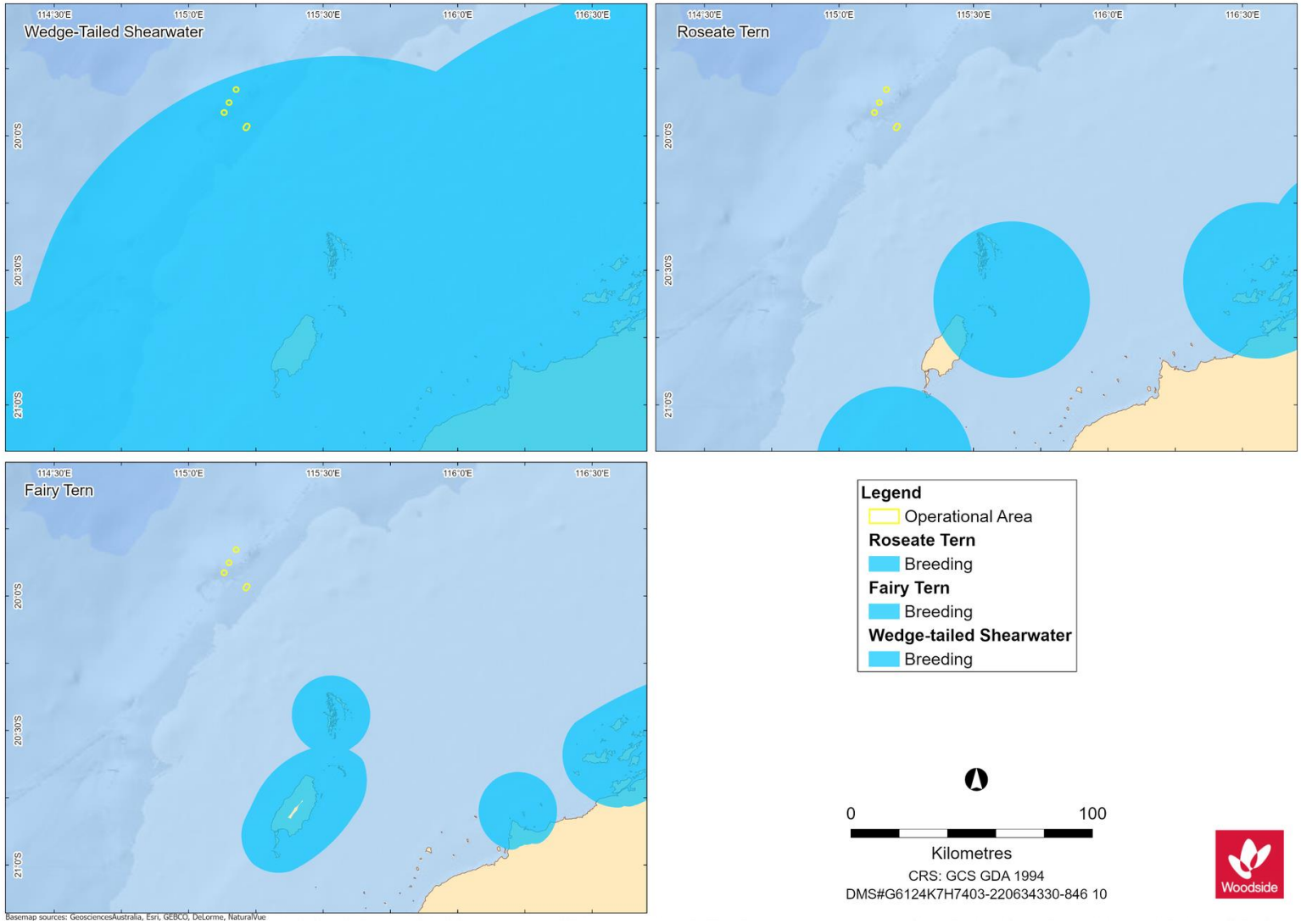

Figure 4-9: Shearwater and tern BIAs relative to the Operational Area

Wedge-tailed shearwater

The Wedge-tailed shearwater is listed as migratory under the EPBC Act. Section 8.2 of the Master Existing Environment provides a description of Wedge-tailed shearwaters. Approximately 1 million pairs breed in Australia, most of which do so on islands in Western Australia between Rottnest Island in the south to Ashmore Reef in the north. The largest breeding populations are at the Houtman Abrolhos (600,000 pairs - Surman and Nicholson 2009), and throughout the NWS region of the NWMR, where large populations on Muiron Islands (300,000 pairs) and Serrurier Island (60,000 pairs) exist (Surman and Nicholson 2009, 2015).

Nesting occurs around the islands of the Dampier Archipelago and has been reported for Rosemary Island (Inland between Beach 7 and Hungerford Bay) (Parks and Wildlife & AMOSC 2014).

Adults are absent from their breeding colonies during the interbreeding period and return from their tropical Indian Ocean over-wintering grounds from late June onwards to re-excavate their burrows. This species is highly synchronous in timing of breeding; all eggs within a colony are laid within a ten-day period. They lay their single egg during early November, which is then incubated until the chick hatches (after 53 days) in early January. Once hatched, adults leave the burrows to forage locally during the day returning at night to feed chicks until they are ready to fledge (Nicholson 2002). Due to the high synchronicity in egg laying, fledging period is generally restricted to the first two weeks of April (Nicholson 2002).

Breeding behaviours are nocturnal in wedge-tailed shearwaters. Adults return to and depart the colony at night and fledglings depart the colony at night. In the lead up to fledging, chicks also leave their burrows to exercise their wings outside burrows.

Adults may not return to feed chicks each night; wedge-tailed shearwaters breeding on the Muiron Islands (north) undertook bimodal foraging behaviour: extensive foraging trips during the incubation period (1,200 – 1400 km) and shorter trips during chick rearing (<300 km, Cannell et al. 2019). Longer foraging trips took individuals in a NW direction offshore towards oceanic seamounts. Conversely, the shorter tended to include waters to the west and NW of the Muiron Islands (Cannell et al. 2019).

The key BIAs for NWMR are: (i) breeding (encompassing offshore and coastal islands and mainland sites) and (ii) breeding and foraging with this BIA extending west over the offshore waters of the NWS (Figure 4-9). A foraging (in high numbers BIA) is located south of Shark Bay to Geographe Bay and includes offshore waters and the Abrolhos Houtman islands.

4.6.5 Seasonal Sensitivities for Protected Species

Periods of the year where the Operational Area may overlap seasonally important habitat (such as for nesting, breeding, foraging or migration) for protected species are presented in **Table 4-13**. Movement patterns of all protected species identified in **Section 4.6** are described in Section 5 of the Master Existing Environment.

Table 4-13: Key seasonal sensitivities for threatened and migratory species identified as occurring within the Operational Area

Species	January	February	March	April	May	June	July	August	September	October	November	December
Fish, sharks and rays												
Whale shark – Foraging northward from Ningaloo along the 200 m isobath[1]												
Seabirds												
Wedge-tailed shearwater – Breeding[2]												
Marine mammals												
Pygmy Blue whale – northern migration (Exmouth, Montebello, Scott Reef)[3]												
Pygmy Blue whale – southern migration (Exmouth, Montebello, Scott Reef)[3]												
Humpback whale – northern migration												
Humpback whale – southern migration												
Marine reptiles												
Flatback turtle – various nesting/feeding/hatchlings/ mating areas[4]												

	Species may be present in the Operational Area
	Peak period. Presence of animals is reliable and predictable each year

References for species seasonal sensitivities:

[1] (Department of Sustainability, Environment, Water, Population and Communities, 2012a; Environment Australia, 2002; Marine Parks and Reserves Authority and Department of Conservation and Land Management, 2005; Sleeman et al., 2010)

[2] (Nicholson, 2002)

[3] (Department of Sustainability, Environment, Water, Population and Communities, 2012a; McCauley and Duncan, 2011; McCauley and Jenner, 2010; Thums et al., 2022)

[4] (Commonwealth of Australia, 2017)

4.6.6 Key Ecological Features

One KEF overlaps the Operational Area, the Continental Slope Demersal Fish Communities KEF**.** This KEF, and those overlapping the EMBA, are identified in **Table 4-14. Figure 4-10** shows the spatial overlap of the KEF with the Operational Area.

The Continental Slope Demersal Fish Communities KEF is described below in **Section4.6.7**, and the remaining KEFs that intersect with the EMBA are described in Section 9 of the Master Existing Environment.

Table 4-14: KEFs within the Operational Area and EMBA

Key Ecological Feature	Distance and Direction from Operational Area to KEF (km)
Continental Slope Demersal Fish Communities	Overlaps the Operational Area
Ancient coastline at 125 m depth contour	1 km south-east
Exmouth Plateau	81 km west
Mermaid Reef and Commonwealth waters surrounding Rowley Shoals	466 km north-east
Glomar Shoal	143 km east
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	168 km south-west
Commonwealth waters adjacent to Ningaloo Reef	210 km south-west
Western demersal slope and associated fish communities	685 km south-west

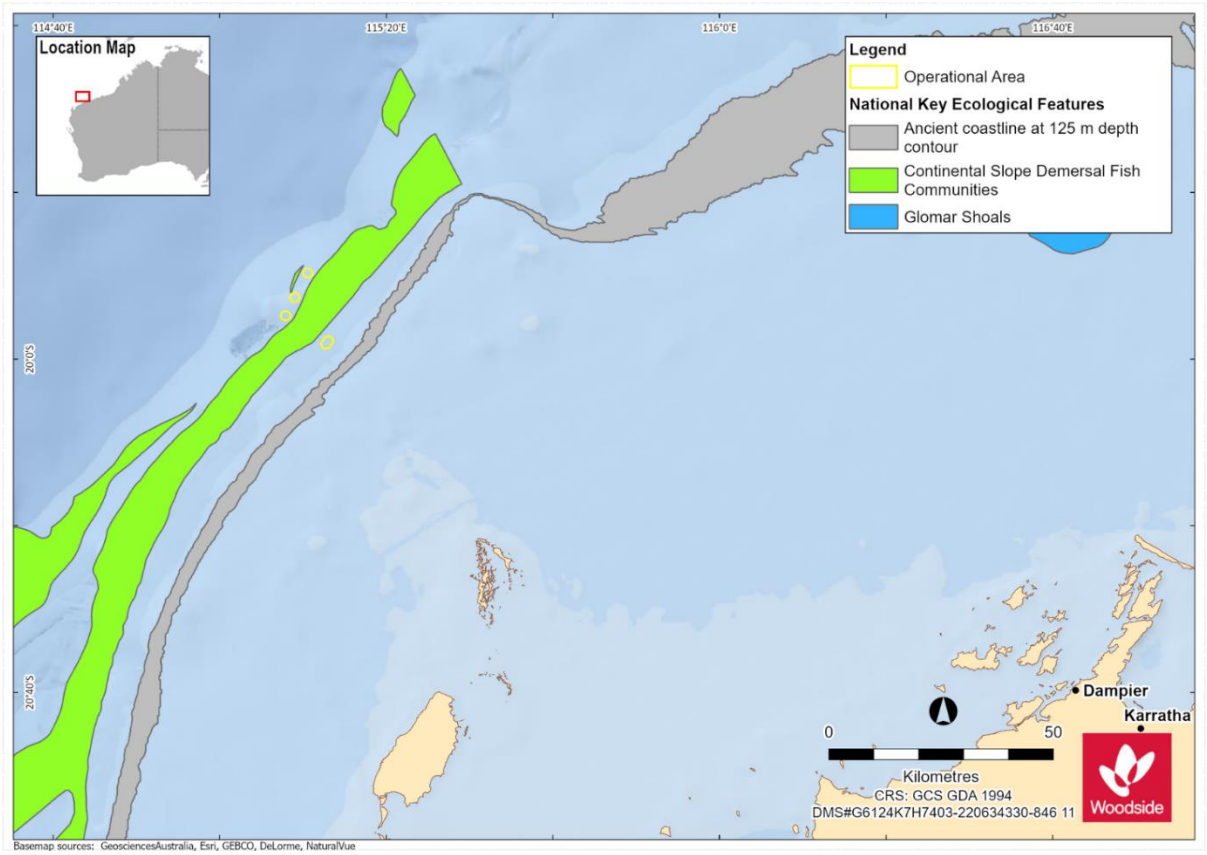

Figure 4-10: KEFs in relation to the Operational Area

4.6.7 Continental Slope Demersal Fish Communities

The continental slope demersal fish communities in the region have been identified as a KEF of the NWMR (DSEWPAC, 2012a) and overlaps the Operational Area. The continental slope between North West Cape and the Montebello Trough has been identified as one of the most diverse slope assemblages in Australian waters, with over 508 fish species and the highest number of endemic species (76) of any Australian slope habitat (DEWHA, 2008). Additional features relating to the fish populations of this area are as follows:

- Continental Slope Demersal Fish Communities have been identified as a KEF of the NWMR due to the notable diversity of the demersal fish assemblages and high levels of endemism (DSEWPAC, 2012a).
- The North West Cape region is a transition area for demersal shelf and slope fish communities between the tropical dominated communities to the north and temperate communities to the south (Last et al., 2005). The benthic shelf and slope communities offshore of the North West Cape comprise both tropical and temperate fish species with a north-south gradient (DEWHA, 2008).
- The fish fauna of the North West Cape region, like the ichthyofauna of many regions, exhibits decreasing species richness with depth (Last et al., 2005). Fish species diversity has been shown to be positively correlated with habitat complexity, with more complex habitats (e.g. coral reefs) typically hosting higher species richness than simpler habitats such as bare, unconsolidated muddy sediments (Gratwicke and Speight, 2005). A total of 500 finfish species from 234 genera and 86 families have been recorded within the Ningaloo Marine Park, and 393 species were identified at study sites of the Murion Islands (Marine Parks and Reserves Authority and Department of Conservation and Land Management, 2005). The offshore sediment habitats of the Operational Area are expected to support lower fish species richness than other shallower, more complex habitats in the coastal areas of the region.

4.7 Protected Places

No protected places overlap the Operational Area. Protected places within the EMBA are identified in **Table 4-15** and **Figure 4-11**. Section 10 of the Master Existing Environment outlines the values and sensitivities of protected places and other sensitive areas in the Permit Area and EMBA.

Table 4-15: Established protected places and other sensitive areas overlapping the EMBA

	Distance from Operational Area to Protected Place or Sensitive Area (km)	IUCN Category* or Relevant Park Zone Overlapping the Operational Area or EMBA
AMPs		
Argo-Rowley Terrace	272	Category VI
Eighty Mile Beach	443	Category VI
Gascoyne	377	Category II
Mermaid Reef	447	Category II
Montebello	1	Category VI
Ningaloo	340	Category II
	210	Category IV
Shark Bay	523	Category VI
State Marine Parks and Nature Reserves		
Marine Parks		
Barrow Island Marine Park	81	Category VI
Montebello Islands Marine Park	41	Category VI
Ningaloo Marine Park	212	Category VI
Rowley Shoals	453	Category VI
Marine Management Areas		
Barrow Island Marine Management Area	52	Category IV
Muiron Islands Marine Management Area	194	Category IV
National Park		
Cape Range National Park	251	Category II
Murujuga National Park	176	Category II
Nature Reserves		
Airlie Island Nature Reserve	148	Category Ia
Barrow Island Nature Reserve	77	Category Ia
Bedout Island Nature Reserve	405	Category Ia
Bessieres Island Nature Reserve	176	Category Ia
Boodie, Double Middle Islands Nature Reserve	88	Category Ia
Great Sandy Island Nature Reserve	124	Category Ia
Little Rocky Island Nature Reserve	159	Category Ia
Locker Island Nature Reserve	197	Category Ia
Lowendal Islands Nature Reserve	79	Category Ia
Muiron Islands Nature Reserve	201	Category Ia
North Sandy Island Nature Reserve	131	Category Ia
North Turtle Island Nature Reserve	381	Category Ia
Rocky Island Nature Reserve	221	Category Ia

	Distance from Operational Area to Protected Place or Sensitive Area (km)	IUCN Category* or Relevant Park Zone Overlapping the Operational Area or EMBA
Round Island Nature Reserve	193	Category Ia
Serrurier Island Nature Reserve	185	Category Ia
Thevenard Island Nature Reserve	161	Category Ia
Unnamed WA36915 Nature Reserve	146	Category Ia
Victor Island Nature Reserve	229	Category Ia
Weld Island Nature Reserve	158	Category Ia
Y Island Nature Reserve	233	Category Ia
Indigenous Protected Area		
Karajarri Indigenous Protected Area	656	
Ramsar Wetlands of Importance		
Eighty-Mile Beach	473	Category Ia

** Conservation objectives for IUCN categories include:*

- *Ia: Strict Nature Reserve*
- *Ib: Wilderness Area*
- *II: National Park*
- *III: Natural Monument or Feature*
- *IV: Habitat/Species Management Area*
- *V: Protected Landscape*
- *VI: Protected area with sustainable use of natural resources – allow human use but prohibits large scale development.*

IUCN categories for the marine park are provided and, in brackets, the IUCN categories for specific zones within each Marine Park as assigned under the Australian Marine Parks - North-west Marine Parks Network Management Plan 2018 (Director of National Parks, 2018)

The EMBA overlaps numerous other classes of protected places, including 5(1)(h) Reserves, Conservation Parks, National Heritage Places and Nationally Important Wetlands. For a full list of intersecting protected places, see ***Appendix C***

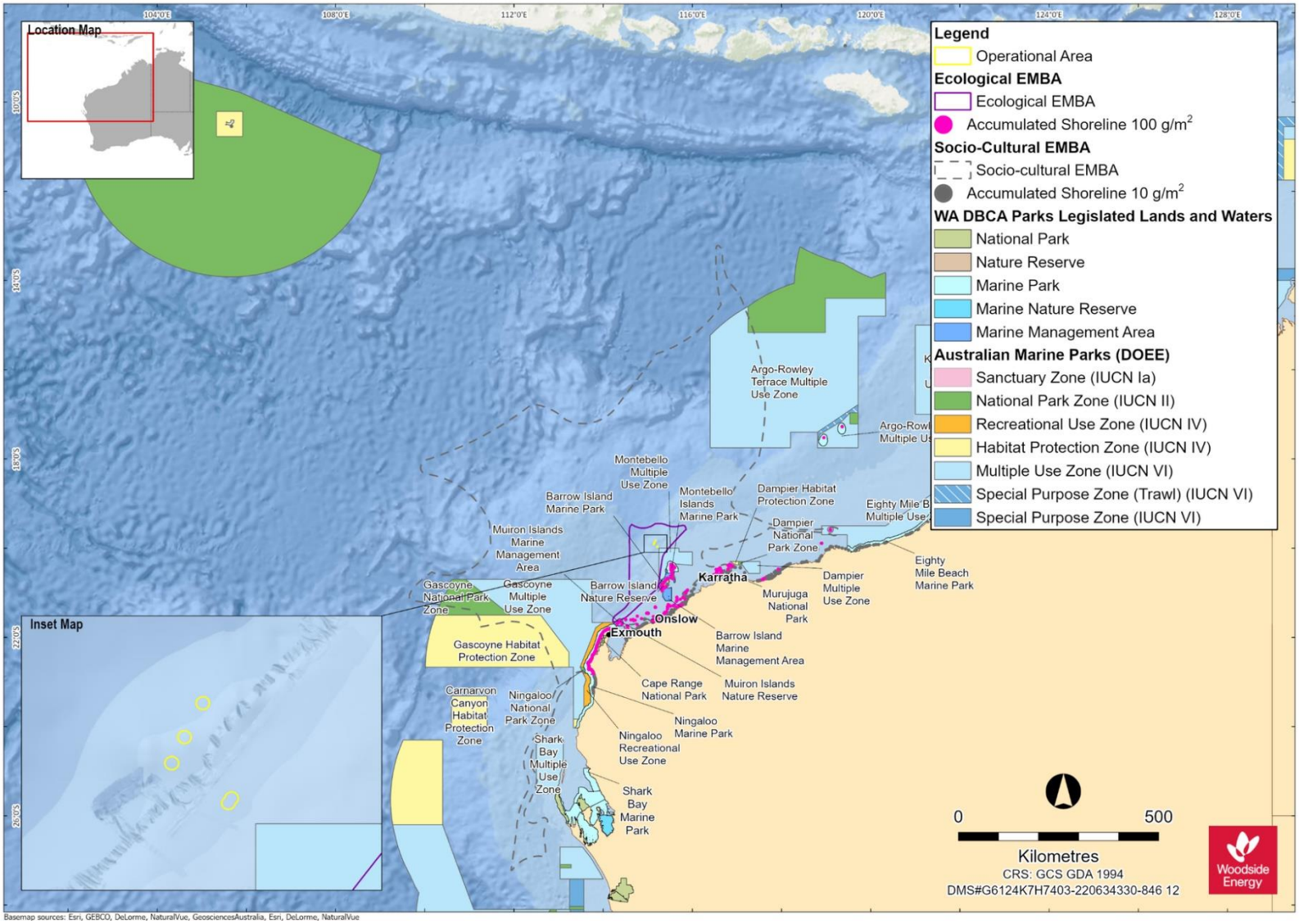

Figure 4-11: Protected areas overlapping the EMBA

4.8 Socio-economic Environment

4.8.1 Cultural Heritage

4.8.1.1 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.

4.8.1.2 Native Title Rights and Interests

As a starting point for understanding social and cultural features of the environment for Indigenous groups, Woodside identifies native title claims, determinations and Indigenous Land Use Agreements (ILUAs) which the EMBA overlaps. Native title claims, determinations and ILUAs are defined under the Native Title Act 1993 (Cth). Woodside considers this to be the broadest extent over which Indigenous groups have claimed native title rights and interests, while acknowledging that cultural features and heritage values may exist outside of the native title framework.

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 (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. 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, Native Title Act 1993) in trust or as agent for native title holders.

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 (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 no native title claims or determinations, ILUAs overlapping the Operational Area and therefore also no native title rights or interests and/or cultural values identified over the Operational Area (Table 4-16).

There are five native title claims overlapping the in-water EMBA and a further nine overlapping areas of potential shoreline accumulation. There are six ILUAs overlapping the in-water EMBA and a further 18 overlaping areas of potential shoreline accumulation (Table 4-16).

4.8.1.3 Coastally adjacent Native Title Claims, Determinations and ILUAs

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 5-2).

That said, Woodside understands from engagement with relevant persons and/ or organisations, 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 and ILUAs overlapping or coastally adjacent to the EMBA is set out in Table 4-16. 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.

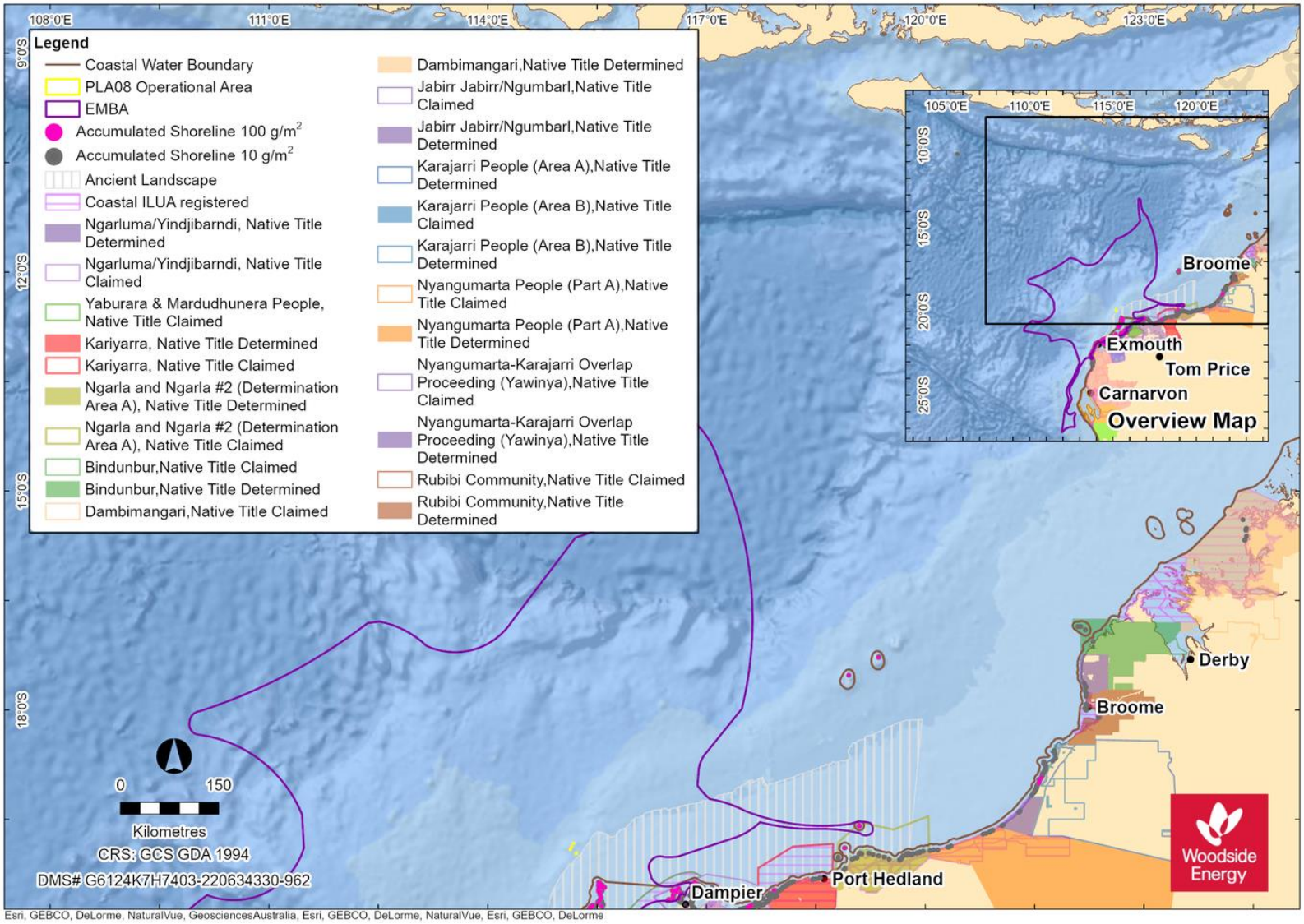

Figure 4-12: Operational Area and EMBA in relation to native title claims, determinations and ILUA (Northern component)

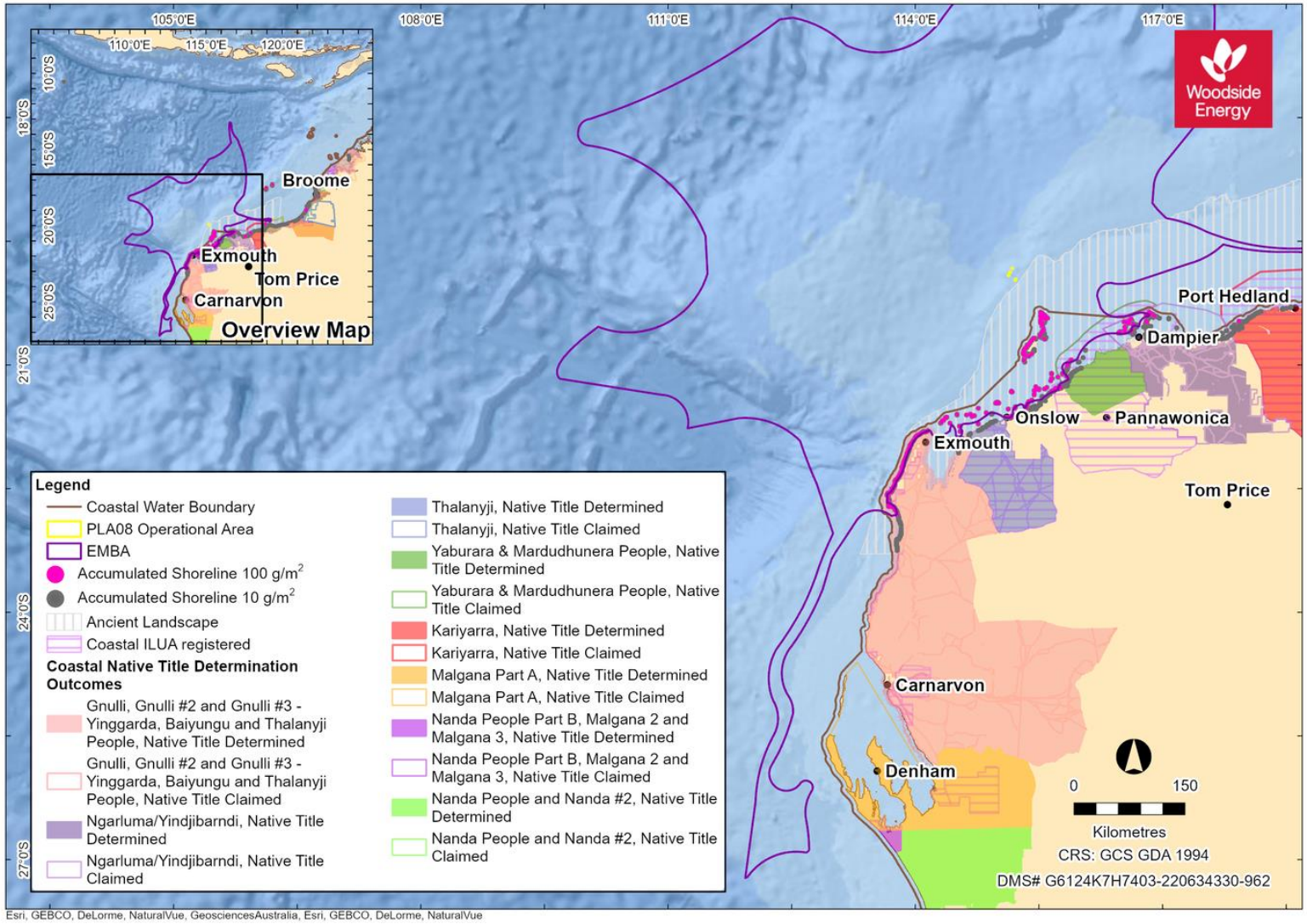

Figure 4-13: Operational Area and EMBA in relation to native title claims, determinations and ILUA (Southern component)

Table 4-16: Summary of Native Title Claims, Determinations and ILUAs which overlap or are coastally

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to EMBA
***Cla**im / Determination*			
Bardi and Jawi Native Title Determination	Bardi and Jawi Niimidiman Aboriginal Corporation	No	No
Bindunbur	Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation, Nyul Nyul PBC Aboriginal Corporation	Shoreline accumulation only	Yes
Dambimangari	Wanjina-Wunggurr (Native Title) Aboriginal Corporation	Shoreline accumulation only	Yes
Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People	Nganhurra Thanardi Garrbu Aboriginal Corporation,Yinggarda Aboriginal Corporation	Yes – in water EMBA	Yes
Jabirr Jabirr/Ngumbarl	Gogolanyngor Aboriginal Corporation	Shoreline accumulation only	Yes
Karajarri People (Area A)	Karajarri Traditional Lands Association (Aboriginal Corporation)	Shoreline accumulation only	Yes
Karajarri People (Area B)	Karajarri Traditional Lands Association (Aboriginal Corporation)	Shoreline accumulation only	Yes
Kariyarra	Kariyarra Aboriginal Corporation	Shoreline accumulation only	Yes
Mayala People	Mayala Inninalang Aboriginal Corporation	No	Yes
Malgana Part A	Malgana Aboriginal Corporation	No	Yes
Nanda People and Nanda #2	Nanda Aboriginal Corporation	No	Yes
Nanda People Part B, Malgana 2 and Malgana 3	Malgana Aboriginal Corporation, Nanda Aboriginal Corporation	No	Yes
Ngarla and Ngarla #2 (Determination Area A)	Wanparta Aboriginal Corporation	Yes – in water EMBA	Yes
Ngarluma/Yindjibarndi	Yindjibarndi Aboriginal Corporation,Ngarluma Aboriginal Corporation	Yes – in water EMBA	Yes
Nyangumarta People (Part A)	Nyangumarta Warrarn Aboriginal Corporation	Shoreline accumulation only	Yes
Nyangumarta-Karajarri Overlap Proceeding (Yawinya)	Nyangumarta Karajarri Aboriginal Corporation	Shoreline accumulation only	Yes
Rubibi Community	Yawuru Native Title Holders Aboriginal Corporation	Shoreline accumulation only	Yes
Thalanyji	Buurabalayji Thalanyji Aboriginal Corporation	Yes – in water EMBA	Yes
Yaburara & Mardudhunera People	Wirrawandi Aboriginal Corporation	Yes – in water EMBA	Yes

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to EMBA
ILUA			
Alinta-Kariyarra Electricity Infrastructure ILUA	No representative body specified.	Shoreline accumulation only	Yes
Anketell Port, Infrastruture Corridor and Industrial Estates Agreement	NAC	No	Yes
Brickhouse and Yinggarda Aboriginal Corporation ILUA	YAC	No	Yes
Cape Preston Project Deed (YM Mardie ILUA)	WAC	Yes – in water EMBA	Yes
Cape Preston West Export Facility	WAC	Shoreline accumulation only	Yes
Dambimangari KSCS Marine Parks ILUA	Wanjina-Wunggurr (Native Title) Aboriginal Corporation, Dambimangari Aboriginal Corporation	Shoreline accumulation only	Yes
FMG - Kariyarra Land Access ILUA	No representative body specified.	Shoreline accumulation only	Yes
Gnaraloo Indigenous Land Use Agreement	NTGAC	No	Yes
Great Sandy Desert Project ILUA - Infrastructure	Karajarri Traditional Lands Association (Aboriginal Corporation)	Shoreline accumulation only	Yes
Karajarri Traditional Lands Association KSCS Eighty Mile Beach ILUA	Karajarri Traditional Lands Association (Aboriginal Corporation)	Shoreline accumulation only	Yes
Kariyarra and State ILUA	Kariyarra Aboriginal Corporation	Shoreline accumulation only	Yes
KM & YM Indigenous Land Use Agreement 2018	WAC, Robe River Kuruma Aboriginal Corporation	Yes – in water EMBA	Yes
Kuruma Marthudunera and Yaburara and Coastal Mardudhunera Indigenous Land Use Agreement	No representative body specified.	Yes – in water EMBA	Yes
Macedon ILUA	BTAC	Yes – in water EMBA	Yes
Malgana Tamala Pastoral Lease Agreement	Malgana Aboriginal Corporation	No	Yes
Malgana Woodleigh Carbla Pastoral Lease Agreement	Malgana Aboriginal Corporation	No	Yes
Malgana Wooramel Pastoral Lease Agreement	Malgana Aboriginal Corporation	No	Yes

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to EMBA
Mayala Country Marine Park Indigenous Land Use Agreement	Mayala Inninalang Aboriginal Corporation	No	Yes
Ngarla Pastoral ILUA	Wanparta Aboriginal Corporation	Shoreline accumulation only	Yes
Ngarla PBC KSCS ILUA	Wanparta Aboriginal Corporation	Shoreline accumulation only	Yes
Ningaloo Conservation Estate ILUA	NTGAC	Yes – in water EMBA	Yes
NKAC KSCS Eighty Mile Beach ILUA	Nyangumarta Karajarri Aboriginal Corporation	Shoreline accumulation only	Yes
Nyangumarta Karajarri and Anna Plains Station ILUA	Nyangumarta Karajarri Aboriginal Corporation	Shoreline accumulation only	Yes
Nyangumarta PBC KSCS ILUA	Nyangumarta Warrarn Aboriginal Corporation	Shoreline accumulation only	Yes
Nyangumarta Warrarn Aboriginal Corporation & Mandora Pastoral Lease ILUA	Nyangumarta Warrarn Aboriginal Corporation	Shoreline accumulation only	Yes
Nyangumarta Warrarn Aboriginal Corporation & Wallal Downs Pastoral Lease ILUA	Nyangumarta Warrarn Aboriginal Corporation	Shoreline accumulation only	Yes
Quobba – Yinggarda Pastoral ILUA	YAC	No	Yes
RTIO Kuruma Marthudunera People ILUA	Robe River Kuruma Aboriginal Corporation	Yes – in water EMBA	Yes
RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement)	NAC	Shoreline accumulation only	Yes
Yawuru Area Agreement ILUA	No representative body specified.	Shoreline accumulation only	Yes
Yawuru Nagulagun / Roebuck Bay Marine Park ILUA	Yawuru Native Title Holders Aboriginal Corporation	Shoreline accumulation only	Yes
Yawuru Prescribed Body Corporate ILUA - Broome	Yawuru Native Title Holders Aboriginal Corporation	Shoreline accumulation only	Yes

4.8.1.4 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’. Woodside considers the management plans of marine parks that overlap the Operational Area and the EMBA to determine whether cultural features and heritage places have been identified and whether there

are Traditional Custodians or representative bodies referenced to contact regarding potential cultural features and heritage values.

The PAA does not overlap any Commonwealth Marine Parks. The EMBA overlaps with features of the Argo-Rowley Terrace, Eighty Mile Beach, Gascoyne, Montebello, Ningaloo and Shark Bay AMPs managed under the North-West Marine Parks Network Management Plan 2018 and the Christmas Island Habitat Protection Zone which does not have a management plan in place. The EMBA overlaps a further ten State Marine Parks. Where these plans specify identifiable 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 Table 5-2). Consultation with these groups may identify heritage values and cultural features beyond those addressed in the marine park management plans. Seven identifiable representative bodies were specified for the marine parks overlapped by the EMBA (see Table 4-17)

The North-West Marine Parks Network Management Plan 2018 notes for the Gascoyne, Montebello, Ningaloo and Shark Bay AMPs that the Yamatji Marlpa Aboriginal Corporation (YMAC) is the relevant Native Title Representative Body, and that for Eighty Mile Beach AMP both YMAC and Kimberley Land Council are relevant Native Title Representative Bodies. Consultation with YMAC and KLC included discussion of the Traditional Custodians who may hold knowledge of heritage values or cultural features (See **Table 5-4**).

Table 4-17: Summary of Marine Parks which overlap the EMBA

Marine Park	PAA Overlap	EMBA Overlap	Specified Bodies
Commonwealth Marine Park			
Argo-Rowley Terrace AMP	No	Yes	No identifiable body specified.
Christmas Island Habitat Protection Zone	No	Yes	No management plan.
Eighty Mile Beach AMP	No	Yes	Karajarri Traditional Lands Association, Nyangumarta Karajarri Aboriginal Corporation, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation.
Gascoyne AMP	No	Yes	No identifiable body specified.
Montebello AMP	No	Yes	No identifiable body specified.
Ningaloo AMP	No	Yes	No identifiable body specified.
Shark Bay AMP	No	Yes	No identifiable body specified.
State Marine Park			
Barrow Island Marine Management Area	No	Yes	No identifiable body specified.
Barrow Island Marine Park	No	Yes	No identifiable body specified.
Eighty Mile Beach Marine Park	No	Yes	Karajarri Traditional Lands Association, Nyangumarta Warrarn Aboriginal Corporation, Wanparta Aboriginal Corporation and Nyangumarta Karajarri Aboriginal Corporation
Lalang-garram / Camden Sound Marine Park	No	Yes	Dambimangari Aboriginal Corporation
Montebello Islands Marine Park	No	Yes	No identifiable body specified.
Muiron Islands Marine Management Area	No	Yes	No identifiable body specified.
Ningaloo Marine Park	No	Yes	NTGAC
Rowley Shoals Marine Park	No	Yes	No identifiable body specified.
Cape Range National Park	No	Yes	No identifiable body specified.
Murujuga National Park	No	Yes	Murujuga Aboriginal Corporation

In the North-West Marine Parks Network Management Plan 2018 for the AMPs it is noted that “Sea country is valued for Indigenous cultural identity, health and wellbeing.” Cultural identity is understood to refer to the fact that “essence of being a 'Saltwater' person is ontological rather than merely technological. That is, 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) This connection 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) but no impacts of this nature are considered to arise from this activity.

The North-West Marine Parks Network Management Plan 2018 also notes that cultural features of the Eighty Mile Beach AMP include traditional practices continuing today, staple foods of living cultural value and that access to sea country by families is important for cultural traditions, livelihoods and future socio-economic development opportunities. Management of cultural features within marine ecosystems, including food sources, is discussed in Section 4.8.1.5.

Management plans for the AMPs note shipwrecks within the AMPs and overlap with World, National and Commonwealth heritage lists. These are addressed in Sections 4.8.1.8 and 4.8.1.9 below.

The Eighty Mile Beach Marine Park management plan 2014-2024 (relating to the state Eighty Mile Beach Marine Park) notes that:

- Reefs, coastal creeks, mangroves and intertidal flats in and adjacent to the marine park are particularly important for resource usage. Fish traps and shell middens along the coast show the historical importance of saltwater resources
- Customary use of the area includes camping, nature appreciation, fishing and other harvesting activities. Limited hunting of turtle (predominantly collection of turtle eggs) also occurs.
- Under traditional law, traditional owners are responsible for and obliged to protect, preserve and manage areas, sites and objects of significance associated with their country, and the traditional knowledge pertaining to them.

The Lalang-gaddam Marine Park Joint Management Plan 2022 (relating to Lalang-garram / Camden Sound Marine Park) notes that customary activities to preserve country and culture “include hunting for food, visiting important cultural places, making medicines, keeping rock art fresh, passing on La Lai narratives, managing country through fire at the right time of year and engaging in artistic and ceremonial events.” The plan also notes “There are many stone arrangements of high cultural significance to Dambeemangarddee people in and around the islands and mainland.”

The Management Plan for the Ningaloo Marine Park and Muiron Islands Marine Management Area 2005 – 2015: Management Plan Number 52 (relating to the Muiron Islands Marine Management Area and Ningaloo Marine Park) notes the aesthetic values of the seascape as a cultural value and that “Panoramic vistas of turquoise lagoon waters, reefs, beaches, breaking surf and the blue open ocean beyond the reef line are major attractions of the reserves.” In particular the plan notes that “Inappropriate structures along the coastline, on the islands and in the surrounding waters have the potential to degrade the aesthetic values of the reserves. Coastal developments and maritime infrastructure projects must therefore be planned with careful consideration of this issue.” As the activity described in this EP does not include the addition of any structures within these parks, no impacts on the aesthetic values of these parks are anticipated.

The Cape Range National Park Management Plan 2010 notes that Indigenous archaeological material on the Cape Range peninsula carries specific scientific significance as it:

- provides the earliest confirmed evidence of Pleistocene marine resource use in Australia.
- provides evidence for the earliest history of human decorative traditions in Australia;
- has the potential to provide further insights into the lives of early Aboriginal Australians; and

- has the potential to increase understanding of biogeographical and other environmental changes over time.

The Murujuga National Park Management Plan 2013 notes that cultural heritage in Murujuga National Park "includes material elements such as middens, grinding stones, sacred sites, stone arrangements and petroglyph sites. Just as important are the cultural elements that cannot be seen, such as knowledge, spiritual associations, beliefs, stories and language." Considerable attention is given to the petroglyphs in the national park, likely in part due to their national heritage listing. National heritage places are addressed in **Section 4.8.1.9**.

A number of management plans for the state marine parks also note Indigenous and maritime heritage within the marine parks generally. These are addressed in **Sections 4.8.1.6** and **4.8.1.8**.

4.8.1.5 Marine Ecosystems

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. It has been noted that "the saltwater peoples of the north-west are associated with discrete clan estates or tribal areas, often referred to in contemporary Aboriginal English as 'saltwater country' or 'sea country'. '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 values 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, 2023).

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. 20–30km 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 100km out to sea are imbued with spiritual significance. For those groups with elaborate canoe technology, seascapes extend well over the horizon." While there is some evidence of traditional watercraft in Australia's North West, the recorded evidence is limited to travel across inland rivers (e.g. Barber and Jackson 2011) or travel between coastal islands (Paterson et al 2019). The process for identifying Indigenous groups who may have interests and connection in Sea Country are set out in Section 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.

Cultural features of coastal areas may include marine species (e.g., humpback whales, turtles and dugongs) that may travel many thousands of kilometres through areas with similar cultural values to multiple Indigenous language groups. For example, a humpback whale may travel 5,000 km from Antarctica to the Kimberley region of Western Australia (Double et al., 2010, 2012), passing Indigenous language groups along the entire west coast of Australia.

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 **Section 6**.

During consultation, BTAC advised it has a cultural obligation to care for the environmental values of sea country (See Table 5-4). BTAC has not provided further detail regarding heritage value of

places or cultural features of the Operational Area or the EMBA. Malgana Aboriginal Corporation noted the ecological importance of Shark Bay, including stromatolites and seagrass beds (See Table 5-4), which Woodside understands may therefore include cultural values. Stromatalites and seagrass beds are inshore of the predicted EMBA. Nanda Aboriginal Corporation indicated that the shoreline holds particular cultural significance.

Woodside has committed to ongoing engagement to further understand these values. Should feedback be received (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 7.6**).

No other cultural features or heritage values related to marine species within the Operational Area or EMBA were raised by Traditional Custodians in the course of preparing the EP.

4.8.1.6 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, and areas that were once inhabited are now submerged on the continental shelf (Veth et al 2019; UWA 2021). The Ancient Coastline KEF at 125 m depth contour represents the lowest sea level during Indigenous occupation (O'Leary et al 2020; see also Williams et al 2018; UWA 2021). Archaeological material preserved on the Ancient Landscape 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; see Ward et al 2021 for an opposing view).

In recognition of this, Woodside considers the Ancient Landscape between the mainland and the Ancient Coastline KEF (see **Figure 4-10**) 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 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.

The PAA is located beyond the Ancient Landscape. The EMBA overlaps the ancient landscape, but no impacts to the seabed are anticipated. Archaeological material on the Ancient Landscape is not a relevant matter for the proposed activity as there is no overlap between the PAA or areas of potential seabed disturbance and the Ancient Landscape.

The Department of Planning, Lands and Heritage (DPLH) Aboriginal Heritage Inquiry system was searched for the EMBA, which indicated 160 Registered Aboriginal Sites and 76 Other Heritage Places (**Appendix H**). The exact location, access, and traditional practices for a number of these sites may not be disclosed and if required, such as in the event of a major oil spill, would involve prioritising further consultation with key contacts within Western Australian Department of Aboriginal Affairs (DAA) and relevant local Aboriginal communities.

No sites of significance within the Operational Area or EMBA were identified by Traditional Custodians during the course of preparing the EP.

Should feedback be received (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 7.6**).

Where Indigenous archaeological material is identified within the EMBA, Woodside will discuss the management of this material with appropriate Traditional Custodian group(s), starting with any adjacent Native Title Body Corporate.

4.8.1.7 Historic Sites of Significance

European sites of significance and heritage value are found along adjacent foreshores of the NWMR. Heritage values are protected in Western Australia under the *Heritage Act 2018*.

There are no known sites of European cultural heritage significance within the Operational Area.

4.8.1.8 Historic Underwater Heritage

A search of the Australian National Shipwreck Database, which records all known Maritime Cultural Heritage (shipwrecks, aircraft, relics and other underwater cultural heritage) in Australian waters indicated there are no sites within any Operational Area; however, a number of shipwrecks exist within the EMBA (**Table 4-18**).

Table 4-18: Historic shipwrecks within 100 km of the Operational Area

Shipwreck	Distance from Operational Area to Shipwreck (km)
Marietta	2
Curlew	2
Wild Wave (China)	2
Vianen	2
Tanami	34
Trial	35
Tropic Queen	55
Plym HMS	56
Parks Lugger	61
McDermott Derrick Barge No 20	75

4.8.1.9 World, National and Commonwealth Heritage Listed Places

No World, National or Commonwealth heritage listed places overlap any of the Operational Area. World, National and Commonwealth heritage places within the EMBA are identified in **Table 4-19**. Section 11.2 of Master Existing Environment outlines the values and sensitivities of these places.

Table 4-19: World, National and Commonwealth Heritage Listed places within the EMBA

Listed Place	Distance and Direction from Operational Area to Listed Place (km)
World Heritage Places	
The Ningaloo Coast	194 south-west
Shark Bay, Western Australia	577 south-west
National Heritage Places	
Murujuga	178 east south-east
The Ningaloo Coast	194 south-west

Listed Place	Distance and Direction from Operational Area to Listed Place (km)
Shark Bay, Western Australia	577 south-west

4.8.2 Commercial Fisheries

Commonwealth and State fishery management areas are located within the Operational Area. Fish Cube and ABARES data were used to analyse the potential for interaction of fisheries with the Operational Area, which was used to determine consultation with fisheries who may be impacted by proposed petroleum activities. **Table 4-20** provides an assessment of the potential interaction with fishieries that overlap the Operational Area and EMBA and Section 11.5 of the Master Existing Environment provides further detail on the fisheries that have been identified through desk-based assessment and consultation (**Section 5**). In summary, there is a potential for interactions between vessels from three fisheries and the proposed Petroleum Activities Program.

Table 4-20: Commonwealth and State commercial fisheries overlapping the Operational Area

Fishery Name	Potential for Interaction Within Operational Area[1,2]		
	Operational Area	***EMBA***	***Description***
Commonwealth Managed Fisheries			
North-West Slope Trawl Fishery	✓	✓	The North West Slope Trawl Fishery management area overlaps the Operational Area and EMBA. Fishery Status Reports indicate fishing effort in the Operational Area in the last 5 years. Fishing effort has also been recorded off the Pilbara coast within the in water EMBA in 2021-2022, particularly off Dampier and Port Headland (Patterson et al., 2022). Woodside considers it a possibility that interactions with the fishery may occur in the Operational Area and EMBA.
Western Tuna and Billfish Fishery	×	✓	The Western Tuna and Billfish Fishery management area overlaps the Operational Area and EMBA. There has been no fishing effort reported Operational Area in the last five years. Fishing effort has been recorded off the Gascoyne and West Coast within the in water EMBA in 2002-2022, particularly off Shark Bay and Carnarvon (Patterson et al., 2022). Woodside considers it a possibility that interations with the fishery may occur in the EMBA.
Southern Bluefin Tuna Fishery	×	×	The Southern Bluefin Tuna Fishery management area overlaps the Operational Area and EMBA. No fishing effort has been recorded within the Operational Area or EMBA during 2017-2022 period (Patterson et al., 2022). The Southern Bluefin Tuna Fishery spans the Australian Fishing Zone, however since 1992, the majority of Australian catch has concentrated in south-Eastern Australia (Patterson et al., 2022). Woodside therefore considers there to be no potential for interaction with this fishery in the Operational Area and EMBA.

Fishery Name	Potential for Interaction Within Operational Area[1,2]		
Western Skipjack Fishery	×	×	The Western Skipjack Fishery management area overlaps the Operational Area and EMBA. No fishing effort has been recorded within the Operational Area and EMBA during the 2017 – 2022 period (Patterson et al., 2022). Historical fishing effort for this fishery is concentrated off the coast of South Australia. Additionally, the fishery is not currently active and no fishing has occurred since 2009 (Patterson et al., 2022). Woodside therefore considers there to be no potential for interaction with this fishery in the Operational Area and EMBA
Western Deepwater Trawl Fishery	×	✓	The Western Deepwater Trawl Fishery management area overlaps the EMBA. Fishery Status Reports indicate most recent activity inside the EMBA occurred in the 2022 season (Patterson et al., 2022). Fishing effort recorded off the Gascoyne Coast within the in water EMBA in 2021-2022, particularly off Dampier and Port Headland (Patterson et al., 2022). Woodside therefore consaiders it a possibility that interactions with the fishery may occur in the EMBA.
State Managed Fisheries			
Abalone Managed Fishery	×	×	The Abalone Managed Fishery targets Roe's abalone, greenlip abalone and brownlip abalone. The Abalone Managed Fishery management area overlaps the Operational Area and EMBA. No fishing effort has been recorded within the operational Area and EMBA during the 2017 – 2022 period (Patterson et al., 2022). Woodside therefore considers there to be no potential for interaction with this fishery in the Operational Area and EMBA.
Broome Prawn Managed Fishery	×	×	The Broome Prawn Managed Fishery targets western king prawns and coral prawns. The Broome Prawn Managed Fishery management area overlaps with the EMBA. No fishing effort has been recorded within the EMBA during the 2017 – 2022 period (Patterson et al., 2022). Additionally, the 2021/ 2022 State of the Fisheries Report (Newman et al., 2023) described the fishery as having “extremely low fishing effort as three boats undertook trial fishing activities to investigate whether catch rates were sufficient for commercial fishing” (Newman et al., 2023). Woodside therefore considers there to be no potential for interaction with this fishery in the EMBA.
Christmas Island Line Fishery	×	✓	The Christmas Island Line Fishery is a small line fishery operating in coastal waters (12 NM) around Christmas Island, mainly supplying the local market. The Christmas Island Line Fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.

Fishery Name	Potential for Interaction Within Operational Area[1,2]		
Exmouth Gulf Beach Seine and Mesh Net Managed Fishery	×	✓	The Exmouth Gulf Beach Seine and Mesh Net Managed Fishery is a beach seine fishery in Exmouth Gulf. The fishery is currently demonstrating historically low levels of activity. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Exmouth Gulf Prawn Fishery	×	✓	The Exouth Gulf Prawn Fishery is a prawn trawl fishery operating in Exmouth Gulf. Target species generally < 50 m water depth. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Gascoyne Demersal Scalefish Fishery	×	✓	The Gascoyne Demersal Scalefish Fishery operates in the continental shelf waters targeting a range of demersal species. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Kimberley Crab Managed Fishery	×	✓	The Kimberley Crab Managed Fishery is a trap-based fishery active from Broome to the Northern Territory border. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Kimberley Gillnet and Barramundi Fishery	×	✓	The Kimberley Gillnet and Barramundi Fishery is a gillnet fishery active from Broome to the Northern Territory border. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Kimberley Prawn Fishery	×	✓	The Kimberley Prawn Fishery is a trawl fishery active in the northern Kimberley. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Land Hermit Crab Fishery	×	✓	The Land Hermit Crab Fishery is a shoreline fishery active North of Exmouth. Crabs onshore taken at night by hand. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.

Fishery Name	Potential for Interaction Within Operational Area[1,2]		
Mackerel Managed Fishery Management Plan 2011 (Area 2)	×	✓	The Mackerel Managed Fishery targets species in relatively shallow waters around headlands, shoals and reefs. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). No historical fishing effort is reported in the Operational Area. Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Mackerel Managed Fishery (Areas 1 and 3).	×	✓	The Mackerel Managed Fishery targets species in relatively shallow waters around headlands, shoals and reefs. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Marine Aquarium Fishery	×	✓	The Marine Aquarium Fishery is a diver-based fishery generally restricted to relatively shallow waters. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). No historical fishing effort is reported in the Operational Area. Notably, this fishery is largely diver-based, with fishing effort usually occurring in water depths less than 45 m. Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Nickol Bay Prawn	×	✓	The Nickol Bay Prawn fishery target species are restricted to relatively shallow waters. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Northern Demersal Scalefish Fishery	×	×	The Northern Demersal Scalefish Fishery operates off the WA coast in waters East of 120°E longitude. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate no fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be no potential for interaction with this fishery in the EMBA.
Octopus Interim Managed Fishery	×	×	The Octopus Interim Managed fishery is one of three targeting octopus in WA. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate no fishing effort in the EMBA in the last 5 years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be no potential for interaction with this fishery in the EMBA.

Fishery Name	Potential for Interaction Within Operational Area[1,2]		
Onslow Prawn Limited Entry Fishery	×	✓	The Onslow Prawn Limited Entry Fishery has target species restricted to relatively shallow waters. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate no historical fishing effort reported in the Operational Area. Notably the fishery target species is restricted to relatively shallow water (typically < 50 m). Fishing effort has been reported in the EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions	×	×	The Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions is an open access wetline fishery targeting demersal and pelagic scalefish. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate no fishing effort in the EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Further, Woodside has received advice from DPIRD that no contact details are available for this fishery. Woodside therefore considers ther to be no potential for interaction with this fishery in the EMBA.
Pearl Oyster Managed Fishery	×	✓	The Pearl Oyster Managed Fishery is a diver-based pearl oyster fishery, with target species distributed in Kimberley waters. The fishery management area overlaps the Operational Area and EMBA. Fishery Status Reports indicate no fishing effort in the Operational Area within the last 5 years (2017 – 2022), however fishing effort has been reported in the EMBA over this time (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Pilbara Crab Managed Fishery Management Plan	×	✓	The Pilbara Crab Managed Fishery is a trap-based fishery concentrated around Dampier. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate no fishing effort in the Operational area in the last five years (2017 – 2022), however fishing effort has been reported in the EMBA over this time (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Pilbara Fish Trawl Interim Managed Fishery	×	✓	The Pilbara Fish Trawl Interim Managed Fishery targets demersal scalefish. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate no fishing effort in the Operational area in the last five years (2017 – 2022), however fishing effort has been reported in the EMBA over this time (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Pilbara Line Fishery	✓	✓	The Pilbara Line Fishery targets demersal scalefish. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate fishing effort in the Operational Area and EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the Operational Area and EMBA.

Fishery Name	Potential for Interaction Within Operational Area[1,2]		
Pilbara Trap Managed Fishery	✓	✓	The Pilbara Trap Limited Entry Fishery targets demersal scalefish. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate fishing effort in the Operational Area and EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the Operational Area and EMBA.
Sea Cucumber Fishery	×	✓	The Sea Cucumber Fishery is a wader and diver based fishery in the Kimberley region. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate no fishing effort in the Operational area in the last five years (2017 – 2022), however fishing effort has been reported in the EMBA over this time (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.
Shark Bay Crab Managed Fishery	×	×	The Shark Bay Crab Managed Fishery is a trap-based fishery concentrated around Shark Bay. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate no fishing effort in the EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be no potential for interaction with this fishery in the EMBA.
Shark Bay Prawn Fishery	×	×	The Shark Bay Prawn Fishery is a trawl-based fishery concentrated around Shark Bay and Carnarvon. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate no fishing effort in the EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be no potential for interaction with this fishery in the EMBA.
Shark Bay Scallop Fishery	×	×	The Shark Bay Prawn Fishery is a trawl-based fishery concentrated around Shark Bay and Carnarvon. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate no fishing effort in the EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers tohere to be no potential for interaction with this fishery in the EMBA.
Specimen Shell Managed Fishery	×	✓	The Specimen Shell Managed Fishery is largely diver-based, targeting specimen shells in water depths mostly < 30 m. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate no fishing effort in the Operational area in the last five years (2017 – 2022). however fishing effort has been reported in the EMBA over this time (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with this fishery in the EMBA.

Fishery Name	Potential for Interaction Within Operational Area[1,2]		
South-West Coast Salmon Fishery	×	×	The South-West Coast Salmon Fishery operates on various beaches south of the metropolitan area. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate no fishing effort in the Operational Area and EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Woodside therefore considers there to be no potential for interaction with this fishery in the Operational Area or EMBA.
Tour Operator	✓	✓	Tour Operators include charter fishing for recreational fishers typically operating from regional centres such as Dampier, Onslow and Exmouth. Target species are largely demersal and pelagic scalefish. The Tour Operator management area overlaps with the Operational Area ande EMBA. Fishery Status Reports indicate fishing effort in the Operational Area and EMBA in the last five years (2017 – 2022) (Patterson et al., 2022). Therefore, Woodside considers there to be a potential for interaction with this fishery in the Operational Area and EMBA.
WA North Coast Shark Fishery	×	×	The WA North Coast Shark Fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate no fishing effort in the Operational Area or EMBA in the last five years (2017 – 2022). Notably, the fishery has not been active since 2008/2009 (DPIRD). Woodside therefore considers there to be no potential for interaction with this fishery in the Operational Area and EMBA.
West Coast Deep Sea Crustacean Managed Fishery	×	✓	The West Coast Deep Sea Crustacean Managed Fishery is a trap based fishery targeting deep-water crabs off the west coast, with landing at Carnarvon, Geraldton and Fremantle. The fishery management area overlaps with the Operational Area and EMBA. Fishery Status Reports indicate no fishing effort in the Operational area in the last five years (2017 – 2022), however fishing effort has been reported in the EMBA over this time (Patterson et al., 2022). Woodside therefore considers there to be a potential for interaction with the fishery in the EMBA.
West Coast Demersal Gillnet & Demersal Longline Fishery	×	×	The West Coast Demersal Gillnet & Demersal Longline Fishery targets mostly shark species, including gummy, dusky, whiskery and sandbar. The fishery management area overlaps with the EMBA. Fishery Status Reports indicate no fishing effort in the EMBA in the last five years (2017 – 2022). Woodside therefore considers there to be a potential for interaction with the fishery in the EMBA.
West Coast Demersal Scalefish Fishery	×	×	The West Coast Demersal Scalefish Fishery targeys key species including baldchin groper, dhufish and pink snapper and operates in waters from 20 m to 250 m (Newman et al., 2023). The fishery management area overlaps with the EMBA. Fishery Status Reports indicate no fishing effort in the EMBA in the last five years (2017 – 2022). Woodside therefore considers there to be no potential for interaction with the fishery in the EMBA.

Fishery Name	Potential for Interaction Within Operational Area[1,2]		
West Coast Rock Lobster Managed Fishery	×	✓	The West Coast Rock Lobster Managed fishery targets western rock lobster between Shark Bay and Cape Leewin (WAFIC, n.d.). The fishery management area overlaps with the EMBA. Fishery Status Reports indicate fishing effort in the EMBA in the last five yeatrs (2017 – 2022). Woodside therefore considers there to be a potential for interaction with the fishery in the EMBA.

[1]*Consideration given to Newman et al. (2021)*
[2]*Consideration given to Patterson et al. (2021)*

4.8.3 Traditional Fisheries

There is not expected to be any traditional fisheries that operate within the Operational Area as traditional fisheries are typically restricted to coastal waters or areas with suitable fishing structures such as reefs. Traditional fishing may occur from beaches where shoreline accumulation is expected to occur and in coastal areas that the EMBA overlaps. Although no specific traditional fishing activities have been identified, either through desktop assessment or through consultation, the risk assessment contained within this EP has considered that traditional fishing efforts may occur within the EMBA.

Further information on traditional fishing activity that is likely to occur in the EMBA is provided in the Master Existing Environment.

4.8.4 Tourism and Recreations

The Montebello Islands are the closest location for frequent tourism activities, located approximately 50 km from the Operational Area. Recreational fishing may occur in the Operational Area, though given the water depths and distance from shore, frequency and intensity is expected to be low compared to the nearshore environment in the region.

Given the proximity of the EMBA to coastal and shoreline areas, it is likely that tourism and recreation activities will overlap the EMBA. In particular tourism and recreation activities associated with the Ningaloo Coast, Montebello Islands and Christmas Island, where recreation and tourism activities include fishing, wildlife observations, swimming, snorkling and diving. These are described further in the Master Existing Environment.

4.8.5 Commercial Shipping

The Australian Maritime Safety Authority (AMSA) has introduced a network of marine fairways across the NWMR off WA to reduce the risk of vessel collisions with offshore infrastructure. The nearest fairway lies approximately 22 km north-west of the Operational Area. Relatively high density vessel activity in the vicinity of the Operational Area appears to be Woodside activity around the Pluto production facility.

Further information on commercial shipping activity is provided in the Master Existing Environment.

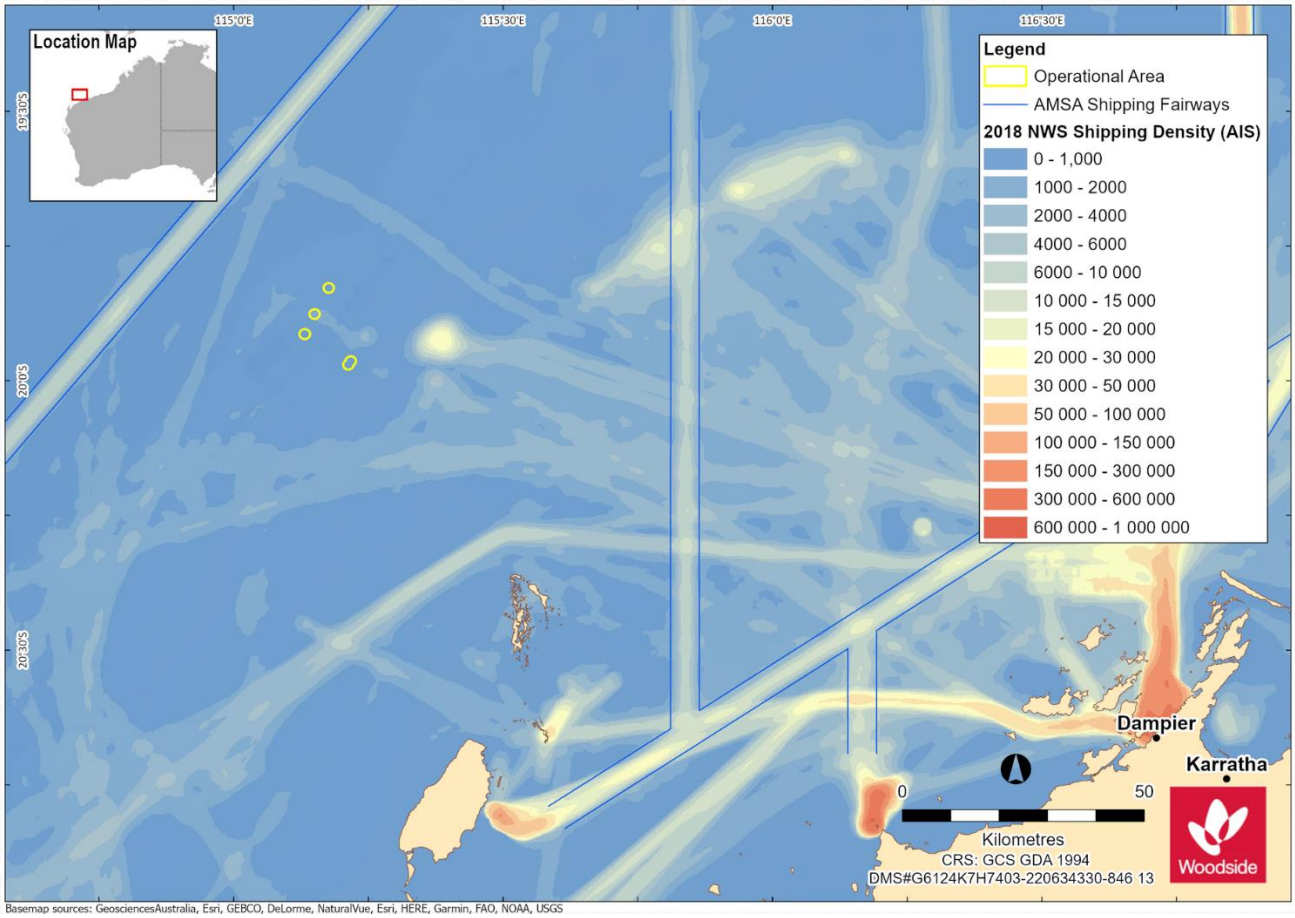

Figure 4-14: Vessel density map for Operational Area, derived from Australian Maritime Safety Authority satellite tracking system data (vessels include cargo, liquefied natural gas tankers, passenger vessels, support vessels and other/unnamed vessels)

4.8.6 Oil and Gas

Table 4-21 details other oil and gas facilities located within 50 km of Operational Area. Section 11.9 of the Master Existing Environment describes current oil and gas development within the EMBA, also shown in **Figure 4-15**.

Table 4-21: Other oil and gas facilities located within 50 km of the Operational Area

Facility Name and Operator	Distance and Direction from Operational Area to Facility/ Infrastructure (km)
Pluto Platform (Woodside-operated)	12 km east
Wheatstone Platform (Chevron-operated)	14 km east
John Brookes (Santos-operated)	50 km south
Proposed Scarborough Trunkline (Woodside-operated)	Overlapping (Kilometre Point 212)

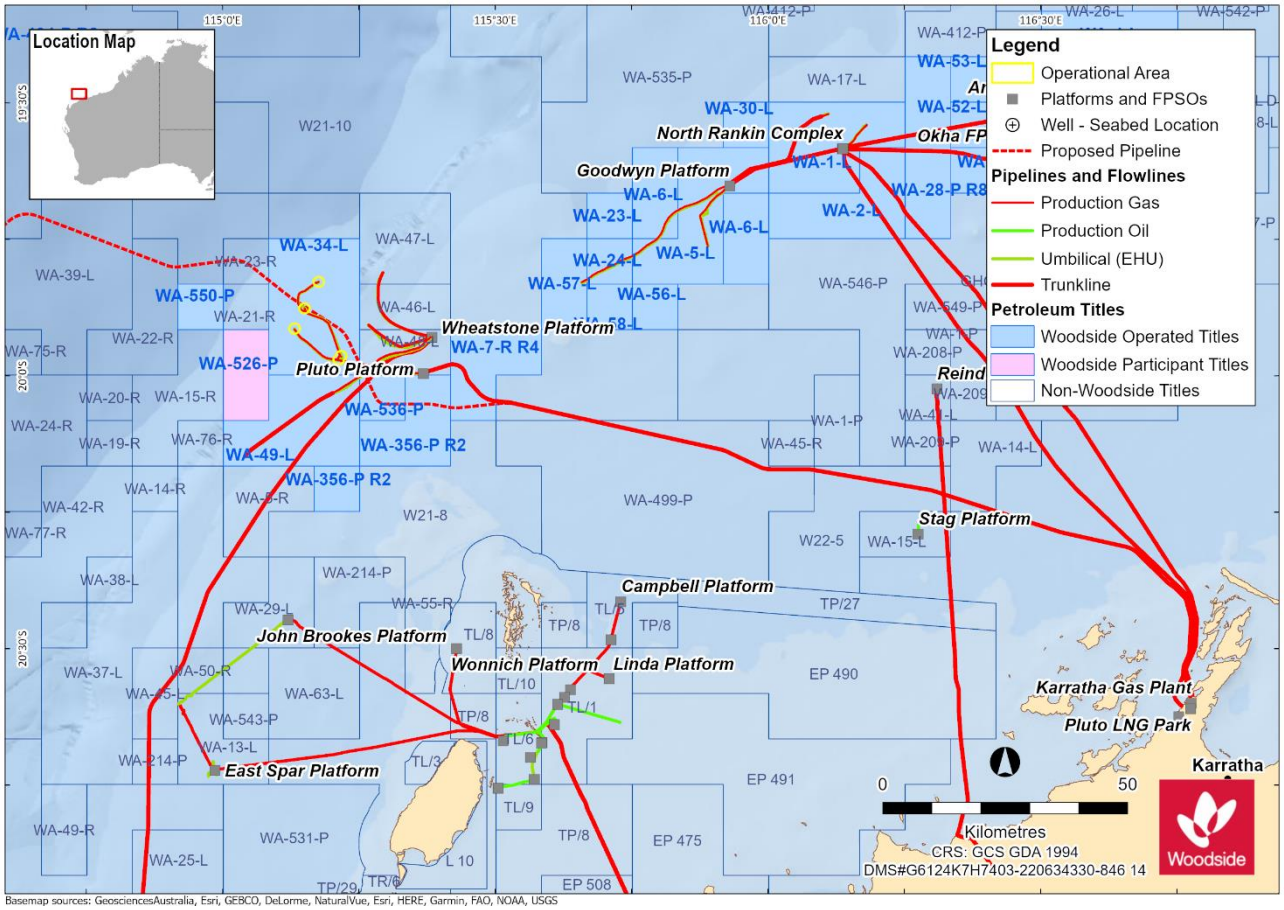

Figure 4-15: Oil and gas infrastructure within the region

4.8.7 Defence

The Australian Border Force vessels perform civil and maritime surveillance within the Northwest and Northern coastal zones, with the primary purpose of monitoring the passage of illegal entry vessel and illegal fishing activity within these areas.

A defence training area partially overlaps the Operational Area (**Figure 4-16**). The closest defence practice area within the EMBA is approximately 180 km to the south-west of Operational Area.

Further information on defence activities is provided in the Master Existing Environment.

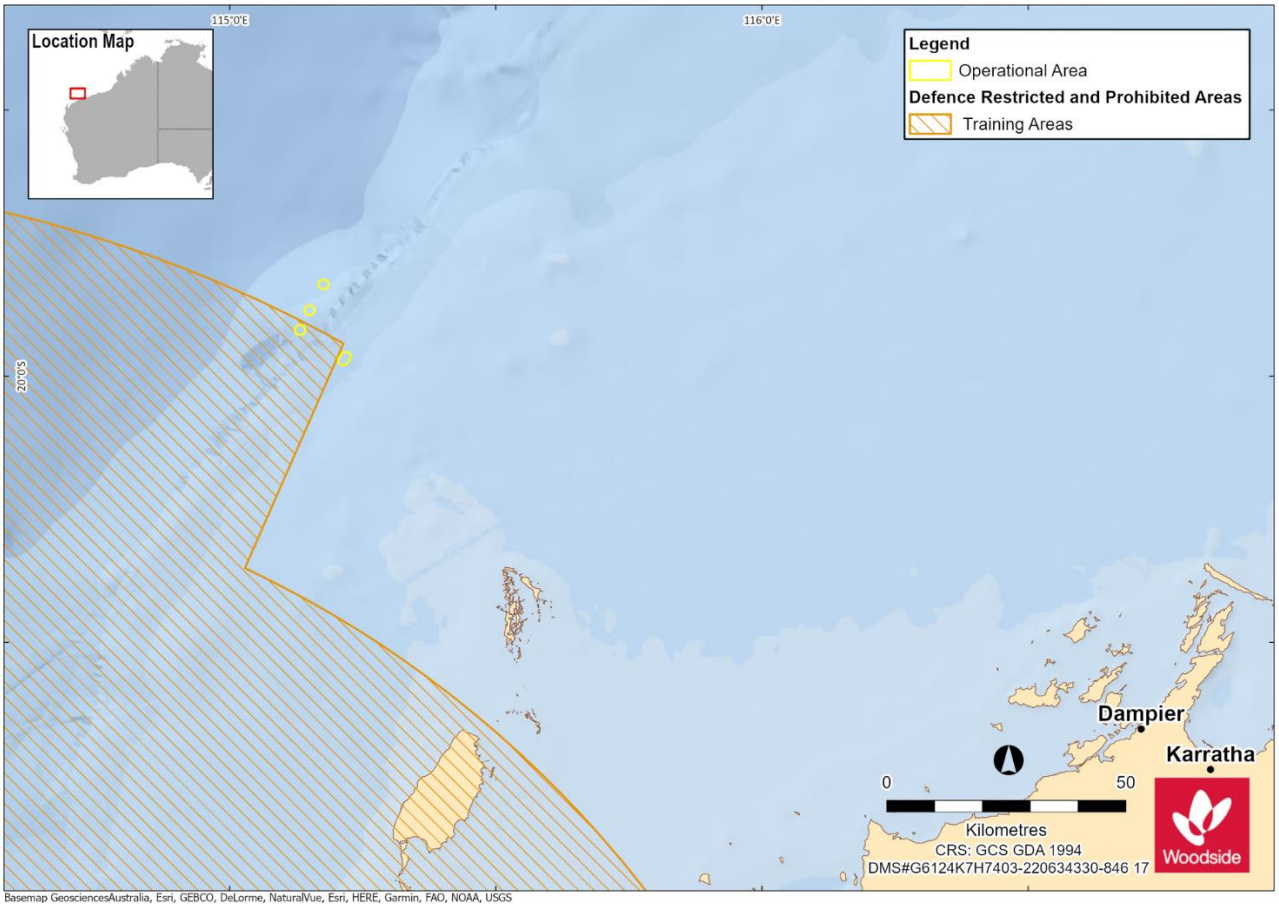

Figure 4-16: Defence areas relative to the Operational Area

5 CONSULTATION

5.1 Summary

Woodside consults relevant persons in the course of preparing an EP in accordance with regulation 11A of the Environment Regulations. Woodside acknowledges that consultation is designed to ensure that relevant persons are identified and given sufficient information and a reasonable period to allow them to make an informed assessment of the possible consequences of the proposed activity on them and, to ensure that Titeholders can consider and adopt appropriate measures in response to the matters raised by relevant persons. Consistent with regulation 3 of the Environment Regulations, consultation also supports Woodside's objective to ensure that the environmental impacts and risks of the activity are reduced to ALARP and an acceptable level.

Woodside acknowledges that a titleholder's approach to consultation must be informed by both the Environment Regulations and the findings of the Full Federal Court in the *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (see **Section 5.2**) delivered on 2 December 2022.

For this PAP, Woodside has considered both the Operation Area and the broader 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 PAP (see **Section 4**).

Woodside's consultation methodology is divided into three parts:

- The first section (**Section 5.2** to **5.6**) provides an overview of Woodside's consultation methodology for its EPs, including how we apply regulation 11A(1) of the Environment Regulations to identify relevant persons.
- The second section (**Section 5.7)** explains Woodside's application of the consultation methodology and Woodside's assessment of relevant persons for this EP.
- The third section (**Section 5.8)** details the:
  - opportunities provided to persons or organisations to be aware of Woodside's proposed EP and participate in consultation, including individual Traditional Custodians.
  - consultation information provided to relevant persons, feedback received and Woodside's assessment of the merits of objections or claims.
  - Engagement with persons or organisations that Woodside chose to contact who are not relevant persons for the purposes of regulation 11A(1) of the Environment Regulations (see **Section 5.3.4**).

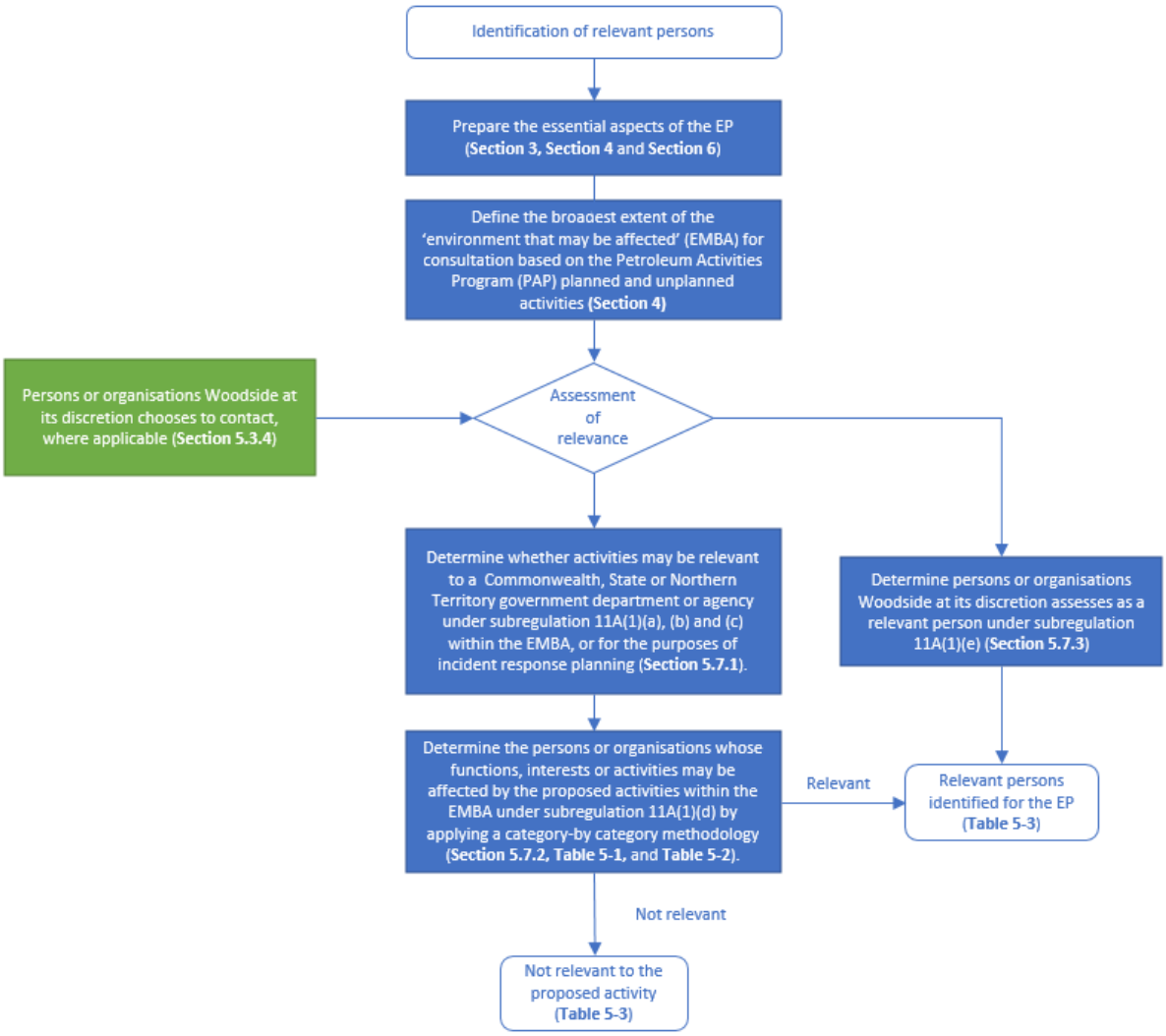

Figure 5-1: Overview of Woodside's Methodology to Identify Relevant Persons

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 understand the potential risks and impacts from 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 periodically reviewed and updated.

Woodside acknowledges NOPSEMA's Guideline on *Consultation in the course of preparing an environment plan* (12 May 2023) as well as recent judicial guidance (in the Full Federal Court's

decision in *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193) 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.*

In order to undertake consultation, Woodside has developed a methodology for identifying relevant persons, in accordance with regulation 11A(1) of the Environment Regulations. This methodology reflects NOPSEMA's recent guideline and demonstrates that, in order to meet the requirements of regulation 10A (criteria for EP acceptance) when preparing the EP, Woodside understands:

- Our planned activities in the Operational Area, being the area in which our planned activities are proposed to occur (see **Section 3.3**); and
- The geographical extent to which the environment may be affected (EMBA) by risks and impacts from our activities (unplanned) (identified in **Section 4** and assessed in **Section 6.7**).

Woodside has undertaken consultation in the course of preparing this EP in compliance with regulation 11A of the Environment Regulations, which requires a titleholder to:

- consult with each of the following (a ***relevant person***) in the course of preparing an environment plan:
  - each Department or agency of the Commonwealth to which the activities to be carried out under the environment plan, or the revision of the environment plan, may be relevant;
  - each Department or agency of a State or the Northern Territory to which the activities to be carried out under the EP, or the revision of the EP, may be relevant;
  - the Department of the responsible State Minister, or 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, or the revision of the EP; and
  - any other person or organisation that the titleholder considers relevant (regulation 11A(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 the their functions, interests or activities (regulation 11A(1)(2));
- allow a relevant person a reasonable period for the consultation (regulation 11A(1)(3)); and
- 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 11A(1)(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**;
- is intended to reduce the environmental impacts and risks from the activity to ALARP and an acceptable level;
- seeks to ensure that the environmental impacts and risks of the activity will be of an acceptable level;
- 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 that the petroleum activity may otherwise cause;
- is collaborative; Woodside respects that for a relevant person, consultation is voluntary. Where the relevant person seeks to engage, Woodside collaborates with the relevant person with the aim of seeking genuine and meaningful two-way dialogue; and
- provides opportunities for relevant persons to provide feedback throughout the life of the EP through its ongoing consultation process (refer to **Section 5.6** and **Section 7.8.2.1**).

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

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

NOPSEMA:

- GL2086 – Consultation in the course of preparing an environment plan – May 2023
- GN1847 - Responding to public comment on environment plans - July 2022
- GN1344 - Environment plan content requirements - September 2020
- GL1721 - Environment Plan Decision Making Guideline - December 2022
- GN1488 - Oil pollution risk management - July 2021
- GN1785 – Petroleum activities and Australian Marine Parks – June 2023
- GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023
- PL2098 – Draft Policy for managing gender-restricted information
- Consultation on offshore petroleum environment plans – Information for the community

Department of Climate Change, Energy, the Environment and Water:

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

Australian Fisheries Management Authority:

- Petroleum industry consultation with the commercial fishing industry

Commonwealth Department of Agriculture and Water Resources:

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

WA Department of Primary Industries and Regional Development:

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

WA Department of Transport:

- Offshore Petroleum Industry Guidance Note

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 11A(1)(a), (b) and (c)

The relevant inquiry for determining relevant persons within the description of regulations 11A(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. These government departments and agencies are listed in **Table 5-3** below. In accordance with regulation 11A(1)(c), Woodside consults with the department of the relevant State Minister, which for this EP is the Department of Mines, Industry Regulation and Safety (DMIRS).

5.3.2 Regulation 11A(1)(d)

In order to identify a relevant person for the purposes of regulation 11A(1)(d), the meaning of "functions, interests or activities" needs to be understood. In regulation 11A(1)(d), the phrase "functions, interests or activities" should be construed broadly and consistently with the objects of the Environment Regulations (regulation 3) 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.

As discussed in **Section 5.1** and **Section 5.2**, Woodside's methodology for determining 'relevant persons' for the purpose of regulation 11A(1)(d) of the Environment Regulations includes consideration of:

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

5.3.3 Regulation 11A(1)(e)

In addition to assessing relevance under regulation11 A(1)(d), Woodside has discretion to categorise any other person or organisation as a relevant person under regulation11A(1)(e).

5.3.4 Persons or organisations Woodside chooses to contact

In addition to undertaking consultation with relevant persons under regulation11A(1) there are persons or organisations that Woodside chooses to contact, from time to time, in relation to a proposed activity. For example, these are persons or organisations:

- that are 'not relevant' pursuant to regulation 11A(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 11A(1) but have been contacted as a result of consultation requirements changing or updated guidance from the Regulator; and
- 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 required 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 5.7**). The result of Woodside's assessment of relevance during the development of the EP is outlined at **Table 5-3**.

5.4 Consultation Material and Timing

Regulation 11A(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 11A(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 (for the relevant person) and collaborates on a consultation approach where further engagement is sought by the relevant person. Woodside understands that the consultation process should 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 PAP. Woodside recognises published guidance for good practice consultation relevant to different sectors and disciplines (see **Section 5.2**). 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 (Appendix G, reference 1.19 and reference 3.1). 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 Operational Area where the activity will take place, the timing and duration of the activity, a location map of the Operational Area and EMBA, a description of the EMBA, relevant exclusion zones as well as a summary of relevant risks and mitigation and/or management control measures relevant to the proposed petroleum activity. It also sets out contact details to provide feedback to Woodside.

Woodside recognises that 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, also 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 Operational Area, for example as a result of temporary displacement due to exclusion zones, may require more targeted information relevant to their functions, interests or activities. Woodside also acknowledges NOPSEMA's brochure entitled *Consultation on offshore petroleum environment plans information*

for the community, which advises consultees that they may inform titleholders that they only want to be consulted in the very unlikely event of an oil spill.

As described in **Section 5.3.4**, Woodside places advertisements in a selected local, state and national newspaper. This typically includes the name of the EP Woodside is seeking feedback on, an overview of the activity, the consultation feedback date and 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* for native title applications. Woodside typically aligns advertisement feedback timeframes with the timing described below. Feedback received is assessed in accordance with **Section 5.7** to determine relevance and evidenced in **Table 5-4** as appropriate.

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

- Consultation Information Sheet available on Woodside's website (**Appendix G,** reference 1.19 and reference 3.1);
- Bespoke Consultation Information Sheet, presentations or summaries specific to a particular relevant person group (**Appendix G**, reference 3.2);
- Subscription available on Woodside's website to receive notification 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; and
- Community meetings, as appropriate.

Woodside recognises that information may need to be provided to relevant persons in an iterative manner during the consultation process. Woodside considers that in line with the intent of consultation (see **Section 5.2**), the threshold for genuine two-way engagement is met via feedback on incorporation of controls, where applicable, being provided to the relevant person to ensure the relevant persons understands how their input has been considered in the development of the EP.

Information which is provided to relevant persons for the purposes of consultation on this EP is summarised at **Table 5-4**.**Table 5-5** sets out the information which is provided to persons or organisations that are not relevant for the purposes of regulation 11A but which Woodside has chosen to contact (see **Section 5.3.4**).

When engaging in consultation, Woodside notifies relevant persons that, in accordance with regulation 11A(4), the relevant person may request 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.

5.4.2 Sufficient time

Woodside seeks feedback in order to support preparation of its environment plan. 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's typical approach is as follows:

- advertising in a selected local, state and national newspapers (see **Appendix G,** reference 3.3) 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 (see **Section 5.3.4**), 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;
- 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; and
- engaging in two-way dialogue with relevant persons or organisations where feedback is received.

The specific consultation materials and engagements for this EP are set out in **Section 5.8.1, Table 5-4** and **Table 5-5.**

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 an alternative form of communication is expressed by a person or organisation. Woodside acknowledges that there might be limitations in how it can consult with relevant persons.

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

Category of relevant person	Typicaly accepted form of communication
Government departments / agencies – marine	Woodside applies NOPSEMA's guideline for engagement with Commonwealth government departments or agencies in line with *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. Other forms of communication, such as phone calls, and 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 business. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request. **State commercial fisheries and recreational marine users:** The Western Australian Department of Primary Industries and Regional Development (DPIRD) has responsibility for managing the *Fish Resources Management Act 1994* and *Aquatic Resources Management Act 2016*, which limits the provision of contact details from the register to the name and business address of licence holders. Alternative forms of communication are at the licence holder's discretion. Other forms of communication, such as phone calls, and meetings and/or presentation briefings are used on request. **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, and meetings and/or presentation briefings are used on request.
Recreational marine users and peak representative bodies	
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, and 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, and 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 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 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, and 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. **Community reference/liaison groups and chambers of commerce:** Email is 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, and 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, and 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, and meetings and/or presentation briefings are used on request.

As detailed in **Section 5.6** and **Section 7.8.2**, if comments and feedback are received after the EP has been submitted, Woodside will consider those comments and update controls as appropriate, at all stages during the life of the EP.

5.5 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.

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.

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 **Table 5-4** and **Table 5-5** 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 9(8) of the Environment Regulations, sensitive information (if any) in an EP, and the full text of any response by a relevant person to consultation under regulation 11A, must be contained in the sensitive information part of the plan and not anywhere else in the plan.

5.6 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 7.8.2.1**), 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 (as set out in **Section 5.2**).

Should consultation feedback be received following the acceptance of an EP that identifies a measure or control that requires implementation or updates to meet the intended outcome of consultation (see **Section 5.2**), Woodside will apply its Management of Change and Review process as appropriate (see **Section 7.6**).

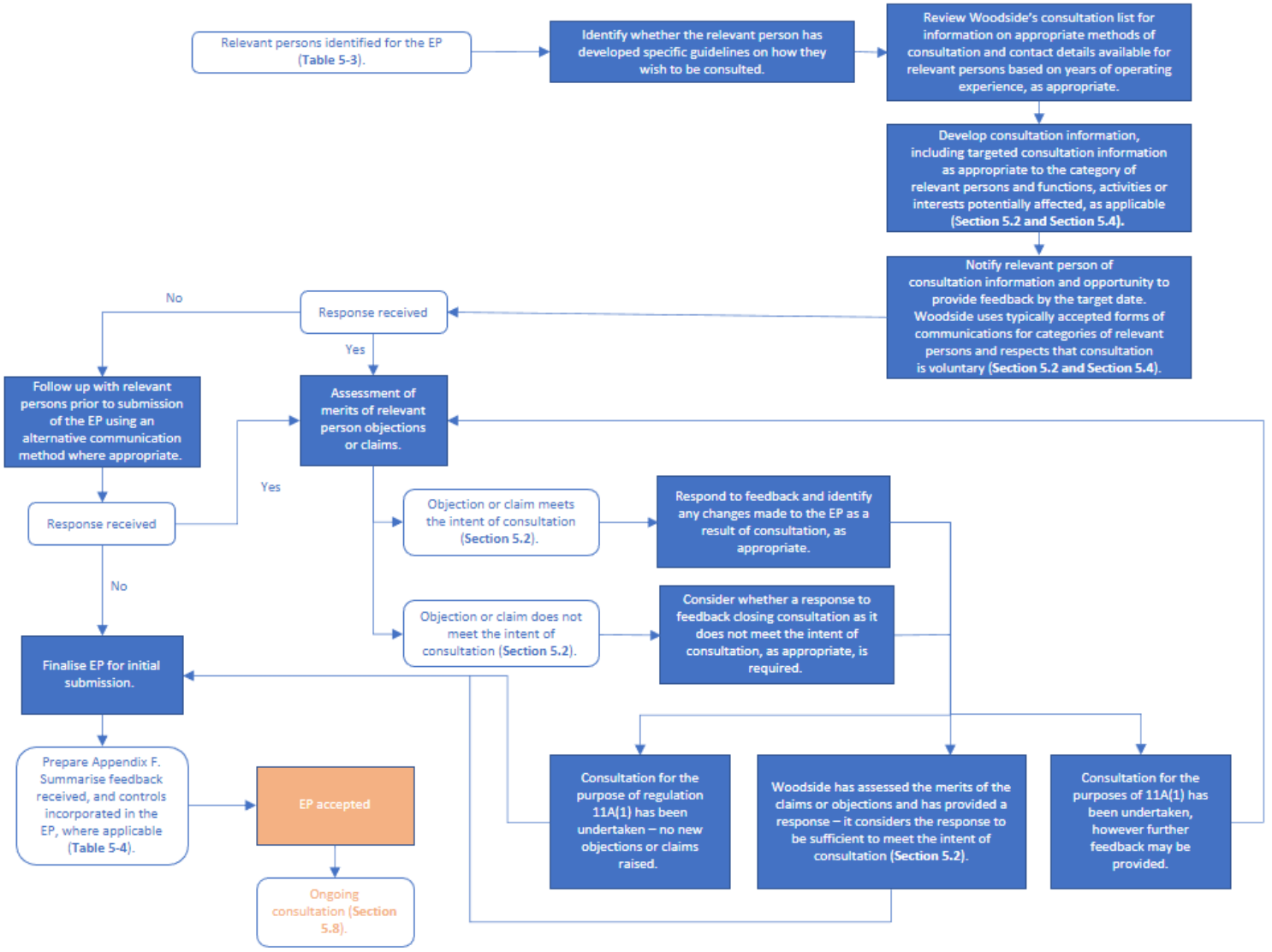

Figure 5-2 Overview of Woodside's Consultation Approach

5.7 Identification of Relevant Persons for this EP

5.7.1 Identification of relevant persons under regulation11A(1)(a), (b) and (c)

Woodside's methodology for identifying relevant persons under regulations 11A(1)(a), (b) and (c) is as follows:

- Woodside considers the defined responsibilities of each of the departments and agencies to which the activities in the EMBA to be carried out 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 2023), 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 in relation to the departments and agencies which Woodside has historically consulted over the years. This list is revised from time to time, for example, for the purposes of to 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 and determines whether those responsibilities overlap with potential risks and impacts specific to the proposed petroleum activity 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 PAP 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 PAP. Feedback received, if any, is assessed in accordance with the intended outcome of consultation (as set out in **Section 5.2**).
- The list of those government departments and agencies assessed as relevant is set out in **Table 5-3**.
- Feedback received, if any, is assessed in accordance with the intended outcome of consultation (as set out in **Section 5.2**) and summarised at **Table 5-4** and **Table 5-5** 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. For instance, in this EP, Woodside has not consulted with the department for the Minister of the Northern Territory because there is no overlap given that the proposed activities are in Commonwealth waters offshore of Western Australia.

5.7.2 Identification of relevant persons under regulation11A(1)(d))

Relevant persons under regulation11A (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, or a revision of the EP. In identifying relevant persons, Woodside considers:

- the planned activities to be carried out under this EP (described in **Section 3**); and
- the EMBA by unplanned activities (identified in **Section 4** and assessed in **Section 6**).

To identify relevant persons who fall within regulation 11A(1)(d), Woodside adopts the following methodology, and then undertakes consultation with relevant persons which is set out further in **Section 5.8**.

- 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 or that overlap with the PAA and EMBA; and
  - whether a person or organisation's functions, interests or activities may be affected by Woodside's proposed planned or unplanned activities.
- This assessment will include applying professional judgement, knowledge and current literature.
- Further, 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. For this 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 and persons or organisations Woodside chose to contact is set out in **Table 5-3**.
- Feedback received, if any, is assessed in accordance with the intended outcome of consultation (as set out in **Section 5.2**) and applying the categories of relevant persons methodology outlined in **Table 5-2**, as appropriate.
- Feedback from relevant persons is summarised at **Table 5-4**.
- Feedback from persons assessed as not relevant but whom Woodside choses to contact is summarised at **Table 5-5**.

Table 5-1: Categories of Relevant Persons

Category	Explanation
Commercial fisheries and peak representative bodies	Commonwealth or State Commercial Fishery with a fishery management plan recognised under the Commonwealth *Fisheries Management Act 1991* (Cth) *and* Western Australian *Fish Resources Management Act 1994 (*WA), which may be amended from time to time. Commonwealth peak fishery representative bodies are identified by AFMA. WAFIC is the peak representative body for state fishers in Western Australia.
Recreational marine users and peak representative bodies	Charter boat, tourism and dive operators identified by DPIRD specific to the location of the proposed activity. Representative bodies are the recognised peak organisation(s) for recreational marine users.

Category	Explanation
Titleholders and Operators	Registered holder of an offshore petroleum title or GHG title governed by the *OPGGS Act* and associated regulations.
Peak industry representative bodies	Recognised peak organisation(s) for the oil and gas sector.
Traditional Custodians and nominated representative corporations	Traditional Custodians are persons who are descended from Indigenous peoples, who self-identify and are recognised by the Traditional Custodian group. Nominated representative corporations are Traditional Custodians' nominated representative institutions such as Prescribed Body Corporates (PBC). The PBC is the body incorporated by native title holders to hold their native title rights and interests in perpetuity for them and is recognised by the Federal Court in its determination of native title as the appropriate representative body. Thereby the PBC becomes the governing and representative body for the native title group (Traditional Owner society) through which decisions relating to communal interests are made.
Native Title Representative Bodies	A Representative Aboriginal/Torres Strait Islander Bodies (RATSIB) is a regional organisation appointed under the Native Title Act 1993 (NTA) 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.
Local government and recognised local community reference/liaison groups or organisations	Local government governed by the *Local Government Act 1995* (WA) 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 or organisations	Non-government organisation with public website material targeting the proposed activity.
Research Institutes and local conservation groups or organisations	Research institutes are government or private institutions that conduct marine or terrestrial research. 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 11A(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 next steps in its methodology: • Defining the parameters having regard to timing, location and duration of the proposed petroleum activity. • 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 4.8.2**). • Woodside acknowledges WAFIC's consultation guidance[7] (accessed on 2 February 2023), that titleholders 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**).

[7] *Consultation Approach for Unplanned Events - WAFIC*

Category	Relevant person identification methodology
	• For Commonwealth and State commercial fisheries, Woodside assesses the potential spatial and temporal extent for interaction with the fishery by reviewing AFMA ABARES and DPIRD Fishcube data within the Operational Area and EMBA (see **Section 4.8.2**). • Assessment of relevance: • State commercial fisheries that have been assessed as having a potential for interaction within the Operational Area or EMBA (see **Section 4.8.2**) are assessed as relevant to the proposed activity. Woodside acknowledges WAFIC's consultation guidance[1] (see above) and applies this by: – directly consulting fishery licence holders that are assessed as having a potential for interaction in the Operational Area; and – consulting fisheries that are assessed as having a potential for interaction in the EMBA via WAFIC. • Commonwealth commercial fisheries that have been assessed as having a potential for interaction within the Operational Area or EMBA (see **Section 4.8.2**) are assessed as relevant to the proposed activity. • If Woodside has identified that a Commonwealth or State fishery is a relevant person, then Woodside also consults the fisheries relevant representative body. For example, WAFIC represents the interests of State fisheries in Western Australia. If a state fishery is identified as relevant, Woodside would also identify WAFIC as relevant. Recognised Commonwealth fishery representative bodies are identified by AFMA via its website. WAFIC is the only recognised state fishery representative body.
Recreational marine users and peak representative bodies	Woodside assesses relevance for recreational marine users and peak representative bodies using the following next steps in its methodology: • From Woodside knowledge and operating experience, knowledge of recreational marine users in the area. This assessment is both activity and location based. • Defining the parameters having regard to timing, location and duration of the proposed petroleum activity. • Assessing the potential spatial and temporal extent for interaction with recreational marine users by reviewing DPIRD Fishcube data to assess whether there has been activity within the EMBA in the past 5 years. Assessment of relevance: • Recreational marine users that have been active in the past 5 years within the EMBA are assessed as relevant to the proposed activity. Woodside is provided with the contact details of charter, boat tourism and dive operators specific to the region of the EMBA by DPIRD to consult with the relevant persons. • If Woodside has identified recreational marine users as relevant persons, then Woodside also consults identified peak recreational marine user representative bodies. For example, Recfishwest represents the interests of recreational fishers. These representative bodies are identified via Woodside's existing consultation list, which is updated as appropriate via advice from known groups and DPIRD.
Titleholders and Operators	Woodside assesses relevance for other titleholders and operators using the following next steps in its methodology: • Using WA Petroleum Titles (DMIRS-011) to determine overlap with other Titleholders or Operators permit areas within the EMBA. • From Woodside knowledge and operating experience, knowledge of other operators in the area. • Woodside produces a map showing the outcome of this assessment. Assessment of relevance: • 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 next steps in its methodology:

Category	Relevant person identification methodology
	• 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. • Review of Woodside's existing consultation list. • 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. Assessment of relevance: • 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 and nominated representative corporations	Consistent with its understanding of the matters discussed in Section 4.9, Woodside assesses relevance for Traditional Custodians using the following steps in its methodology: • In line with the "tri-partite test", Traditional Custodians are persons descended from Indigenous peoples, who self-identify and are recognised by the Traditional Custodian group. The "tripartite test" was described by Justice Brennan in the High Court case of Mabo v Queensland (No. 2) [1992] HCA 23 and has continued to be accepted and applied broadly, most recently by the High Court in a case that Love v Commonwealth of Australia [2020] HCA 3. As Woodside has more than 30 years of operating experience, over the years, it has undertaken extensive engagement with recognised Traditional Custodians for its operations. • Using the database of the National Native Title Tribunal to determine whether there are any Native Title Claims (historical or current) or Determinations overlapping or coastally adjacent to the EMBA. The original Native Title Claims are understood to represent the lands and waters over which Indigenous groups claim or claimed rights (including rights to conduct activities) and interests, and Native Title Determinations are understood to represent the lands and waters over which Indigenous groups have determined rights and interests and their representative institutions have certain functions (see Section 4 and below). • Where there is a positive determination of native title, contacting the PBC. • Where appropriate, contacting the relevant Native Title Representative Body to request a list of any Traditional Custodian groups asserting Traditional Custodianship over an area of coastline adjacent to the EMBA who do not and have never had a native title claim or determination of which the land council or Native Title Representative Body are aware. • Review of relevant Indigenous Land Use Agreements (ILUA), or similar agreements which Woodside has entered into or are publicly available, by which Aboriginal organisations or Traditional Custodian Groups have made a voluntary agreement regarding the use or management of areas of land or water overlapping or coastally adjacent to the EMBA (see Section 4). ILUAs are registered with the Native Title Tribunal and may identify Traditional Custodians or representative bodies to contact regarding potential cultural values. • 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. • Woodside applies the principles of self-determination when consulting with Traditional Custodians through consulting with representative institutions utilising traditional decision-making mechanisms. • Where the native title group is not clear or there is no representative institution, Woodside may seek guidance from the Native Title Representative Body as to the Traditional Custodian group whose rights and interests may overlap with the EMBA. Woodside may have reference to maps of native title claims and determinations produced by the National Native Title Tribunal, registered Indigenous Land Use Agreements, heritage databases and Indigenous Protected Areas. • Woodside will consult with individual Traditional Custodians where we have been directed to do so by the representative institution or the native title representative

Category	Relevant person identification methodology
	body. This may occur when for cultural reasons, and as recognised by the broader group, a person is regarded as having particular obligations in relation to a site or area that are distinct from that of the broader group. • Woodside provides the opportunity for individual Traditional Custodians to participate in consultation in response to broader notification and advertising, or at community information sessions (see Section 5.8.1). Assessment of relevance: • Where there is a positive determination or claim of native title overlapping the EMBA or coastally adjacent to the EMBA, the representative institution will be the PBC (also referred to as the Registered Native Title Body Corporate) for the native title group and assessed as relevant. • Where a relevant Native Title Representative Body provides advice that any Traditional Custodian groups are asserting Traditional Custodianship over an area of coastline adjacent to the EMBA who do not and, have never had a native title claim or determination of which land council or Native Title Representative Body are aware, Woodside will engage with the group to determine relevance. • Where there is an Indigenous Land Use Agreements (ILUA) whereby Aboriginal organisations or Traditional Custodian groups have made a voluntary agreement regarding the use or management of areas of land or water overlapping or coastally adjacent to the EMBA, the PBC for the native title group (where a determination of native title has been made) or the Native Title Representative Body (where a determination has not yet been made) are assessed as relevant. Where there is more than one Traditional Custodian group that is party to an ILUA, the Traditional Custodian group whose native title claim/determination overlaps the EMBA, where applicable, is assessed as relevant. • Where Woodside has entered into an agreement with an Aboriginal organisation or Traditional Custodian group or there is an agreement publicly available regarding the use or management of areas of land or water overlapping or coastally adjacent to the EMBA, Woodside will engage with the organisation or group to determine relevance. • In the WA context, when an Aboriginal Corporation is appointed as a Local Aboriginal Cultural Heritage Service (LACHS) under the Aboriginal Cultural Heritage Act 2021 for an area that overlaps the EMBA, the LACHS will be the representative institution for the group and assessed as relevant. • Where a Traditional Custodian group is referenced as having traditional rights and interests in a marine park management plan overlapping the EMBA, Woodside will consult the organisation or group to determine whether there is any intersect of the organisation or group's functions, interests and activities with risks and impacts from the proposed petroleum activity and assess feedback, if any, to determine relevance. • Where Woodside has been provided guidance from the native title representative body or land council as to the appropriate Traditional Custodian group to be consulted, Woodside will assess feedback from the group or groups, if any, to assess and determine relevance. • Where Woodside receives feedback from a person or organisation that identifies as a Traditional Custodian for an area overlapping the EMBA, including via an advertisement, Woodside will assess the feedback provided including whether the person(s) functions, interests and activities are represented by virtue of their membership of a PBC, and determine relevance. Where it is not clear whether the person(s) is a member of a PBC or native title group that Woodside has determined relevant in line with the above methodology, Woodside will engage the PBC or native title group to determine whether the person(s) membership.
Native Title Representative Bodies	Woodside assesses relevance for Native Title Representative Bodies using the following steps in its methodology: • A Representative Aboriginal/Torres Strait Islander Bodies (RATSIB) is a regional organisation appointed under the Native Title Act 1993 (NTA) 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.

Category	Relevant person identification methodology
	• Review of National Native Title Tribunal RATSIB areas that overlap or are coastally adjacent to the EMBA. Assessment of relevance: • 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 next steps in its methodology: • Using the Australasian Underwater Cultural Heritage Database to assess any known records Maritime Cultural Heritage sites (shipwrecks, aircraft and relics) within the EMBA (see Section 4.9.1). Assessment of relevance: • 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 next steps in its methodology: • Review of Woodside maps (developed based on data from the WA Local Government, Sport and Cultural Industries My Council database and WA Local Government Association (WALGA) Local Government Directory maps) to assess any overlap between the local government's defined area of responsibility and the EMBA. • Woodside hosts regular community reference/liaison group meetings. Members represent a cross-section of the community and local towns interests. Representatives are from community and industry and generally include, Woodside, State Government (for instance relevant Regional Development Commissions), Local Government, Indigenous Groups, Industry representative bodies, Community and industry organisations. Woodside considers these reference/liaison groups to be the appropriate recognised representatives of the local community for the oil and gas sector. • Woodside reviews the community reference/liaison group's terms of reference to determine its area of responsibility and any overlap with the EMBA. For example, the Exmouth Community Liaison Group's area of responsibility in relation to Woodside's operational, development and planning activities, is defined in the terms of reference as the Exmouth sub-basin. Comparatively, the Karratha Community Liaison Group's area of responsibility is the Pilbara region (i.e. onshore). Assessment of relevance: • The local government whose defined area of responsibility overlaps the EMBA is assessed as relevant. • 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 or organisations	Woodside assesses relevance for other non-government groups or organisations using the following next steps in its methodology: • Review of Woodside's existing consultation list. • 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. • Organisation has a publicly available mission statement (or purpose) that clearly describes their collective functions, interests or activities. • 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.

Category	Relevant person identification methodology
	Assessment of relevance: • 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 (as set out in **Section 5.2**) 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 next steps in its methodology: • Review of Woodside's existing consultation list. • Website search for research institutes that may operate within the EMBA. This assessment is both activity and location based. • Website search for local conservation groups or organisations that regularly conduct conservation activities within the EMBA. Assessment of relevance: • 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. • 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.

5.7.3 Identification of relevant persons under regulation11A(1)(e)

Woodside adopts a case-by-case approach for each EP to assess relevance under regulation 11A(1)(e).

5.7.4 Assessment of Relevant Persons for the Proposed Activity

The result of Woodside's assessment of relevant persons in accordance with regulation 11A(1) is outlined at **Table 5-3**.

Persons or organisations that Woodside assessed as not relevant but nonetheless chose to contact at its discretion in accordance with **Section 5.3.4** are outlined at **Table 5-5**.

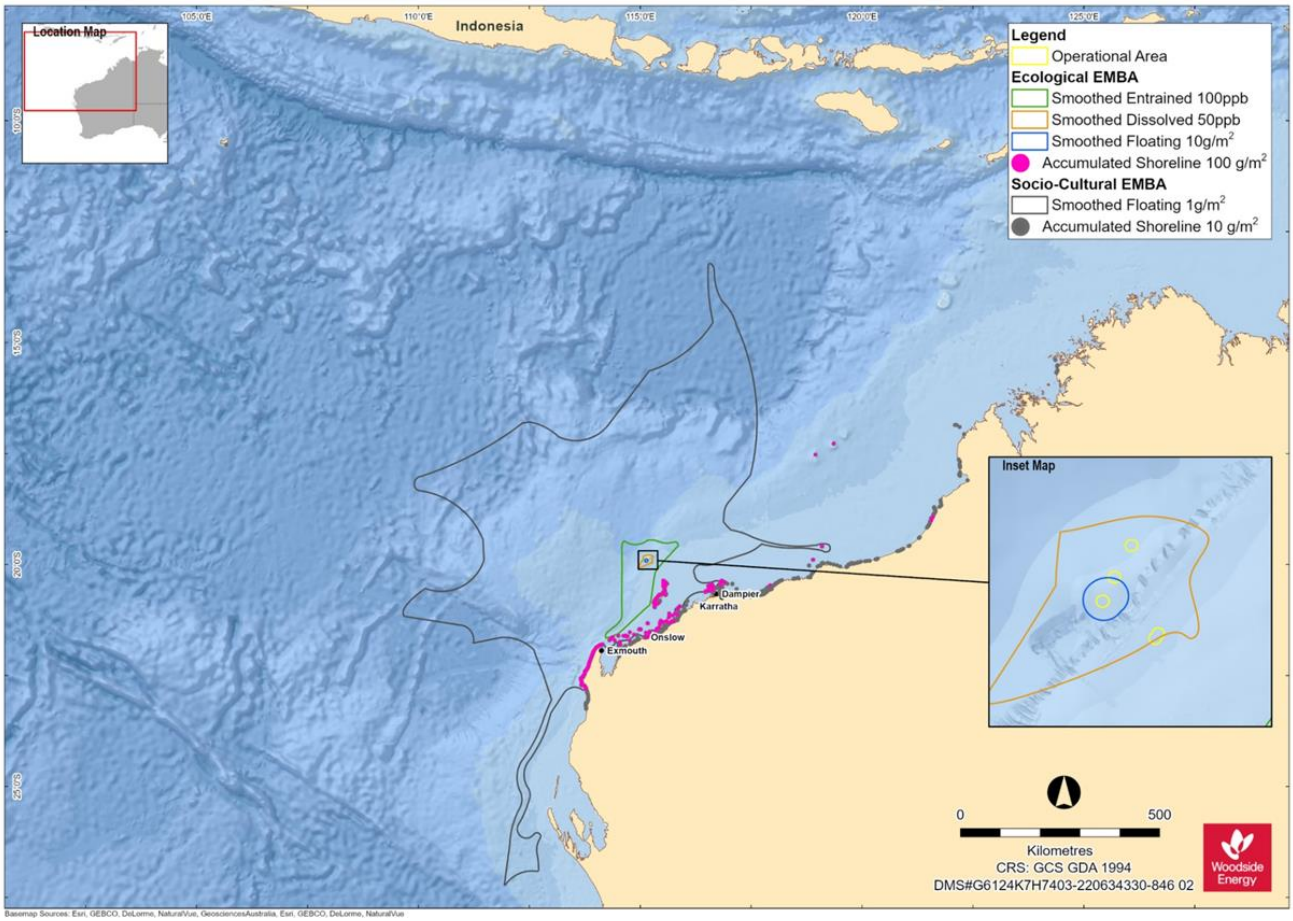

Figure 5-3: Operational Area and EMBA for this EP

Table 5-3: Assessment of Relevance

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Commonwealth and WA State 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 11A(1)(a). ABF's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
Department of Foreign Affairs and Trade (DFAT)	Responsible for promoting and protecting Australia's interests internationally and contributes to global stability and economic growth. DFAT manages Australia's relationships and interaction with the governments of our neighbouring countries	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 11A(1)(b). DFAT has no direct role in the management of the Commonwealth marine area, but has an interest in ensuring that consultation with foreign entities, both private and government, is effective and is aligned with Australia's interests. DFAT manages Australia's relationships and interaction with the governments of our neighbouring countries. The proposed activity has the potential to impact DFAT's responsibilities as the EMBA traverses Indonesian waters.	Yes
Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA)	Responsible for managing fisheries within 12 nm of Christmas Island and Cocos (Keeling) Island	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 11A(1)(a). The Christmas Island Line Fishery is active in the EMBA. DITRDCA's responsibilities may be relevant to the activity as the Christmas Island Line Fishery is active in the EMBA.	Yes
Australian Fisheries Management Authority (AFMA)	Responsible for managing Commonwealth fisheries	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 11A(1)(a). The Western Deepwater Trawl Fishery, North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. AFMA's responsibilities may be relevant to the activity as the Western Deepwater Trawl Fishery, North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery 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 11A(1)(a). AHO's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
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 11A(1)(a). AMSA – Marine Safety's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
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 11A(1)(a). 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 *(formerly DAWE)*	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 11A(1)(a). The Western Deepwater Trawl Fishery, North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. DAFF – Fisheries responsibilities may be relevant to the activity as the Western Deepwater Trawl Fishery, North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery 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 11A(1)(a). DoD's responsibilities may be relevant to the activity as defence training areas lie within the EMBA.	Yes
Department of Primary Industries and Regional Development (DPIRD)	Responsible for managing State fisheries	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 11A(1)(b). The Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery have been active in the Operational Area within the last 5 years. The Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 1, 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Pearl Oyster Managed Fishery, Land Hermit Crab Fishery, Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne Demersal Scalefish Fishery, West Coast Rock Lobster Fishery, Nickol Bay Prawn Managed Fishery, Kimberley Crab Managed Fishery, Christmas Island Line Fishery, Kimberley Prawn Managed Fishery, Kimberley Gillnet and Barramundi Managed Fishery, Exmouth Gulf Beach Seine Managed Fishery and Pilbara Trawl Fishery have been active in the EMBA within the last 5 years.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		DPIRD's responsibilities may be relevant to the activity as the government department responsible for State fisheries.	
Department of Transport (DoT)	Legislated responsibility for oil pollution response in State waters	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 11A(1)(b). The proposed activity has a hydrocarbon spill risk, which may require DoT response in State waters.	Yes
Department of Planning, Lands and Heritage (DPLH)	Responsible for state level land use planning and management, and oversight of Aboriginal cultural heritage and built heritage matters.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 11A(1)(b). There is known Maritime Cultural Heritage overlapping the EMBA.	Yes
Christmas Island Port	Responsible for the operation of the Christmas Island Port.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 11A(1)(b). The proposed activity has the potential to impact the Christmas Island Port's responsibilities as the EMBA overlaps the Christmas Island Port's area of responsibility.	Yes
Pilbara Ports Authority	Responsible for the operation of the Port of Dampier.	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 11A(1)(b). The proposed activity has the potential to impact Pilbara Ports Authority's responsibilities as the EMBA overlaps the Pilbara Ports Authority's area of responsibility.	Yes
Commonwealth and WA State Government Departments or Agencies – Environment			
Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel) *(formerly DAWE)*	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. 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.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(a). DAFF – Biosecurity's (formerly DAWE) responsibilities may be relevant to the proposed activities in the EMBA in the prevention of introduced marine species.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
	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.		
Department of Climate Change, Energy, the Environment and Water (DCCEEW) *(formerly DAWE)*	Responsible for implementing Commonwealth policies and programs to support climate change, sustainable energy use, water resources, the environment and our heritage. 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.*	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(a). DCCEEW's (formerly DAWE) responsibilities may be relevant to the proposed activities in the EMBA as there are potential environmental impacts from the proposed activity. There are known Maritime Cultural Heritage overlapping the EMBA.	Yes
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 11A(1)(a). DNP's responsibilities 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 and greenhouse gas exploration 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
DNP - Christmas Island National Park Marine and Island Parks Branch	Responsible for managing Christmas Island National Park as a Commonwealth reserve.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(a). The DNP - Christmas Island National Park Marine and Island Parks Branch may be relevant to the proposed activities as the EMBA overlaps the Christmas Island Marine Park.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Ningaloo Coast World Heritage Advisory Committee (NCWHAC)	Supports the DBCA to manage the Ningaloo Coast World Heritage Area.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(a). The NCWHAC's responsibilities may be relevant to the activity as the EMBA overlaps the Ningaloo Marine Park.	Yes
Shark Bay World Heritage Advisory Committee (SBWHAC)	Supports the DBCA to manage the Shark Bay Coast World Heritage Area.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(a). The SBWHAC self-identified regarding the proposed activities. The proposed activity does not have the potential to impact the SBWHAC's responsibilities as the EMBA does not overlap the Shark Bay World Heritage Area.	No
Department of Biodiversity, Conservation and Attractions (DBCA)	Responsible for managing WA's parks, forests and reserves to achieve wildlife conservation and provide sustainable recreation and tourism opportunities.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 11A(1)(b). The DBCA's responsibilities may be relevant to the activity as EMBA overlaps WA parks, forests or reserves. Activities have the potential to impact marine tourism in the EMBA.	Yes
Commonwealth and State Government Departments or Agencies – Industry			
Department of Industry, Science and Resources (DISR) *(formerly DISER)*	Department of relevant Commonwealth Minister.	Required to be consulted under regulation 11A(1)(a).	Yes
Department of Mines, Industry Regulation and Safety (DMIRS)	Department of relevant State Minister	Required to be consulted under regulation 11A(1)(c).	Yes
Commonwealth Commercial fisheries and representative bodies			
North West Slope and Trawl Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.	Yes
Southern Bluefin Tuna Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Woodside does not consider that the proposed activity will present a risk to licence holders, given since 1992, the majority of Australian catch has concentrated in south-eastern Australia. (Patterson et al., 2022). In addition, given fishing methods by licence holders for species fished in this fishery (Australia has a 35% share of total global allowable catch of Southern Bluefin Tuna, which is value-added through tuna ranching near Port Lincoln (South Australia), or fishing effort in New South Wales (Australian Southern Bluefin Tuna Industry Association).	
Western Deepwater Trawl Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
Western Skipjack Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. Woodside does not consider that the activity will present a risk to licence holders, given the fishery spans the Australian Fishing Zone west of Victoria and the Torres Strait. The Fishery is not currently active and no fishing has occurred since 2009 (Patterson et al., 2022). In addition, interactions are not expected given the species' pelagic distribution fishing methods for species fished by licence holders.	No
Western Tuna and Billfish Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery overlaps the Operational Area but has not been active in the Operational Area within the last 5 years. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
Christmas Island Line Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the 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 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The Western Deepwater Trawl Fishery, North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. CFA's functions may be relevant to the activity as the Western Deepwater Trawl Fishery, North West Slope and Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA.	
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 11A(1)(d). 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. Woodside has provided information to the ASBTIA at its discretion in line with **Section 5.3.4** 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 Western Tuna and Billfish Fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The Western Tuna and Billfish Fishery is active within the EMBA. Tuna Australia's functions may be relevant to the activity as the Western Tuna and Billfish Fishery is active in the EMBA.	Yes
Christmas Island Fishery Advisory Committee (FAC)	Advisory Committee to the Minister for DITRDCA regarding Christmas Island local fisheries matters.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The Christmas Island Line Fishery and Christmas Island recreational marine users are active in the EMBA. The Christmas Island FAC's functions may be relevant to the activity as the Christmas Island Line Fishery and Christmas Island recreational marine users are active in the EMBA.	Yes
Pearl Producers Association (PPA)	Peak representative organisation of The Australian South Sea Pearling Industry, with members in Western Australia and the Northern Territory	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The Pearl Oyster Managed Fishery is active within the EMBA. PPA's functions may be relevant to the activity as the Pearl Oyster Managed Fishery is active in the EMBA.	Yes
State Commercial fisheries and representative bodies			

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Marine Aquarium Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA within the last 5 years.	Yes
South West Coast Salmon Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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. Woodside does not consider that the activity will present a risk to licence holders, given fishers are active south of Perth and from the beach (previous WAFIC advice). Further, no fishing occurs north of the Perth Metropolitan Area and therefore, no effort occurs within the Operational Area or EMBA.	No
Mackerel Managed Fishery (Area 1, 2 and 3)	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Area 2 of the fishery overlaps the Operational Area and has been active in the Operational Area within the last 5 years. Area 1, 2 and 3 of the fishery overlap the EMBA and have been active in the EMBA within the last 5 years.	Yes
Pilbara Crab Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA within the last 5 years.	Yes
West Coast Deep Sea Crustacean Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA within the last 5 years.	Yes
Specimen Shell Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA within the last 5 years.	
Abalone Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). 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. Woodside does not consider that the activity will present a risk to licence holders given it is a dive and wade fishery with activities generally restricted to waters less than 40 m deep (DOF, 2011).	No
Pearl Oyster Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA within the last 5 years.	Yes
Land Hermit Crab Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA where shoreline contact is predicted and has been active in the EMBA within the last 5 years.	Yes
Onslow Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA within the last 5 years.	Yes
Western Australian Sea Cucumber Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA within the last 5 years.	Yes
Exmouth Gulf Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	
Gascoyne Demersal Scalefish Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
West Coast Demersal Scalefish Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA within the last 5 years. Woodside contacted the West Coast Demersal Scalefish Fishery as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	No
West Coast Rock Lobster Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
Nickol Bay Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	No
Shark Bay Crab Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA within the last 5 years. Woodside contacted the Shark Bay Crab Managed Fishery as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	No
Shark Bay Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA within the last 5 years.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Woodside contacted the Shark Bay Prawn Managed Fishery as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	
Shark Bay Scallop Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA within the last 5 years. Woodside contacted the Shark Bay Scallop Managed Fishery as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	No
Kimberley Crab Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
Christmas Island Line Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
FBL Condition 74 Fish Trapping	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA within the last 5 years. Woodside contacted the FBL Condition 74 Fish Trapping as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	No
Kimberley Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
Kimberley Gillnet and Barramundi Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Northern Demersal Scalefish Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA but has not been active in the EMBA within the last 5 years. Woodside contacted the Northern Demersal Scalefish Fishery as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	No
Developmental Octopus Interim Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. Although the fishery overlaps the EMBA, it has not been active in the EMBA within the last 5 years.	No
West Coast Demersal Gillnet & Demersal Longline Interim Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. Although the fishery overlaps the EMBA, it has not been active in the EMBA within the last 5 years.	No
Exmouth Gulf Beach Seine and Mesh Net Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. The fishery overlaps the EMBA and has been active in the EMBA within the last 5 years.	Yes
Broome Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery does not overlap the Operational Area. Although the fishery overlaps the EMBA, it has not been active in the EMBA within the last 5 years.	No
Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). There is no publicly available information on the extent of management area for the Open Access Fishery. However, Woodside understands that the fishery has not been active in the Operational Areas within the last 5 years. Further, Woodside has received advice from DPIRD that no contact details are available for this fishery.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
WA North Coast Shark Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area and EMBA, it has not been an active fishery since 2008/09 (DPIRD).	No
Demersal Scalefish Fishery: Pilbara Trawl Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). Although the fishery overlaps the Operational Area, it has not been active in the Operational Area within the last 5 years. The fishery has been active in the EMBA within the last 5 years.	Yes
Pilbara Trap Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.	Yes
Pilbara Line Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.	Yes
Western Australian Fishing Industry Council (WAFIC)	Represents the interests of commercial fishers with licences in State waters.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery have been active in the Operational Area within the last 5 years. The Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 1, 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Pearl Oyster Managed Fishery, Land Hermit Crab Fishery, Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne Demersal Scalefish Fishery, West Coast Rock Lobster Fishery, Nickol Bay Prawn Managed Fishery, Kimberley Crab Managed Fishery, Christmas Island Line Fishery, Kimberley Prawn Managed Fishery, Kimberley Gillnet and Barramundi Managed Fishery, Exmouth Gulf Beach Seine Managed Fishery and Pilbara Trawl Fishery have been active in the EMBA within the last 5 years. WAFIC's functions may be relevant to the activity as the peak representative body for State fisheries.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Western Rock Lobster Council	Represents the interests of the Western Rock Lobster Managed Fishery.	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 11A(1)(d). The West Coast Rock Lobster Managed Fishery is active within the EMBA. The West Coast Lobster Council's functions may be relevant to the activity as the Western Rock Lobster Managed Fishery is active in the EMBA.	Yes
Recreational marine users and representative bodies			
Exmouth Recreational Marine Users	Exmouth-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact Exmouth-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Gascoyne Recreational Marine Users	Gascoyne-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact Gascoyne-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Pilbara/Kimberley Recreational Marine Users	Pilbara/Kimberley-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact Pilbara/Kimberley-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Karratha Recreational Marine Users	Karratha-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact Karratha-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Christmas Island Recreational Marine Users	Christmas Island-based dive, tourism and charter operators	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact Christmas Island-based dive, tourism and charter operator's functions, interests or activities due to the location of activities and there has been recorded charter effort in the EMBA in the past 5 years.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Recfishwest	Represents the interests of recreational fishers in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact recreational fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Marine Tourism WA	Represents the interests of marine tourism in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact recreational fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
WA Game Fishing Association	Represents the interests of game fishers in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 11A(1)(d). Activities have the potential to impact game fishers' functions, interests or activities due to the location offshore and there has been recorded charter effort in the EMBA in the past 5 years.	Yes
Titleholders and Operators			
Chevron Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Western Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Exxon Mobil Australia Resources Company	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Shell Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
BP Developments Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Titleholder or Operator's permit areas overlaps the EMBA.	
Carnarvon Energy	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Osaka Gas Gorgon	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Tokyo Gas Gorgon	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
JERA Gorgon	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
PE Wheatstone	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Kyushu Electric Wheatstone	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Eni Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Fugro Exploration	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas does not overlap the EMBA. Woodside contacted Fugro Exploration as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Finder Energy (Finder No 16)	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Jadestone	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
KUFPEC	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Coastal Oil and Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Bounty Oil and Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
OMV Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
KATO Energy / KATO Corowa / KATO NWS / KATO Amulet	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
INPEX Alpha	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
JX Nippon O&G Exploration (Australia)	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Buru Energy	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Energy Resources	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
National Energy Resource Australia (NERA) Collaborative Seismic Environment Plan Project (CSEP) acting for a consortium of operators	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 11A(1)(d). Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Peak Industry Representative bodies			
APPEA	Represents the interests of oil and gas explorers and producers in Australia.	Woodside has applied its methodology for 'Peak Industry Representative bodies' under regulation 11A(1)(d). APPEA's responsibilities are identified as having an intersect with Woodside's planned activities in the EMBA.	Yes
Traditional Custodians and nominated representative corporations			
Murujuga Aboriginal Corporation (MAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). MAC is the Nominated Representative Corporation under the Burrup and Maitland Industrial Estates Agreement (BMIEA), which is coastally adjacent to the EMBA. The EMBA overlaps the Murujuga National Park. MAC was established to represent the members of competing Native Title claims over Murujuga, collectively known as the Ngarda Ngarli and comprising Mardudhunera, Ngarluma, Yaburara, Yindjibarndi and Wong-Goo-Tt-Oo people. The determination of the competing Native Title claims resulted in no native title being found over the lands subject to the BMIEA or below the low water mark. MAC also owns and co-manages the Murujuga National Park, is responsible for the Dampier Archipelago National Heritage Place and is progressing the World Heritage	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		nomination of the Murujuga Cultural Landscape. The EMBA does not overlap the Murujuga National Park.	
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim, for which NTGAC and YAC are the Registered Native Title Bodies Corporate overlaps the EMBA. NTGAC is also party, with the WA State Government, to the Ningaloo Conservation Estate Indigenous Land Use Agreement (the ILUA), which overlaps the EMBA. NTGAC is also party to the Gnaraloo ILUA, which is coastally adjacent to the EMBA. NTGAC is identified as the appropriate representative for Traditional Custodians in the management plan for the state Ningaloo Marine Park which is overlapped by the EMBA. NTGAC's nominated representative is the Yamatji Marlpa Aboriginal Corporation (YMAC) and the NTGAC executive officer and contact officer pursuant to the Corporations (Aboriginal and Torres Strait Islander) Act 2006 is employed by YMAC. Woodside has therefore consulted the NTGAC, via YMAC.	Yes
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Thalanyji native title claim, for which BTAC is the Registered Native Title Body Corporate, overlaps the EMBA. *BTAC is also party to the Macedon ILUA which overlaps the EMBA.*	Yes
Yinggarda Aboriginal Corporation (YAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim, for which NTGAC and YAC are the Registered Native Title Bodies Corporate overlaps the EMBA. The YAC is party to the Brickhouse and Yinggarda Aboriginal Corporation ILUA and Quobba – Yinggarda Pastoral ILUA, which are coastally adjacent to the EMBA. The YAC nominated representative was the YMAC and the YAC executive officer and contact officer pursuant to the Corporations (Aboriginal and Torres Strait Islander) Act 2006 is employed by YMAC. Woodside therefore consulted YAC, via YMAC. Woodside was advised that as of late April 2023, the nominated representative for YAC was now Gumala Aboriginal Corporation.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Kariyarra Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Kariyarra native title claim, for which the Kariyarra Aboriginal Corporation is the Registered Native Title Body Corporate, overlaps areas where shoreline accumulation may occur. The Kariyarra Aboriginal Corporation *is also party to the* Kariyarra and State ILUA, *which* overlaps areas where shoreline accumulation may occur.	Yes
Wirrawandi Aboriginal Corporation (WAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Yaburara & Mardudhunera People native title claim, for which WAC is the Registered Native Title Body Corporate, overlaps the EMBA. WAC is party to the Cape Preston Project Deed (YM Mardie ILUA) and KM & YM ILUA, which overlap the EMBA and the Cape Preston West Export Facility ILUA *which* overlaps areas where shoreline accumulation may occur.	Yes
Robe River Kuruma Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Robe River Kuruma Aboriginal Corporation is party to the RTIO Kuruma Marthudunera People ILUA and KM & YM ILUA which overlap the EMBA.	Yes
Ngarluma Aboriginal Corporation (NAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Ngarluma/Yindjibarndi People native title claim, for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Bodies Corporate, overlaps the EMBA. NAC is also party to the RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement) which overlaps areas where shoreline accumulation may occur and the Anketell Port, Infrastructure Corridor and Industrial Estates Agreement, which is coastally adjacent to the EMBA.	Yes
Yindjibarndi Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Ngarluma/Yindjibarndi People native title claim, for which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Bodies Corporate, overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Wanparta Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Ngarla and Ngarla #2 (Determination Area A) native title claim, for which the Wanparta Aboriginal Corporation is the Registered Native Title Body Corporate, overlaps the EMBA. The Wanparta Aboriginal Corporation is party to the Ngarla Pastoral ILUA and Ngarla PBC KSCS ILUA, which overlap areas where shoreline accumulation may occur. Wanparta Aboriginal Corporation is identified as an appropriate representative for Traditional Custodians in the management plan for the Eighty Mile Beach AMP and state Eighty Mile Beach Marine Park which are overlapped by the EMBA.	Yes
Malgana Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Malgana Part A native title claim does not overlap the EMBA. The claim, for which the Malgana Aboriginal Corporation is the Registered Native Title Body Corporate, is coastally adjacent to the EMBA. The Nanda People Part B, Malgana 2 and Malgana 3 native title claim does not overlap the EMBA. The claim, for which the Malgana Aboriginal Corporation and Nanda Aboriginal Corporation are the Registered Native Title Bodies Corporate, is coastally adjacent to the EMBA. The Malgana Aboriginal Corporation is party to the Malgana Woodleigh Carbla Pastoral Lease Agreement, Malgana Wooramel Pastoral Lease Agreement and Malgana Tamala Pastoral Lease Agreement, which are coastally adjacent to the EMBA.	Yes
Nanda Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Nanda People and Nanda #2 native title claim does not overlap the EMBA. The claim, for which the Nanda Aboriginal Corporation is the Registered Native Title Body Corporate, is coastally adjacent to the EMBA. The Nanda People Part B, Malgana 2 and Malgana 3 native title claim does not overlap the EMBA. The claim, for which the Malgana Aboriginal Corporation and Nanda Aboriginal Corporation are the Registered Native Title Bodies Corporate, is coastally adjacent to the EMBA.	Yes
Gogolanyngor Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The Jabirr Jabirr/Ngumbarl native title claim, for which the Gogolanyngor Aboriginal Corporation is the Registered Native Title Body Corporate, overlaps areas where shoreline accumulation may occur. The Bindunbur native title claim, for which the Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation and Nyul Nyul PBC Aboriginal Corporation are the Registered Native Title Bodies Corporate, overlaps areas where shoreline accumulation may occur.	
Nimanburr Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Bindunbur native title claim, for which the Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation and Nyul Nyul PBC Aboriginal Corporation are the Registered Native Title Bodies Corporate, overlaps areas where shoreline accumulation may occur.	Yes
Nyul Nyul PBC Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Bindunbur native title claim, for which the Gogolanyngor Aboriginal Corporation, Nimanburr Aboriginal Corporation and Nyul Nyul PBC Aboriginal Corporation are the Registered Native Title Bodies Corporate, overlaps areas where shoreline accumulation may occur.	Yes
Wanjina-Wunggurr (Native Title) Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Dambimangari native title claim, for which the Wanjina-Wunggurr (Native Title) Aboriginal Corporation is the Registered Native Title Body Corporate, overlaps areas where shoreline accumulation may occur. The Wanjina-Wunggurr (Native Title) Aboriginal Corporation is also party to the Dambimangari KSCS Marine Parks ILUA, which overlaps areas where shoreline accumulation may occur.	Yes
Karajarri Traditional Lands Association (Aboriginal Corporation)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Karajarri People (Area A) and Karajarri People (Area B) native title claims, for which the Karajarri Traditional Lands Association (Aboriginal Corporation) is the Registered Native Title Body Corporate, overlaps areas where shoreline accumulation may occur.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The Karajarri Traditional Lands Association (Aboriginal Corporation) is also party to the Great Sandy Desert Project ILUA – Infrastructure and Karajarri Traditional Lands Association KSCS Eighty Mile Beach ILUA, which overlaps areas where shoreline accumulation may occur. Karajarri Traditional Lands Association (Aboriginal Corporation) is identified as an appropriate representative for Traditional Custodians in the management plan for the Eighty Mile Beach AMP and state Eighty Mile Beach Marine Park which are overlapped by the EMBA.	
Mayala Inninalang Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Mayala People native title claim does not overlap the EMBA. The claim, for which for which the Mayala Inninalang Aboriginal Corporation is the Registered Native Title Body Corporate, is coastally adjacent to the EMBA. The Mayala Inninalang Aboriginal Corporation is also party to the Mayala Country Marine Park Indigenous Land Use Agreement, which is coastally adjacent to the EMBA.	Yes
Nyangumarta Warrarn Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Nyangumarta People (Part A) native title claim, for which the Nyangumarta Warrarn Aboriginal Corporation is the Registered Native Title Body Corporate, overlaps areas where shoreline accumulation may occur. The Nyangumarta Warrarn Aboriginal Corporation is also party to the Nyangumarta Warrarn Aboriginal Corporation & Mandora Pastoral Lease ILUA, Nyangumarta PBC KSCS ILUA and Nyangumarta Warrarn Aboriginal Corporation & Wallal Downs Pastoral Lease ILUA, which overlap areas where shoreline accumulation may occur. Nyangumarta Warrarn Aboriginal Corporation is identified as an appropriate representative for Traditional Custodians in the management plan for the Eighty Mile Beach AMP and state Eighty Mile Beach Marine Park which are overlapped by the EMBA.	Yes
Nyangumarta Karajarri Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Nyangumarta-Karajarri Overlap Proceeding (Yawinya) native title claim, for which the Nyangumarta Karajarri Aboriginal Corporation is the Registered Native Title Body Corporate, overlaps areas where shoreline accumulation may occur.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		The Nyangumarta Karajarri Aboriginal Corporation is also party to the Nyangumarta Karajarri and Anna Plains Station ILUA and NKAC KSCS Eighty Mile Beach ILUA, which overlap the EMBA, which overlap areas where shoreline accumulation may occur. Nyangumarta Karajarri Aboriginal Corporation is identified as an appropriate representative for Traditional Custodians in the management plan for the Eighty Mile Beach AMP and state Eighty Mile Beach Marine Park which are overlapped by the EMBA.	
Yawuru Native Title Holders Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Rubibi Community native title claim, for which the Yawuru Native Title Holders Aboriginal Corporation is the Registered Native Title Body Corporate, overlaps areas where shoreline accumulation may occur. The Yawuru Native Title Holders Aboriginal Corporation is also party to the Yawuru Nagulagun / Roebuck Bay Marine Park ILUA and Yawuru Prescribed Body Corporate ILUA – Broome, which overlap areas where shoreline accumulation may occur.	Yes
Dambimangari Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The Dambimangari Aboriginal Corporation is party to the Dambimangari KSCS Marine Parks ILUA, which overlap areas where shoreline accumulation may occur. Dambimangari Aboriginal Corporation is identified as the appropriate representative for Traditional Custodians in the management plan for the Lalang-garram / Camden Sound Marine Park which is overlapped by the EMBA.	Yes
Bardi and Jawi Niimidiman Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' under regulation 11A(1)(d). The EMBA does not overlap and is not coastally adjacent to a native title claim, determination or ILUA held by the Bardi and Jawi Niimidiman Aboriginal Corporation or marine park management that references the Corporation. Under subregulation 11 A 1 (e), Woodside, at its discretion, chose to assess the Bardi and Jawi Niimidiman Aboriginal Corporation as a relevant person.	Yes
Native Title Representative Bodies			
Yamatji Marlpa Aboriginal Corporation (YMAC)	Native Title Representative Body	Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		YMAC is the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate but exist to assist native title claimants and holders. The NTGAC's nominated representative is YMAC. Woodside has therefore consulted the NTGAC via YMAC. YMAC was also the nominated representative for YAC. Woodside was advised that as of late April 2023, the nominated representative for YAC is now Gumala Aboriginal Corporation. Woodside contacted YMAC to seek guidance with respect to the appropriate Traditional Custodian group(s) to engage with respect to the proposed activity where this was not clear. YMAC's 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.	
Kimberley Land Council (KLC)	Land Council and Native Title Representative Body	Woodside has applied its methodology for 'Native Title Representative Bodies' under regulation 11A(1)(d). KLC is the Native Title Representative Body for the Kimberley region of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate but exist to assist native title claimants and holders. KLC's 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
Historical cultural heritage groups or organisations			
Western Australian Museum	Manages 200 shipwreck sites of the 1,500 known to be located off the Western Australian coast.	Woodside has applied its methodology for 'Historical cultural heritage groups or organisations' under regulation 11A(1)(d). There are known shipwrecks overlapping the EMBA which the Western Australian Museum may be responsible for.	Yes
Local government and community representative groups or organisations			
Shire of Exmouth	Local government governed by the Local Government Act 1995 representing the suburbs and localities	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Exmouth's area of responsibility overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
	of Exmouth, Learmonth and North West Cape.		
Shire of Ashburton	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Onslow, Pannawonica, Paraburdoo and Tom Price.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Ashburton's area of responsibility overlaps the EMBA.	Yes
City of Karratha	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Baynton, Baynton West, Bulgarra, Cossack, Dampier, Gap Ridge, Karratha, Karratha Industrial Estate, Jingarri, Madigan, Millars Well, Nickol, Pegs Creek, Point Samson, Roebourne, Whim Creek and Wickham.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The City of Karratha's area of responsibility overlaps the EMBA.	Yes
Shire of Carnarvon	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Babbage Island, Brockman, Browns Range, Carnarvon, Coral Bay, East Carnarvon, Greys Plain, Ingaarda, Kingsford, Morgantown, North Plantations, South Carnarvon, South Plantations.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Carnarvon's area of responsibility overlaps the EMBA.	Yes
Town of Port Hedland	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Cooke Point, Port Hedland, Pretty Pool, Redbank, South Hedland, Wedgefield and Yandeyarra.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Town of Port Hedland's area of responsibility overlaps the EMBA.	Yes
Shire of Wyndham-East Kimberley	Local government governed by the Local Government Act 1995	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d).	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
	representing the suburbs and localities of Crossing Falls, Kalumburu, Kununurra, Lake Argyle, Lakeside, Packsaddle, Wyndam	The Shire of Wyndham-East Kimberley's area of responsibility overlaps the EMBA.	
Shire of Derby/West Kimberley	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Derby, Fitzroy Crossing and Camballin	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Derby/West Kimberley's area of responsibility does not overlap the EMBA. Woodside contacted the Shire of Derby/West Kimberley as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	No
Shire of East Pilbara	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Jigalong, Kiwirrkurra, Kunawarritji, Marble Bar, Newman, Nullagine, Parngurr, Punmu, Warralong	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of East Pilbara's area of responsibility overlaps the EMBA.	Yes
Shire of Broome	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Mile, Bilingurr, Broome, Cable Beach, Cape Leveque, Coconut Well, Djugun, Lombadina, Minyirr, Morell Park, Skuthorpe	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Broome's area of responsibility overlaps the EMBA.	Yes
Shire of Shark Bay	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Billabong, Denham, Monkey Mia, Nanga, Overlander, Useless Loop	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Shark Bay's area of responsibility does not overlap the EMBA. Woodside contacted the Shire of Shark Bay as part of initial consultation which included an alternative EMBA that was subsequently revised for the proposed EP.	No
Shire of Christmas Island	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Drumsite, Kampong, Poon Saan, Settlement, Silver City, Taman Sweetland	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Shire of Christmas Island's area of responsibility overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Exmouth Liaison Reference Group (CRG) Base Marine Bgahwan Marine Cape Conservation Group Inc. DBCA Department of Defence Department of Transport Exmouth Bus Charter Exmouth Chamber of Commerce and Industry Exmouth District High School Exmouth Freight and Logistics Exmouth Game Fishing Club Exmouth Tackle and Camping Supplies Exmouth Visitors Centre Exmouth Volunteer Marine Rescue Fat Marine Gascoyne Development Commission Gun Marine Services Ningaloo Lodge Offshore Unlimited Shire of Exmouth BHP Petroleum Santos Community Member	The Exmouth CRG represents the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Exmouth region.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Exmouth CRG's area of responsibility under its terms of reference overlaps the EMBA.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Karratha Community Liaison Group WA Police Karratha Health Care Development WA Ngarluma Yindjibarndi Foundation Ltd (NYFL) Department of Education Pilbara Ports Authority Regional Development Australia Pilbara Development Commission Dampier Community Association City of Karratha Karratha & Districts Chamber of Commerce and Industry Horizon Power Murujuga Aboriginal Corporation (MAC)* Department of Local Government, Sport and Cultural Industries **MAC was consulted directly as described above.*	The KLG is the recognised community group that represents the interests of a range of local government, industry and community organisations in relation to oil and gas matters in the Pilbara region.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The KLG's area of responsibility under its terms of reference does not overlap the EMBA. Under subregulation 11 A 1 (e), Woodside, at its discretion, chose to assess the KLG as a relevant person.	Yes
Onslow Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Onslow and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Onslow Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Port Hedland Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Port Hedland and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Port Hedland Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Carnarvon Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Carnarvon and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Carnarvon Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
East Kimberley Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of East Kimberley and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The East Kimberley Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Derby Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Derby and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Derby Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Broome Chamber of Commerce and Industry	Independent not-for-profit organisation responsible for promoting the interests of its members in the business community in the town of Broome and surrounding areas.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Broome Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
Christmas Island Business Association	Responsible for building the capability of local businesses on Christmas Island.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Christmas Island Business Association's interests have the potential to be impacted by the proposed activities.	Yes
Christmas Island Regional Development Organisation	Responsible for supporting the economic development of Cocos (Keeling) Islands and Christmas Island.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 11A(1)(d). The Christmas Island Regional Development Organisation's interests have the potential to be impacted by the proposed activities.	Yes
Other non-government groups or organisations			
350 Australia (350A)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d) to determine 350A's relevance for the proposed activity. Woodside has assessed that 350A'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**). Woodside chose to contact 350A at its discretion in line with **Section 5.3.4.**	No
Australian Conservation Foundation (ACF)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d) to determine ACF's relevance for the proposed activity. 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**). Woodside chose to contact ACF at its discretion in line with **Section 5.3.4.**	No
Australian Marine Conservation Society (AMCS)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d) to determine AMCS's relevance for the proposed activity. 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**). Woodside chose to contact AMCS at its discretion in line with **Section 5.3.4.**	No
Conservation Council of Western Australia (CCWA)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d) to determine CCWA's relevance for the proposed activity.	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
		Woodside has assessed that CCWA'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**). Woodside chose to contact CCWA at its discretion in line with **Section 5.3.4.**	
Greenpeace Australia Pacific (GAP)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 11A(1)(d) to determine GAP's relevance for the proposed activity. 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**). Woodside chose to contact GAP at its discretion in line with **Section 5.3.4.**	No
Research institutes and local conservation groups or organisations			
Cape Conservation Group (CCG)	Local conservation group focused on protecting the terrestrial and marine environment of the North West Cape	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine CCG's relevance for the proposed activity. CCG's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps North West Cape.	Yes
Protect Ningaloo	Local conservation group focused on protecting the Exmouth Gulf and Ningaloo Reef and Cape Range	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine CCG's relevance for the proposed activity. Protect Ningaloo's conservation activities have the potential to intersect with the EMBA as the EMBA overlaps North West Cape and Ningaloo Reef.	Yes
University of Western Australia (UWA)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine UWA Ocean Institute's relevance for the proposed activity. There is no known research being undertaken by the UWA that intersects within the EMBA. Woodside chose to contact UWA at its discretion in line with **Section 5.3.4**.	No
Western Australian Marine Science Institution (WAMSI)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine WAMSI's relevance for the proposed activity. There is no known research being undertaken by WAMSI that intersects within the EMBA. Woodside chose to contact WAMSI at its discretion in line with **Section 5.3.4.**	No

Person or Organisation	Summary of responsibilities and/or functions, interests or activities	Assessment of relevance	Relevant person
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 11A(1)(d) to determine CSIRO's relevance for the proposed activity. There is no known research being undertaken by CSIRO that intersects within the EMBA. Woodside chose to contact CSIRO at its discretion in line with **Section 5.3.4.**	No
Australian Institute of Marine Science (AIMS)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 11A(1)(d) to determine AIMS's relevance for the proposed activity. There is no known research being undertaken by AIMS that intersects within the EMBA. Woodside chose to contact AIMS at its discretion in line with **Section 5.3.4.**	No

5.8 Consultation activities and additional engagement

5.8.1 PLA08 EP General and Traditional Custodian Activities

- Woodside advertised the planned activities proposed for this EP in the national, state and relevant local newspapers including The Australian, The West Australian, Pilbara News, Midwest Times, North West Telegraph (15 February 2023) and Geraldton Times (17 February 2023) (see **Appendix G, reference 3.3**). 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.
- A Consultation Information Sheet was provided to relevant persons and persons Woodside chose to contact (see **Section 5.3.4**), which included details such as an activity overview, maps, a summary of key risks and/or impacts and management measures (**Appendix G, reference 1.19**).
- An activity update Consultation Information Sheet was provided to relevant persons and persons Woodside chose to contact (see **Section 5.3.4**), which included an update regarding planned activities, information regarding the EMBAs for this EP and additional information relating to mitigation and managements measures for this EP (**Appendix G, reference 3.1).**
- Since the commencement of the initial consultation period (June 2022), the Stakeholder Consultation Information Sheet has been available on the Woodside website and the activity update Consultation Information Sheet since February 2023 (**Appendix G, reference 1.19** and **reference 3.1**). The Woodside Information Sheets include a toll-free 1800 phone number and Woodside's feedback email address (feedback@woodside.com.au).
- Additional targeted information was provided to relevant marine users including AHO and AMSA – Marine Safety (**Appendix G, reference 1.20, reference 1.21, reference 1.22, reference 1.23** and **reference 1.24**). The targeted 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.
- From 3 May 2023, Woodside commenced a geotargeted sponsored social media campaign (**Appendix G reference 3.91**) to various local government authorities that are within or coastally adjacent to the EMBA for the proposed activities. The campaign brought the proposed activity to the attention of persons who may be interested and advised persons or organisations on how they can find out about Woodside's proposed activities by visiting Woodside's website.
- Community Information Sessions were held in Broome, Derby and Kununurra on 12 June 2023, 13 June 2023 and 15 June 2023 respectively. Ahead of the events, Woodside advertised the sessions via the means below which provided the opportunity for local individuals to become aware of the event and have access to experts and information about the activity. The methods used to promote these consultation opportunities were developed with input from Indigenous representatives and were adapted to incorporate culturally appropriate and accessible language to encourage engagement and understanding of Woodside's proposed activities:
  - Advertising the community information sessions in the Kimberley Echo and Broome Advertiser on 1 June 2023 and 8 June 2023 (**Appendix G, reference 3.91**).
  - From 8 June 2023, Woodside commenced a geotargeted social media campaign in Broome, Derby, Kununurra and surrounding areas (**Appendix G, reference 3.92**) advertising the community information sessions.
  - Directly contacting local Traditional Custodian groups to invite representatives to attend the community information sessions and providing the event information (see **Table 5-4**).

  - Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and bespoke targeted Consultation Summary Information Sheets were available to attendees. Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions and provide their 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**).

Consultation activities undertaken with relevant persons are summarised at **Table 5-4**.

- Engagement undertaken with persons or organisations Woodside assessed as not relevant but chose to contact (see **Section 5.3.4**) are summarised at **Table 5-5**.

5.8.2 Traditional Custodian Specific Consultation

Woodside provides persons or organisations, including individual Traditional Custodians, with the opportunity to be aware of Woodside's proposed activities and to participate in consultation. Woodside's First Nations Communities Policy is guided by the United Nations Declaration on the Rights of Indigenous People (UNDRIP) which respects Traditional Custodians by directing consultations through their nominated representative body (referred to in UNDRIP as "their own representative institutions". This has been reinforced throughout consultation with PBCs who have requested that Woodside engage with them as the representative bodies for that Traditional Custodian group.

Woodside asks nominated representative bodies and the Native Title Representative Bodies to identify individuals, and also enables individuals to self-identify in response to national and local advertising, social media and community engagement opportunities (as described in **Section 5.8.1**). Woodside does not directly approach individuals for consultation, because this is misaligned with UNDRIP and undermines the role of the nominated representative bodies. Approaching individuals directly is an outdated practice which is no longer considered acceptable because of divisions it has been shown to cause in communities.

However, individuals are given the opportunity to self-identify, consult and provide feedback on the proposed activity. In these circumstances, Woodside will engage individuals as relevant persons and also advise the nominated representative body of the consultation where it relates to cultural values. Woodside has not been directed to engage individual Traditional Custodians by nominated representative bodies for this proposed activity, however Woodside has nevertheless provided reasonable opportunity for individual Traditional Custodians to engage in consultation through appropriate and adapted consultation methods. These methods are consistent with the requirements for notification under the Native Title Act (1993), 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 pctical and pragmatic analogue for consultation, rather than the authorisation process which aims to seek authorisation of agreements and Native Title claims under the Native Title Act[8].

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

The most effective consultation methods for this activity, specifically designed for Traditional Custodians, to ensure that information is provided in a form that is readily accessible and appropriate are provided below:

- Direct engagement with nominated representative bodies via the contact listed on the ORIC website, requesting advice on how they would like to be engaged and asking whether other members and/or individuals should be consulted. This has resulted in:
  - Meetings with directors, elders and any nominated representatives, on country or in Perth
  - Requests and offers of resourcing to enable and support consultation
  - Exchange of written feedback and correspondence
  - A bespoke targeted Consultation Summary Sheet, developed and reviewed by Indigenous representatives to ensure content is appropriate to the intended recipients, was provided to relevant Traditional Custodian groups (**Appendix G, reference 3.2**). and phone calls to provide context to the consultation made.
- Ongoing efforts were made to engage and develop relationships with these bodies via a variety of means such as email, phone calls, alternative contacts, texts, social media and in some cases physical visits.
- Consultation meetings with attendees decided by Traditional Custodian groups, supported by senior Woodside representatives, subject matter experts, First Nations Relations advisers with skills and experience in community engagement. Meetings are developed through a two-way consultation process to ensure effective information sharing via:
  - Mutually agreed agenda avoiding time pressure
  - Visual aids such as posters, presentations, simplified technical videos and real-world pictures and footage
  - Emphasis on potential planned and unplanned risks and impacts
  - Ample opportunity for questions and feedback
  - Discussion about ongoing relationship development and opportunities
  - Distribution of hard-copy Consultation Information Sheets (**Appendix G, reference 3.1**) and bespoke targeted Consultation Summary Sheets (**Appendix G, reference 3.2**)
  - Meeting all costs such as sitting fees, travel, legal support and executive support and other support required
- Woodside has a geotargeted sponsored social media campaign (**Appendix G, reference 3.91**) to various communities that are coastally adjacent to the EMBA for the proposed activities.
  - The wide-reaching campaign brought the proposed activity to the attention of persons who may be interested and advised persons or organisations how they can find out about Woodside's proposed activities by visiting Woodside's website, which details the intent of consultation with relevant persons under the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth). The reach of this campaign is shown in **Appendix G, reference 3.91**), providing the opportunity to consult via over 139,000 views to date across various regions.
  - These social media posts were developed with input from Indigenous representatives. Social media is a highly effective means to engage Indigenous audiences as outlined in Indigenous Digital Life (Professor Carlson, 2021). Advertisements used language and information appropriate to Indigenous audiences. Feedback from community engagements indicates a high level of penetration for this technique.
- Community Information Sessions were held in Broome, Derby and Kununurra on 12 June 2023, 13 June 2023 and 15 June 2023 respectively. Ahead of the events, Woodside advertised the sessions via the means below which provided the opportunity for local individuals to become

aware of the event and have access to experts and information about the activity. The methods used to promote these consultation opportunities were developed with input from Indigenous representatives and were adapted to incorporate culturally appropriate and accessible language to encourage engagement and understanding of Woodside's proposed activities:

- Advertising the community information sessions in the Kimberley Echo and Broome Advertiser on 1 June 2023 and 8 June 2023 (**Appendix G, reference 3.91**).
- From 8 June 2023, Woodside commenced a geotargeted social media campaign in Broome, Derby, Kununurra and surrounding areas (**Appendix G, reference 3.92**) advertising the community information sessions.
- Directly contacting local Traditional Custodian groups to invite representatives to attend the community information sessions and providing the event information (see **Table 5-4**).
- Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and bespoke targeted Consultation Summary Information Sheets were available to attendees. Community members were able to engage with Woodside representatives to understand the proposed activity and how it may affect them, ask questions and provide their feedback.

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 understand their ability to provide feedback. The combination of PBC engagement meetings, traditional print media, social media and face-to face community interaction was designed with input from Indigenous representatives and adapted to the audience, so that it provides a wide-ranging opportunity to consult.

Table 5-4: Summary of consultation activities

Commonwealth and WA State Government Departments or Agencies – Marine		
Australian Border Force (ABF)		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 2 June 2022, Woodside emailed ABF, advising of the proposed activity (Appendix G, reference 1.1) and provided a Consultation Information Sheet. • On 15 February 2023, Woodside emailed ABF providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet. • On 7 March 2023, Woodside emailed the ABF following up on the proposed activity (Appendix G, reference 3.4.1) and to request any feedback.		
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 7.6**).	Woodside has addressed maritime security-related issues in **Section 6** of this EP based on previous offshore activities. No additional measures or controls are required.
Department of Foreign Affairs and Trade (DFAT)		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.
Summary of information provided and record of consultation:
• On 15 March 2023, Woodside emailed DFAT advising of the proposed activity (Appendix G, reference 3.84) and provided a Consultation Information Sheet. Woodside specifically sought DFAT's input to the proposed activities in relation to:
  ○ Management of foreign vessels.
  ○ Confirmation as to whether there are any specific persons or organisations that Woodside should contact whose functions, interests or activities may be affected by the proposed activities in foreign countries.
  ○ Implications for oil spill planning and response in international waters.
  ○ Noted previous advice from DFAT on a separate EP in relation to oil spill response planning in international waters and requested confirmation that Woodside's proposed notifications meet DFAT's requirements.
• On 31 March 2023, Woodside emailed DFAT following up of the proposed activity (Appendix G, reference 3.84.1) and to request any feedback. Woodside reiterated its specific requests for DFAT's input from its initial email on 15 March 2023.		

- On 19 April 2023, Woodside emailed DFAT following up of the proposed activity (Appendix G, reference 3.84.2) and to request any feedback and DFAT's specific input to Woodside's proposed activities described in its 15 March 2023 email.
- On 1 May 2023, Woodside had a phone call with DFAT to follow up on the proposed activity and request any feedback.
- On 1 May 2023, Woodside followed up the phone call with an email thanking DFAT for its time and:
  - provided information regarding consultation requirements under the OPGGS Regulations.
  - noted the potential implications for oil spill planning and response in international waters or impacts to the interests of foreign countries from unplanned activities.
  - requested advice on the best contact at DFAT to provide feedback on Woodside's consultation and provided a copy of previously provided information.
- On 1 May 2023, DFAT responded thanking Woodside for its email and provided contact details for the correct persons within DFAT to provide feedback.
- On 1 May 2023, DFAT responded thanking Woodside for its email and:
  - noted that the activities will be conducted in Australian waters and environmental management is therefore a matter for Australian domestic regulators.
  - requested Woodside submits its plans to NOPSEMA in accordance with the relevant regulations and that NOPSEMA can contact the relevant part of DFAT should this be necessary.
- On 10 May 2023, Woodside emailed DFAT to thank it for its feedback and:
  - Noted DFAT's advice that:
    - environmental management for these EPs is a matter for Australian domestic regulators;
    - Woodside should submit its plans to NOPSEMA in accordance with the relevant regulations; and
    - NOPSEMA can contact the relevant part of DFAT should this be necessary.
  - Confirmed that:
    - Woodside would engage NOPSEMA with respect to DFAT's advice.
    - planned activities proposed under the proposed EP would be conducted in Australian waters.
  - Woodside clarified that in the highly unlikely event of a hydrocarbon spill, modelling has indicated that the spill may traverse international waters, including a potential for hydrocarbons to accumulate on Indonesian shorelines. Therefore, these EPs may require international consultation and oil spill response requirements, prompting DFAT's functions interests or activities.
  - Woodside offered a meeting with DFAT to discuss the proposed activities and Woodside's request for DFAT's input and feedback.
  - Woodside reiterated its specific requests for DFAT's input from its 15 March 2023 email.
- On 10 May 2023, DFAT responded:
  - confirming it was happy to meet with Woodside and provided possible dates.
  - Noted it recognises that Woodside would like to consult with DFAT, and it would do its best to incorporate the relevant parts of the department.
  - Noted the proposed notification requirements set out in Woodside's email which included notifying AMSA and Western Australian departments as soon as possible and notifying other government departments as soon as practical after that. DFAT agreed that AMSA is the most appropriate point of contact and AMSA quickly notifies DFAT when there are maritime incidents that may have an international dimension.
- On 11 May 2023, Woodside thanked DFAT by email for the previous response and asked DFAT to nominate a preferred time for a video call to further discussions.
- On 12 May 2023, DFAT emailed Woodside proposing meeting arrangements.

- On 12 May 23023, Woodside emailed DFAT confirming meeting arrangements.
- On 24 May 2023, Woodside had a meeting with DFAT.
  - Woodside explained the change in consultation requirements for consultation on the environment that may be affected (EMBA) by planned or unplanned activities the subject of the EP and explained the EMBA which predicts that in the unlikely event of a hydrocarbon spill, the spill may traverse international waters and slick may wash up on the shoreline in Indonesia.
  - DFAT advised it would normally consider the maritime boundaries and sovereign rights within those areas and noted there are conventions on oil spill, but generally that will lead to another Department that has responsibility, for example NOPSEMA or AMSA.
  - DFAT noted there is a bilateral desk which manages Australia's relationship with Indonesia, which would work with the Embassy in Indonesia. DFAT noted it is very happy with AMSA being the contact point and agency for oil spill.
  - DFAT advised it would want to manage any sensitivities around engagement with the countries directly.
  - DFAT advised it would:
    - Check relevant treaties to confirm lead agencies.
    - Confirm Woodside's proposed notification requirements are appropriate.
    - Provide an after-hours contact within DFAT that can provide notification internally very quickly. Noted there is a single entry point into DFAT and that part of DFAT can send information internally to assess.
  - Woodside provided an overview of the proposed activities.
  - DFAT queried what time period Woodside's hydrocarbon spill modelling covers.
  - Woodside advised it works out what the worst-case scenario is if oil is free flowing, so it assumes there is no response and then models a minimum of 100 runs based on different weather patterns throughout the year which would impact where the oil would go.
- On 30 May 2023, DFAT emailed Woodside thanking it for the meeting and:
  - Advised it had reviewed the treaties to which Australia is party and which relate to oil spills and oil spill response and confirmed that AMSA is the correct contact point.
  - Advised AMSA would normally contact DFAT when a maritime incident involves another country.
  - Advised that should Woodside wish to contact DFAT in an emergency, it can email the Global Watch Office ([redacted]) which is monitored 24/7 and can contact the relevant part of DFAT for a response.
  - Provided contact information for DFAT agencies in Timor-Leste and Indonesia.
- On 2 June 2023, Woodside responded thanking DFAT for its confirmation and providing the contact details for relevant officials, which Woodside would reach out to directly if necessary, as part of EP preparation.
- On 15 June 2023, Woodside emailed the DFAT agency contacts provided and:
  - Provided a Consultation Information Sheet for the proposed activities.
  - Advised the proposed activities could potentially have an environmental consequence beyond Australia's jurisdiction, in the highly unlikely event of a hydrocarbon release.
  - Noted the Australian Government is signatory to international agreements with both Timor Leste and Indonesia, which address matters relating to oil spill preparedness and response, reflecting the shared commitment to managing the risks associated with petroleum activities and protecting the marine environment in the region.

- Outlined the notifications Woodside plans to include in the EP in the event a hydrocarbon spill occurred that is likely to traverse international waters.
- Requested any further feedback from DFAT.

- On 16 June 2023, Woodside emailed an additional DFAT representative following receipt of an out of office.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Woodside had a meeting with DFAT, which advised: • It is happy with AMSA being the contact point and agency for oil spill. • It would want to manage any sensitivities around engagement with the countries directly. • It would check relevant treaties to confirm lead agencies. • Provide an after-hours contact within DFAT that can provide notification internally very quickly. • As the activities will be conducted in Australian waters, environmental management is therefore a matter for Australian domestic regulators. • Provided a DFAT contact in an emergency. • Provided contact information for DFAT agencies in Timor-Leste and Indonesia.	Woodside has addressed DFAT's feedback, including; confirming that in the event of a hydrocarbon spill that is likely to traverse international waters, Woodside will notify the following government agencies as referenced in the OSPRMA (**Appendix E**): • Verbally notify AMSA and Western Australian departments responsible. Woodside will follow up its AMSA notification by way of an online report via AMSA's web site. • other relevant government departments as soon as practicable. These notifications include DFAT via [redacted] and [redacted]. Woodside has provided consultation information to DFAT agency contacts. 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 7.6**).	Woodside notes the Australian Government is signatory to international agreements with both Timor Leste and Indonesia, which address matters relating to oil spill preparedness and response. In the event of a hydrocarbon spill that is likely to traverse international waters, Woodside will notify the following government agencies as referenced in the Oil Pollution First Strike Plan (**Appendix E**): • Verbally notify AMSA and Western Australian departments responsible. Woodside will follow up its AMSA notification by way of an online report via AMSA's web site. • Other relevant government departments as soon as practicable. These notifications include DFAT via [redacted] and [redacted]. No additional measures or controls are required.

Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 March 2023, Woodside had a phone conversation with DITRDCA regarding the proposed activities and requested advice regarding consultation with Christmas Island stakeholders, and in particular the Christmas Island Line Fishery. DITRDCA noted consultation with the following organisations:
  - Shire of Christmas Island
  - Regional Development Organisation
  - Christmas Island Business Association

- Parks regional manager
- On 17 March 2023, Woodside emailed DITRDCA requesting contact details for the organisations referenced in the phone conversation:
- On 18 March 2023, Woodside emailed DITRDCA (Appendix G, reference 3.83) advising of the proposed activity and provided a Consultation Information Sheet.
- On 20 March 2023, DITRDCA emailed Woodside, providing the contact details for entities on Christmas Island as requested by Woodside along with contacts for the Christmas Island Fisheries Advisory Committee and Christmas Island Port. DITRDCA also acknowledged receipt of Woodside's invitation for DITRDCA to provide feedback on the proposed activities.
- On 21 March 2023, DITRDCA emailed Woodside to provided updated contact information for the Christmas Island Business Association.
- On 23 March 2023, Woodside emailed DITRDCA, thanking DITRDCA for providing the contact details and advised that Woodside will reach out to the organisations for feedback on the proposed activity
- On 17 April 2023, Woodside emailed DITRDCA following up of the proposed activity and to request any feedback. Woodside specifically requested advice regarding Christmas Island Line Fishery to inform Woodside's consultation.
- On 18 April 2023, DITRDCA emailed Woodside advising the Indian Ocean Territories Policy team has no comment on the activities proposed by Woodside and that on 23 March 2022, the Christmas Island Applied Laws Amendment (Fish Resources Management) Ordinance 2022 came into effect a FAC acts in an advisory capacity to the Minister regarding local fisheries matters which may have further comment on the Woodside proposal.
- On 26 April 2023, DITRDCA emailed Woodside, providing the following further information:
  - There are three Fishing Boat Licences (FBLs) at Christmas Island.
  - This Department does not have contact details for all three FBLs.
  - Advised Woodside may wish to apply to DPRD's public register to obtain contact information and provided the relevant FBL numbers.
- On 2 May 2023, Woodside responded thanking the DITRDCA for its feedback, including that it has no comment on the proposed activities. Woodside:
- confirmed it had provided consultation information to the organisations advised on 21 March 2023.
- thanked DITRDCA for its advice regarding the FAC and that there are three FB's at Christmas Island.
- confirmed the FAC had also provided this information as well as contact details for consultation, and that Woodside had also checked the FBL numbers with DPIRD.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
The DITRDCA has provided feedback including: • Providing contact details for organisations to consult. • Advising it has no comment on the proposed activities. • Advising there are three FBLs at Christmas Island, which DITRDCA does not have contact details for. Whilst feedback has been received, there were no objections or claims.	Woodside has addressed the DITRDCA's feedback, including: • confirming it had provided consultation information to the organisations advised on 21 March 2023. • thanking DITRDCA for its advice regarding the FAC and that there are three FBLs at Christmas Island. • confirming the FAC had also provided this information as well as contact details for consultation, and that Woodside had also checked the FBL numbers with DPIRD.	No additional measures or controls are required.

	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 7.6**).	

Australian Fisheries Management Authority (AFMA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed AFMA advising of the proposed activity (Appendix G, reference 1.2) and provided a Consultation Information Sheet and fisheries map (Appendix G, reference 1.20).
- On 20 June 2022, Woodside emailed AFMA following up on the proposed activity (Appendix G, reference 2.1) and provided a Consultation Information Sheet and fisheries map.
- On 6 July 2022, AFMA responded advising it had no specific comment, but it is important to consult with all operators who have entitlements to fish within the proposed area, which can be done through the relevant fishing industry associations or directly with operators who hold entitlements in the area.
- On 8 July 2022, Woodside responded thanking AFMA for its feedback and confirmed that Woodside had provided information to relevant fishery licence holders as well as representative organisations on behalf of Commonwealth fishery licence holders who have entitlements to fish within the proposed area.
- On 15 February 2023, Woodside emailed AFMA providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed the AFMA following up on the proposed activity (Appendix G, reference 3.4.1) and to request any feedback.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
AFMA has requested Woodside consult with operators who have entitlements to fish within the proposed area and advised Woodside to consider the North West Slope Trawl Fishery in its list of fisheries to consult.	Woodside has addressed AFMA's request to review an additional Commonwealth fishery. Woodside has confirmed the North West Slope Trawl Fishery management area does not overlap the Operational Area. Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders. 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	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement

	Management of Change and Revision process (see **Section 7.6**).	and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Australian Hydrographic Office (AHO)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed the AHO, advising of the proposed activity (Appendix G, reference 1.3) and provided a Consultation Information Sheet and shipping lanes map (Appendix G, reference 1.22).
- On 6 June 2022, the AHO responded acknowledging receipt of Woodside's email.
- On 15 February 2023, Woodside emailed AHO providing additional information on the proposed activity (Appendix G, reference 3.6), and provided an updated Consultation Information Sheet
- On 7 March 2023, Woodside emailed the AHO following up on the proposed activity (Appendix G, reference 3.6.1) and provided a shipping lanes map.
- On 8 March 2023, AHO responded, acknowledging receipt of Woodside's email.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
AHO acknowledged receipt of consultation emails. Whilst feedback has been received, there were no objections or claims.	AHO responded and acknowledged receipt of Woodside's consultation email. 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 7.6**).	Woodside will notify the AHO no less than four working weeks before operations commence, as referenced as a **PS 1.4** in this EP. No additional measures or controls are required.

Australian Maritime Safety Authority (AMSA) - Marine Safety

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed AMSA advising of the proposed activity (Appendix G, reference 1.3) and provided a Consultation Information Sheet and shipping lanes map (Appendix G, reference 1.22).
- On 7 June 2022, AMSA responded advising that its *NauticalAdvice* inbox is no longer monitored and all future correspondence should be directed to its NavSafety inbox.
- On 7 June 2022, Woodside responded thanking AMSA for its updated contact details and confirmed that future correspondence would be directed to this inbox. Woodside advised that it welcomed any further feedback AMSA had on the EP.

- On 9 June 2022, AMSA responded:
  - thanking Woodside for the information provided.
  - provided a vessel traffic plot for the well activities offshore Dampier, NW WA.
  - advised that some heavy vessel traffic does pass through the top of permit block WA-34-L.
  - requested that AMSA's Joint Rescue Coordination Centre (JRCC) be notified at least 24–48 hours before operations commence
  - requested that the AHO be contacted no less than four working weeks before operations commence for the promulgation of related notices to mariners.
  - requested that Automatic Identification System (AIS) data.
- On 15 June 2022, Woodside responded thanks AMSA for its feedback and confirmed we will contact/notify:
  - The AHO no less than 4 weeks before operations commence
  - AMSA's JRCC at least 24-48 hours before operations commence
  - Provide updates to both the AHO and AMSA on any changes.
  - Confirmed that vessels will exhibit appropriate lights and shapes to reflect the nature of operations and the obligation to comply with the International Rules for Preventing Collisions at Sea.
  - Confirmed that Woodside will update its AIS data for future EP consultation.
- On 15 February 2023, Woodside emailed AMSA providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet.
- On 16 February 2023, AMSA messaged/called Woodside requesting the digital data.
- On 17 February 2023, Woodside responded to AMSA and provided a shapefile containing the operational areas of the project / EP.
- On 22 February 2023, AMSA responded, providing two vessel traffic plots indicating areas where heavy vessel traffic will be encountered and requested.
  - associated working vessels and large support vessels notify AMSA's Rescue Centre (ARC) through [redacted] (Phone: 1800 641 792 or +61 2 6230 6811) for promulgation of radio-navigation warnings 24-48 hours before operations commence
  - vessel details (including name, callsign and Maritime Mobile Service Identity (MMSI)), as you have provided below, satellite communications details (including INMARSAT-C and satellite telephone), area of operation, requested clearance from other vessels and need to be advised when operations start and end
- On 7 March 2023, Woodside responded thanking AMSA for its feedback and confirmed we will:
  - notify the AHO no less than 4 weeks before operations commence;
  - notify AMSA's JRCC at least 24-48 hours before operations commence;
  - notify AMSA's JRCC when operations end; and
  - provide updates to both the AHO and AMSA on any material changes to planned activities.
  - Woodside also provided shipping lane figures and associated Operational Areas along with figures showing the Environment that May Be Affected (EMBA).

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
AMSA has provided feedback and requested that: • AMSA's Joint Rescue Coordination Centre (JRCC) be notified at least 24–48 hours before operations commence; • the AHO be contacted no less than four working weeks before operations commence for the promulgation of related notices to mariners; • all vessels exhibit appropriate lights and shapes to reflect the nature of operations; and • all vessels comply with the International Rule for Preventing Collisions at Sea.	Woodside has addressed AMSA's requests and provided further information on the proposed activity including an operational area polygons in shapefile format, and the shipping lane figure for the Operational Areas and EMBA. Woodside will contact/notify: • The AHO no less than 4 weeks before operations commence • AMSA's JRCC at least 24-48 hours before operations commence • Provide updates to both the AHO and AMSA on any changes. 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 7.6**).	Woodside will notify AMSA's JRCC at least 24–48 hours before operations commence for each survey, as referenced as **PS 1.6** in this EP. Woodside will notify the AHO no less than four working weeks before operations commence, as referenced as a **PS 1.4** in this EP. Woodside considers the measures and controls in the EP are appropriate.
Australian Maritime Safety Authority (AMSA) – Marine Pollution		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 3 August 2022, Woodside emailed AMSA (Appendix G, reference 1.4) and provided a Consultation Information Sheet and a copy of the Oil Pollution First Strike Plan (Appendix G, reference 1.4). • On 15 February 2023, Woodside emailed AMSA providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet. • On 7 March 2023, Woodside emailed AMSA following up on the proposed activity (Appendix G, reference 3.4.1) and to request any feedback.		

Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim
No feedback, objections or claims received despite follow up.	Woodside has provided AMSA – Marine Pollution with a copy of the Oil Pollution First Strike Plan Woodside and has addressed oil pollution planning and response at **Appendix E**. 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 7.6**).	Woodside has addressed oil pollution planning and response at **Appendix E**. No additional measures or controls are required.

Department of Defence (DoD)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed DoD, advising of the proposed activity (Appendix G, reference 1.6) and provided a Consultation Information Sheet and defence zone map (Appendix G, reference 1.23).
- On 15 February 2023, Woodside emailed DoD, advising of the proposed activity (Appendix G, reference 3.7) and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed DOD following up on the proposed activity (Appendix G, reference 3.7.1) and to request any feedback.
- On 16 March 2023, DoD responded, advising that:
  - all activities in the area are conducted at its own risk; and
  - the Commonwealth of Australia, represented by the Department of Defence, takes no responsibility for:
    - reporting the location and type of UXO that may be in the areas;
    - identifying or removing any UXO from these areas; and
    - any loss or damage suffered or incurred by Woodside or any third party arising out of, or directly related to, UXO in the area.
  - DoD also advised that:
    - It requires a minimum of five weeks notification prior to the commencement of activities.
    - any activities undertaken within Restricted Airspace comply with the relevant Notice to Air Mission (NOTAM) restrictions continued liaison with the Australian Hydrographic Service (AHS) for Notices to Mariners (NOTMAR), in particular ensure that the AHS is notified three weeks prior to the actual commencement of activities.
- On 30 March 2023, Woodside responded thanking the DoD for its feedback and:
  - noted DoD's advice on the location of the Operational Area for the proposed activities and the presence of the North West Exercise Area (NWXA) and restricted airspace.

- note its advice with respect to the location, identification, removal, or damage to equipment from unexploded ordinances (UXOs).
- And confirmed Woodside will:
  - notify the Department of Defence at least five weeks prior to the commencement of activities.
  - confirm restricted air space status with the Department of Defence as part of its commencement of activity notification.
  - and the AHO will be notified four weeks prior to the start of activities in line with its request.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
DOD has provided feedback and requested: • a minimum of five weeks notification prior to the commencement of activities; • Woodside to liaise with Airservices Australia regarding any notification requirements in restricted airspace; and • Woodside to notify the AHO of the activities three weeks prior to commencement.	Woodside has addressed DoDs feedback, including: • providing DoD activity notification five weeks prior to commencement (**P.S 1.8)** and AHO four weeks prior to commencement (**P.S 1.4)** of activities; • noted the requirement and contact details provided by DoD to engage with Airservices Australia if the restricted airspace is activated; and • advised that Woodside will confirm restricted air space status with DoD as part of the commencement of activity notification. 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 7.6**).	Woodside has addressed DoDs expectations on notifications – Defence and AHO (**PS 1.8** and **PS 1.4**). AHO have been consulted on the activity and are included in Woodside's activity notification protocols. AHO will be notified four weeks prior to the start of activities. Woodside considers the measures and controls in the EP are appropriate.

Department of Primary Industries and Regional Development (DPIRD)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed DPIRD, advising of the proposed activity (Appendix G, reference 1.8) and provided a Consultation Information Sheet and fisheries map (Appendix G, reference 1.21).
- On 20 June 2022, Woodside emailed DPIRD, following up on the proposed activity (Appendix F, reference 2.5), and provided a Consultation Information Sheet and fisheries map.
- On 15 February 2023, Woodside emailed DPIRD following provided additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet.

- On 7 March 2023, Woodside emailed the DPRID following up on the proposed activity (Appendix G, reference 3.4.1) and to request any feedback.
- On 15 March 2023, Woodside emailed DPIRD, asking whether DPIRD has responsibility for Christmas Island commercial fisheries or AFMA.
- On 15 March 2023, DPIRD emailed Woodside, advising that the Christmas Island fisheries management is now a Commonwealth responsibility and Woodside should contact AFMA.
- On 17 April 2023, Woodside emailed DPIRD, thanking DPIRD for their advice and informing that AFMA advised that the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) has responsibility for Christmas Island. Woodside advised that since the fishery has been continuing to report its catch effort to DPIRD, Woodside would be grateful if DPIRD is able to provide Woodside with the licence holder contact details for this fishery.
- On 17 April 2023, DPIRD emailed Woodside, confirming that DPIRD will follow up on Woodside's request.
- On 21 April 2023, Woodside emailed DPIRD, thanking them for their email.
- On 21 April 2023, DPIRD emailed Woodside, informing that the DPIRD S&B executive director is considering a response to Woodside's request and asked if Woodside had contacted WAFIC for the fishery contact details.
- On 26 April 2023, Woodside emailed DPIRD, advising that the Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) advised there are three Fishing Boat Licences (FBLs) at Christmas Island, which the DITRDCA doesn't have contact details for, and Woodside was asked to contact DPIRD for the details.
- On 26 April 2023, DPIRD emailed Woodside, advising that DPIRD does not have authority to release the contact details and advised Woodside to contact DPIRD's licensing branch and request access.
- On 26 April 2023, Woodside emailed DPIRD, thanking them for their advice.

Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim
DPIRD provided advice regarding Christmas Island fisheries. Whilst feedback has been received, there were no objections or claims.	Woodside has addressed DPIRD's advice including seeking appropriate contact details for the Christmas Island Line Fishery and providing consultation information. Woodside has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Department of Transport (DoT)		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed DoT, advising of the proposed activity (Appendix G, reference 1.1) and provided a Consultation Information Sheet.
- On 3 August 2022, Woodside emailed DoT (Appendix G, reference 1.9) and provided a copy of the Oil Pollution First Strike Plan (FSP) (**Appendix E**).
- On 13 September 2022, DoT responded to Woodside's email and provided comment on the Oil Pollution FSP, including requesting advice on:
  - whether a hydrocarbon spill could enter State waters at lower concentrations than response thresholds, and if so, the timeframes.
  - if there is a potential for a hydrocarbon spill to enter State waters, which Scientific Monitoring Plans would be activated.
- On 15 September 2022, Woodside responded, thanking DoT for its email and advised:
  - provided additional information regarding hydrocarbon spill modelling and timeframes.
  - provided additional information regarding the 10 Scientific Monitoring Plans in place as part of the OSPRMA for potential activation in the event of a spill.
- On 15 February 2023, Woodside emailed DoT providing additional information on the proposed activity (Appendix G, reference 3.7), and provided an updated Consultation Information Sheet
- On 21 February 2023, DoT responded and asked to be consulted if there any changes that may result in an increased risk of a spill impacting State waters from the proposed activities.
- On 31 March 2023, Woodside responded confirming that if there is a risk of a spill impacting State waters, the Department of Transport will be consulted.

Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim
DoT responded and asked to be consulted if there is a risk of a spill impacting State waters or further, if there is an increased risk of a spill impacting State waters from the proposed activities. DoT requested advice regarding: • whether a hydrocarbon spill could enter State waters at lower concentrations than response thresholds, and if so, the timeframes. • if there is a potential for a hydrocarbon spill to enter State waters, which Scientific Monitoring Plans would be activated.	Woodside has addressed the DoT's feedback, including: • confirming that if there is a risk of a spill impacting State waters, DoT will be consulted. • provided additional information regarding hydrocarbon spill modelling and timeframes. • provided additional information regarding the 10 Scientific Monitoring Plans in place as part of the OSPRMA for potential activation in the event of a spill. Woodside will provide DoT with a copy of the accepted Oil Pollution First Strike Plan, as referenced in the OSPRMA (**Appendix D**). Woodside will consult DoT if there is a spill impacting State water from the proposed activity, as referenced in the OSPRMA (**Appendix E**). 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	Woodside will provide DoT with a copy of the accepted Oil Pollution First Strike Plan, as referenced in the OSPRMA (**Appendix D**). Woodside will consult DoT if there is a spill impacting State water from the proposed activity, as referenced in the OSPRMA (**Appendix D**). Woodside considers the measures and controls in the EP are appropriate. No additional measures or controls are required.

	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 7.6**).	

Department of Planning, Lands and Heritage (DPLH)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 15 February 2023, Woodside emailed DPLH advising of the proposed activity (Appendix G, reference 3.8), and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed the DPLH following up on the proposed activity (Appendix G, reference 3.8.1) and requested any feedback.
- On 9 May 2023, Woodside emailed the DPLH following up on the proposed activity (Appendix G, reference 3.8.2) and requested any feedback.
- On 11 May 2023, DPLH emailed Woodside to advise it would have feedback for Woodside by the following week.
- On 11 May 2023, Woodside emailed DPLH to thank it for the update.
- On 16 May 2023, DPLH emailed Woodside thanking it for the opportunity to provide feedback on the proposed activities and confirmed it did not have any feedback.
- On 18 May 2023, Woodside emailed DPLH to thank it for its feedback.

Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim
DPLH confirmed it doesn't have any feedback on the proposed activities. Whilst feedback has been received, there were no objections or claims.	Woodside notes DPLH's confirmation that it doesn't have any feedback on the proposed activities. 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 7.6**).	The Environment Plan demonstrates that there are no known underwater heritage sites or shipwrecks within the Petroleum Activities Area and identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities (**Section 4.8.1.8**). While impacts to underwater heritage sites or shipwrecks are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in **Section 6.7.2** and **Section 6.7.3.** No additional measures or controls are required.

Pilbara Ports Authority

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 15 February 2023, Woodside emailed PPA advising of the proposed activity (Appendix G, reference 3.9), and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed the PPA following up on the proposed activity (Appendix G, reference 3.9.1) and requested any feedback.
- Pilbara Ports Authority was also consulted via the Karratha Community Liaison Group (see below).

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 7.6**).	No additional measures or controls are required.

Christmas Island Port

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 April 2023, Woodside had a phone call with Christmas Island Port:
  - Woodside explained that we're looking for feedback on a proposed activity on the North West Shelf that in a highly unlikely scenario could cause an oil spill, which depending on conditions could reach Christmas Island.
  - The Harbour Master and Port Manager provided their email address to forward the consultation information.
  - The Harbour Master and Port Manager noted that spill response capability on the island is very limited beyond a Tier 1 event.
- On 21 April 2023, Woodside emailed Christmas Island Port advising of the proposed activity (Appendix G, reference 3.85) and provided a Consultation Information Sheet. Woodside also provided additional information relating to oil spill modelling for the proposed activity and advised if a hydrocarbon release did occur and was expected to impact Christmas Island State/Port waters, Woodside would notify and work in consultation with regulators and relevant persons to identify locations at risk of contact and respond to the incident.
- On 26 April 2023, Christmas Island Port responded advising:
  - it had forwarded Woodside's consultation information to DITRDCA for their information.
  - It did not anticipate providing feedback as Woodside had addressed concerns raised during the 17 April 2023 discussion.
- On 26 April 2023, Woodside responded thanking the Christmas Island Port for its feedback and advised that Woodside is engaging DITRDCA separately.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Christmas Island Port: • Provided appropriate contact information for consultation. • Noted that spill response capability on the island is very limited beyond a Tier 1 event. • Advised it had forwarded Woodside's consultation information to DITRDCA for their information. • Advised they don't anticipate providing feedback as Woodside has addressed concerns raised during the 17 April 2023 discussion.	Woodside has addressed the Christmas Island Port's feedback, including: • Providing additional information relating to hydrocarbon spill modelling for the proposed activity/ • Advised Woodside's approach to identify locations at risk of contact and response to the incident in the event a hydrocarbon spill occurred. • advising that Woodside is engaging DITRDCA separately. 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 7.6**).	No additional measures or controls are required.
Commonwealth and WA State Government Departments or Agencies – Environment		
Department of Climate Change, Energy Efficiency and Water (DCCEEW) / Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries and Biosecurity (marine pests, vessels, aircraft and personnel) (formerly DAWE)		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 2 June 2022, Woodside emailed DCCEEW/DAFF, advising of the proposed activity including biosecurity matters (Appendix G, reference 1.5) and provided a Consultation Information Sheet. • On 20 June 2022, Woodside emailed DCCEEW/DAFF, following up on the proposed activity (Appendix G, reference 2.2), and provided a Consultation Information Sheet. • On 15 February 2023, Woodside emailed DCCEEW/DAFF providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet. • On 7 March 2023, Woodside emailed the DCCEW/DAFF following up on the proposed activity (Appendix G, reference 3.4.1) and requested any feedback.		

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 has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders. 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 7.6**).	The Environment Plan demonstrates that the proposed activities are outside the boundaries of a proclaimed Commonwealth Marine Park and identifies that there are no credible impacts to the values of any Commonwealth Marine Parks as a result of planned activities (**Section 4.7**). While impacts to Commonwealth Marine Parks are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in **Section 6.7.2** and **Section 6.7.3**. The Environment Plan demonstrates that there are no known underwater heritage sites or shipwrecks within the Petroleum Activities Area and identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities (**Section 4.8.1**). While impacts to underwater heritage sites or shipwrecks are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in **Section 6.7.2** and **Section 6.7.3**. 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 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 **Section 6.7.10**). Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Director of National Parks (DNP)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 13 June 2022, Woodside emailed DNP advising of the proposed activity considering potential risks to Australian marine Parks (Appendix G, reference 1.7), and provided a Consultation Information Sheet.
- On 29 June 2022, Woodside emailed DNP following up on the proposed activity (Appendix G, reference 2.9) and provided a Consultation Information Sheet.
- On 29 July 2022, DNP responded thanking Woodside for information provided on the EP and:
  - noted the planned activities do not overlap any AMPs
  - advised there are no claims and objections at this time.
  - referenced the NOPSEMA and Parks Australia guidance note that outlines what titleholders need to consider and evaluate for an EP and the North-west Marine Parks Network Management Plan 2018.
  - advised that it 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.
- On 29 July 2022, Woodside responded thanking DNP for its feedback and noted the DNP's confirmation that:
  - planned activities do not overlap any AMPs
  - there are no claims or objections at this time.
  - Woodside confirmed that it would contact the TDNP for emergency responses.
- On 15 February 2023, Woodside emailed DNP providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet.

- On 7 March 2023, Woodside emailed the DNP following up on the proposed activity (Appendix G, reference 3.4.1) and requested any feedback.
- On 21 April 2023, the DNP responded, thanked Woodside for the opportunity to comment.
  - The DNP advised it had no objections or claims as this activity is outside of any Australian Marine Parks (AMP) and as such there are no approvals required from DNP.
  - The DNP noted it has worked closely with NOPSEMA to develop and publish a guidance note and included link to the online document.
  - The DNP noted that the EP should:
    - identify and manage all impacts and risks on Australian marine park values (including ecosystem values) to an acceptable level and consider all options to avoid or reduce them to as low as reasonably practicable.
    - clearly demonstrate that the activity will not be inconsistent with the management plan.
  - The DNP also noted:
    - the North-west Marine Parks Network Management Plan 2018 (management plan) came into effect on 1 July 2018 and provides further information on values for Gascoyne Marine Park, which is the nearest to the proposed activity.
    - Australian marine park values are broadly defined into four categories: natural (including ecosystems), cultural, heritage and socio-economic. Information on the values for the marine parks is also located on the Australian Marine Parks Science Atlas.
  - The DNP asked to be made aware of incidences which occur within a marine park or are likely to impact on a marine park as soon as possible.
  - The DNP requested notification to be provided to the 24 hour Marine Compliance Duty Officer and 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; and
    - contact details for the response coordinator.
  - The DNP noted it may request daily or weekly Situation Reports, depending on the scale and severity of the pollution incident.
- On 2 May 2023, Woodside responded to the DNP thanking it for its response and:
  - confirmed the planned activities and operational areas under the proposed EP does not overlap any AMPs.
  - noted the DNP's advice that it has no objections or claims with respect to the proposed EPs, and as such there are no approvals required from DNP. confirmed Woodside will contact
  - the DNP if details regarding the activity change and result in an overlap with or new impact to a marine park, or for emergency responses.

Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim
DNP responded and: • advised it had no objections or claims with respect to the proposed activity. • confirmed that planned activities do not overlap any AMPS and there are no authorisation requirements from the DNP.	Woodside has addressed the DNP's feedback including: • confirming that planned activities and the Operational Area for this EP do not overlap any AMPs; • noted DNP's advice that it had no objections or claims with respect to the proposed activity; and • confirmed that Woodside will contact the DNP if details regarding the activity change and result in an overlap	The Environment Plan demonstrates that the proposed activities are outside the boundaries of a proclaimed Commonwealth Marine Park and identifies that there are no credible impacts to the values of any Commonwealth Marine Parks as a result of planned activities (**Section 4.7**). While impacts to Commonwealth Marine Parks are possible in the event of an unplanned

• asked to be made aware of incidences which occur within a marine park or are likely to impact on a marine park as soon as possible. • requested notification to be provided to the 24 hour Marine Compliance Duty Officer.	with or new impact to a marine park, or for emergency responses. 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 7.6**).	hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in **Section 6.7.2** and **Section 6.7.3**. This EP demonstrates how Woodside will identify and managed 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 6.8**). 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 First Strike Plan (**Appendix E**). No additional measures or controls are required.

DNP - Christmas Island National Park Marine and Island Parks Branch

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 23 March 2023, Woodside emailed the DNP - Christmas Island National Park Marine and Island Parks Branch advising of the proposed activity (Appendix G, reference 3.5), and provided a Consultation Information Sheet.
- On 17 April 2023, Woodside emailed the DNP - Christmas Island National Park Marine and Island Parks Branch following up on the proposed activity (Appendix G, reference 3.5.1) and to request any feedback.

Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim
No feedback, objections or claims received despite follow up.	Woodside notes it has received feedback from the Director of National Parks, which the Christmas Island National Park Marine and Island Parks Branch is part of (see 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 7.6**).	The Environment Plan demonstrates that the proposed activities are outside the boundaries of the Christmas Island Marine Park and identifies that there are no credible impacts to the values of the Christmas Island Marine Park as a result of planned activities (**Section 4.7**). While impacts to the Christmas Island Marine Park is possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon

		spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in **Section 6.7.2** and **Section 6.7.3**. This EP demonstrates how Woodside will identify and managed 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 6.8**). No additional measures or controls are required.
Ningaloo Coast World Heritage Advisory Committee (NCWHAC)		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 15 February 2023, Woodside emailed NCWHAC advising of the proposed activity (Appendix G, reference 3.10), and provided a Consultation Information Sheet. • On 7 March 2023, Woodside emailed the NCWHAC following up on the proposed activity (Appendix G, reference 3.10.1) and to request any feedback.		
Summary of Feedback, Objection or Claim	**Summary of Feedback, Objection or Claim**	**Summary of Feedback, Objection or Claim**
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 7.6**).	The Environment Plan demonstrates that the proposed activities are outside the boundaries of the Ningaloo Marine Park and identifies that there are no credible impacts to the values of the Ningaloo Marine Park (**Section 4.7**). While impacts to the Ningaloo Marine Park are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in **Section 6.7.2** and **Section 6.7.3**. No additional measures or controls are required.

Department of Biodiversity, Conservation and Attractions (DBCA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 14 June 2022, Woodside emailed DBCA advising of the proposed activity considering potential risks to Australian marine Parks (Appendix G, reference 1.18), and provided a Consultation Information Sheet.
- On 22 June 2022, DBCA responded thanking Woodside for the consultation information and advised that it had no comments.
- On 22 June 2022, Woodside responded thanking DBCA for its feedback.
- On 15 February 2023, Woodside emailed DBCA providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet.
- On 24 February 2023, DBCA responded with several points:
  - Baseline values and state of the potentially affected environment of ecologically important areas should be appropriately understood and documented prior to any operations commencing that have the potential to lead to hydrocarbon releases.
  - Woodside should establish appropriate baseline survey data on the current state of areas supporting important ecological values and any current contamination if present within the area of potential impact of hydrocarbon releases.
  - DBCA encourages Woodside to acquire the necessary information to implement a Before-After, Control-Impact (BACI) framework in planning and evaluating its management response. This may include independently monitoring and collecting data where required or identifying other data sources.
  - DBCA also provided an 'Incidents and Emergency Response' in case of a hydrocarbon release.
- On 13 March 2023, Woodside responded, thanking DBCA for providing feedback and confirming that an overview of their comments and response will be included in the proposed EP following acceptance of the EPs by NOPSEMA. Woodside also advised DBCA:
  - Areas of ecological importance in the proximity of the Environment Plan Operational Areas will not be impacted by planned activities.
  - Woodside's oil spill scientific monitoring program (SMP) will provide for a quantitative assessment of the overall environmental impacts in the event of an unplanned hydrocarbon release or any release event with the potential to contact sensitive environmental receptors.
  - Woodside informed DBCA of its National Light Pollution Guidelines.
  - Woodside provided information on its Incidents and Emergency Response.
  - Woodside notes that DBCA will not implement an oiled wildlife management response on behalf of a petroleum operator.

Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim
DBCA provided feedback relating to: • documentation of areas potentially affected by any operations commencing that have the potential to lead to hydrocarbon releases • requesting Woodside to establish appropriate baseline survey data on the current state of areas	Woodside has addressed the DBCA's feedback, including: • Areas of ecological importance in the proximity of the Environment Plan Operational Areas will be not impacted by planned activities. • Woodside's oil spill scientific monitoring program (SMP) will provide for a quantitative assessment of the	The Environment Plan demonstrates that the proposed activities are outside the boundaries of a proclaimed State Marine Park and identifies that there are no credible impacts to the values of any State Marine Parks as a result of planned activities (**Section 4.7**). While impacts to Commonwealth Marine Parks are possible in the

• DBCA encourages Woodside to acquire the necessary information to implement a Before-After, Control-Impact (BACI) framework • DBCA also provided an 'Incidents and Emergency Response' in case of a hydrocarbon release	overall environmental impacts in the event of an unplanned hydrocarbon release, or any release event with the potential to contact sensitive. 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 7.6**).	event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in **Section 6.7.2** and **Section 6.7.3**. Woodside considers the measures and controls in the EP are appropriate. No additional measures or controls are required.

Commonwealth and State Government Departments or Agencies – Industry

Department of Industry, Science and Resources (DISR) (formerly DISER)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed DISR advising of the proposed activity (Appendix G, reference 1.1) and provided a Consultation Information Sheet.
- On 15 February 2023, Woodside emailed DISR providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet
- On 7 March 2023, Woodside emailed the DISR following up on the proposed activity (Appendix G, reference 3.4.1) and to request any feedback

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 7.6**).	No additional measures or controls are required.

Department of Mines, Industry Regulation and Safety (DMIRS)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed DMIRS advising of the proposed activity (Appendix G, reference 1.1) and provided a Consultation Information Sheet.
- On 15 February 2023, Woodside emailed DMIRS providing additional information on the proposed activity (Appendix G, reference 3.4), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed the DMIRS following up on the proposed activity (Appendix G, reference 3.4.1) and requested any feedback.

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 provide notifications to DMIRS prior to the commencement and at the end of the activity, as referenced at **Section 7.8.2** this EP. 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 7.6**).	Woodside will provide notifications to DMIRS prior to the commencement and at the end of the activity, as referenced at **Section 7.8.2** this EP. No additional measures or controls are required.

Commonwealth Commercial fisheries and representative bodies

North West Slope and Trawl Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed North West Slope and Trawl Fishery advising of the proposed activity (Appendix G, reference 1.10) and provided a Consultation Information Sheet, and fisheries map.
- On 20 June 2022, Woodside emailed North West Slope and Trawl Fishery following up on the proposed activity (Appendix G, reference 2.4) and provided a Consultation Information Sheet and fisheries map.
- On 15 February 2023, Woodside emailed North West Slope and Trawl Fishery advising of the proposed activity (Appendix G, reference 3.11), and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed the North West Slope and Trawl Fishery following up on the proposed activity (Appendix G, reference 3.11.1) and to request any feedback.

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 has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West

		Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Western Deepwater Trawl Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 15 February 2023, Woodside emailed Western Deepwater Trawl Fishery advising of the proposed activity (Appendix G, reference 3.11), and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Western Deepwater Trawl Fishery following up on the proposed activity (Appendix G, reference 3.11.1) and to request any feedback.

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 has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Western Tuna and Billfish Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 15 February 2023, Woodside emailed Western Tuna and Billfish Fishery advising of the proposed activity (Appendix G, reference 3.12), and provided a Consultation Information Sheet.

- On 7 March 2023, Woodside emailed Western Tuna and Billfish Fishery following up on the proposed activity (Appendix G, reference 3.12.1) and to request any feedback.

Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim	Summary of Feedback, Objection or Claim
No feedback, objections or claims received despite follow up.	Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Christmas Island Line Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 21 April 2023, Woodside emailed Christmas Island Line Fishery advising of the proposed activity (Appendix G, reference 3.86, reference 3.86.1 and reference 3.86.2) and provided a Consultation Information Sheet.
- On 2 May 2023, Woodside send a letter to an additional Christmas Island Line Fishery licence holder following advice from DITRDCA and DPIRD, advising of the proposed activity (Appendix G, reference 3.86.3) and provided a Consultation Information Sheet.
- On 26 April 2023, Woodside received an email from a Christmas Island Fishery licence holder thanking Woodside for the information and advised that their operations are based on Christmas Island which is a long way from the drilling activities so won't be a problem.
- On 9 June 2023, Woodside sent a letter/email to the Christmas Island Line Fishery following up on feedback with respect to the proposed activity (Appendix G, reference 3.87, reference 3.87.1 and reference 3.87.2).
- On 12 June 2023, Woodside responded to the Christmas Island Fishery licence holder thanking them for their feedback, and in particular that it doesn't anticipate any impact from Woodside's planned activities, and noted:
    - Woodside details in its environment plans the EMBA, which is the largest extent where the PLA08 drilling and subsea activity could potentially have an environmental impact, from both planned and unplanned activities.

○ the EMBA does not represent the extent of predicted impact in the event of a hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths a highly unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release. ○ the EMBA for this EP has the potential to enter Christmas Island waters and provided a figure. ○ Woodside has mitigation and management measures in place to prevent this occurring, as well as spill response arrangements in the event it did occur.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Environment Plan Controls**
A Christmas Island Line Fishery licence holder advised that their operations are based on Christmas Island which is a long way from the drilling activities so won't be a problem. Whilst feedback has been received, there were no objections or claims.	Woodside has addressed the Christmas Island Fishery licence holders feedback, including: • Woodside details in its environment plans the EMBA, which is the largest extent where the PLA08 drilling and subsea activity could potentially have an environmental impact, from both planned and unplanned activities. • the EMBA does not represent the extent of predicted impact in the event of a hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths a highly unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release. • the EMBA for this EP has the potential to enter Christmas Island waters and provided a figure. Woodside has mitigation and management measures in place to prevent this occurring, as well as spill response arrangements in the event it did occur. Woodside has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Commonwealth Fisheries Association (CFA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed the CFA advising of the proposed activity (Appendix G, reference 1.15) and provided a Consultation Information Sheet and fisheries map (Appendix G, reference 1.20).
- On 20 June 2022, Woodside emailed CFA following up on the proposed activity (Appendix G, reference 2.3) and provided a Consultation Information Sheet and fisheries map.
- On 15 February 2023, Woodside emailed CFA providing additional information on the proposed activity (Appendix G, reference 3.13), and provided an updated Consultation Information Sheet.
- On 15 February 2023, CFA responded thanking Woodside for its email and advised that CFA is not resourced to give feedback and Woodside will need to direct enquiries directly to the associations that represent the directly affected fisheries/fishers.
- On 17 March 2023, Woodside responded thanking CFA for its email and confirmed that Woodside has provided consultation information directly to licence holders it has assessed as 'relevant persons' for the above proposed EPs as well as their fishery representative bodies.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
CFA responded and advised that CFA is not resourced to give feedback and asked Woodside to direct enquiries directly to the associations that represent the directly affected fisheries/fishers. Whilst feedback has been received, there were no objections or claims.	Woodside has addressed the CFA's feedback, including confirming it has provided consultation information directly to licence holders it has assessed as 'relevant persons' for the proposed EP as well as their fishery representative bodies. Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Tuna Australia

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Tuna Australia advising of the proposed activity (Appendix G, reference 1.15) and provided a Consultation Information Sheet and fisheries map.
- On 20 June 2022, Woodside emailed Tuna Australia following up on the proposed activity (Appendix G, reference 2.3) and provided a Consultation Information Sheet and fisheries map.
- On 13 March 2023, Woodside emailed Tuna Australia providing additional information on the proposed activity (Appendix G, reference 3.15), and provided an updated Consultation Information Sheet
- On 15 March 2023, Tuna Australia responded, providing Woodside their position statement for engaging with energy companies seeking consultation advice from stakeholders on environmental plans and project proposals.
    - An overview of Tuna Australia's functions, interests and activities as well as the organisation's company objectives.
    - The geographic areas that Tuna Australia represents by membership Statutory Fishing Rights
    - A recommendation that project proponents also engage with the Australian Southern Bluefin Tuna Industry Association for any proposals in the Southern Bluefin Tuna fishing area.
    - The position that Tuna Australia considers itself a 'relevant person' consistent with NOPSEMA guidelines.
    - A request that Tuna Australia be contacted when any proposed activity has the potential to impact vessel navigation, fishing activities, and/or the conservation of fish resources consistent with the Offshore Petroleum and Greenhouse Gas Storage Act 2006.
    - A request for a map from proponents of the proposed activity to determine if its member interests may be affected on a case-by-case basis.
    - A request that where potential effects exist, there is a need for a service agreement. Tuna Australia advised it can no longer coordinate consultation with offshore energy activities on behalf of our members without a service agreement in place. Tuna Australia requests proponents execute our services agreement and provide information in a written succinct manner including estimated boundaries for extent of planned activity impacts (i.e. artificial light, noise, discharges etc) as well as activities within the operational area. This advice will be distributed to members and non-members holding SFRs in the Eastern (114 concession holders) and Western (61 concession holders) Tuna and Billfish Fisheries for comment. Information provided would be relevant to tuna and billfish fisheries in the area that may affect vessel navigation, fishing activities, and/or the conservation of fish resources based on the planned aspects of the activity, and proposed control measures to manage impacts.
    - Tuna Australia noted that it wishes to engage constructively with project proponents for all situations where there is potential for conflict with vessel navigation, access to fishing area and/or gear, and the biology of target fish and baitfish. Advice provided can change annually due to the dynamic nature of our fisheries.
    - Tuna Australia encouraged companies requiring advice from our sector to enter into a consultation services agreement with Tuna Australia to support their applications. Noting that Tuna Australia may be able to provide information on vessel navigation, fishing activities and/or the conservation of fish resources that may be affected that is not publicly available and will be an important input to environmental impact and risk assessment processes.
- On 26 May 2023, Woodside had a phone call with the Tuna Australia CEO and:
    - Explained that Woodside would like to discuss a path forward following receipt of Tuna Australia's Position Statement across its EP activities, including the activities proposed under this EP.
    - Noted Tuna Australia's correspondence to NOPSEMA and copied to Woodside dated 17 May 2023, with respect to unrelated EPs.
    - Noted Tuna Australia's previous EP consultation feedback that Woodside had responded to with respect to unrelated EPs.
    - Reiterated that Woodside does not expect Tuna Australia to provide a consultation report for each of its EPs and are concerned about this potential misalignment on expectations.

- Tuna Australia advised it would like to discuss a way forward as woodside suggested and requested Woodside call Tuna on 30 May 2023, which Woodside committed to.

- On 2 June 2023, Woodside called Tuna Australia to follow up on its phone call on 26 May 2023.
  - 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.
  - 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.
  - 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.
  - 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.
- On 2 June 2023, Woodside had a text message exchange with Tuna Australia and Tuna Australia advised it would call Woodside the following week.
- On 8 June 2023, Tuna Australia CEO returned Woodside's call. Asked Woodside to call back on Wednesday 14 June 2023.
- On 14 June 2023, Woodside returned Tuna Australia's phone call. Left a message and asked Tuna Australia to call back.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Tuna Australia responded, providing Woodside their position statement for engaging with energy companies seeking consultation advice from stakeholders on environmental plans and project proposals. The position statement requests that where there is the potential for the proposed activity to impact Tuna Australia's functions, interests or activities or that of its members, there is a need for a service agreement to be executed. Whilst feedback has been received, there were no objections or claims.	The fishery management area for the Western Tuna and Billfish Fishery, which Tuna Australia represents, overlaps both the Operational Area and EMBA. However, there is considered to be no potential for interaction within the Operational Area as no recent fishing effort has occurred within or nearby to the Operational Area. The Fishery Status Report 2022 indicates current fishing effort is concentrated between Carnarvon and Albany and occurred within the EMBA in the last five years (2016 - 2021) (Patterson et al., 2022). Therefore, there may be potential for interaction with the Western Tuna and Billfish Fishery in the EMBA. Woodside acknowledges previous feedback received from Tuna Australia with respect to separate EPs. Woodside confirms that it conducts impact and risk assessments for its activities in order to identify and manage environmental impacts and risks, which includes potential interaction with recreational and commercial fishers. To manage potential interactions, Woodside has the following controls in place with regard to the Petroleum Activities Program (PAP) of the PLA08 EP:	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures of controls are required.

	Vessels adhere to regulatory requirements for navigational safety. Notification to AHO of activities and movements to allow generation of navigation warnings (Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) (including AUSCOAST warnings where relevant)). Establishment of temporary exclusion zones by relevant vessels which are communicated to marine users. Vessels comply with regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements. Woodside also notes the following in relation to the points raised in Tuna Australia's feedback on other Woodside EPs: Routine marine vessel discharges will be managed in accordance with legislative and regulatory requirements (e.g. marine orders). Any localised impacts to water quality, sediment quality and marine fish are likely to be intermittent and localised and not expected to impact any commercial fisheries in the area. Acoustic emissions from vessels in field will be managed complying with regulatory requirements (e.g. EPBC Regulations 2000 – Part 8 Division 8.1). Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders. 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 7.6**).	

Christmas Island Fisheries Advisory Committee (FAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 23 March 2023, Woodside emailed the Christmas Island Fisheries Advisory Committee (FAC) advising of the proposed activity (Appendix G, reference 3.19), and provided a Consultation Information Sheet.
- On 17 April 2023, Woodside emailed Christmas Island FAC following up on the proposed activity (Appendix G, reference 3.19.1) and to request any feedback.
- On 17 April 2023, Christmas Island FAC emailed Woodside, advising there are three licensed commercially licensed fisheries parties on Christmas Island and provided their contact details. Christmas Island Fisheries Advisory Committee also asked for clarifications regarding location of the activity.
- On 26 April 2023, Woodside emailed Christmas Island FAC, thanking them for their email and confirmed Woodside had provided consultation information to the three fisheries. Woodside clarified the location of the activity by providing figures of the Operational Area and EMBA.
- On 9 June 2023, Woodside emailed Christmas Island FAC:
  - Thanking it for its feedback and providing the Christmas Island fishery licence holder contact details.
  - Confirmed that Woodside had received feedback from one licence holder.
  - Advised that Woodside would soon be submitting this EP to the Regulator for assessment and requested any further feedback from the FAC or licence holders.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Christmas Island FAC provided feedback including: • Advising there are three licensed commercially licensed fisheries parties on Christmas Island and provided their contact details. • Requested clarification regarding location of the activity. Whilst feedback has been received, there were no objections or claims.	Woodside has addressed the Christmas Island FAC's feedback, including: • Confirming Woodside had provided consultation information to the three fisheries. • Woodside clarified the location of the activity by providing figures of the Operational Area and EMBA. • Woodside has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia, Christmas Island FAC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Pearl Producers Association

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed the Pearl Producers Association advising of the proposed activity (Appendix G, reference 1.16) and provided a Consultation Information Sheet and fisheries map.
- On 15 February 2023, Woodside emailed Pearl Producers Association providing additional information on the proposed activity (Appendix G, reference 3.16), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Pearl Producers Association following up on the proposed activity (Appendix G, reference 3.16.1) and to request any feedback.

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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

State Commercial fisheries and representative bodies

Marine Aquarium Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Marine Aquarium Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet.
- On 9 March 2022, Woodside sent a letter to Marine Aquarium Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders.	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP.

	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 7.6**).	Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Mackerel Managed Fishery (Area 1, 2 and 3)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside sent a letter to Mackerel Managed Fishery (Area 2) advising of the proposed activity (Appendix G, reference 1.11) and provided a Consultation Information Sheet, and fisheries map.
- On 20 June 2022, Woodside sent a letter to Mackerel Managed Fishery (Area 2) following up on the proposed activity (Appendix G, reference 2.7) and provided a Consultation Information Sheet and fisheries map.
- On 17 February 2023, Woodside sent a letter to Mackerel Managed Fishery (Area 1, 2 and 3) providing additional information on the proposed activity (Appendix G, reference 3.17) and provided an updated Consultation Information Sheet.
- On 9 March 2023, Woodside sent a letter Mackerel Managed Fishery (Area 1, 2 and 3) following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement

		and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Pilbara Crab Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent letter to Pilbara Crab Managed Fishery providing additional information on the proposed activity (Appendix G, reference 3.17), and provided an updated Consultation Information Sheet
- On 9 March 2023, Woodside sent letter to Pilbara Crab Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

West Coast Deep Sea Crustacean Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to West Coast Deep Sea Crustacean Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet.
- On 9 March 2023, Woodside sent a letter to West Coast Deep Sea Crustacean Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Specimen Shell Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Specimen Shell Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet.
- On 9 March 2023, Woodside sent a letter to Specimen Shell Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and

		Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Pearl Oyster Managed Fishery		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 17 February 2023, Woodside sent a letter to Pearl Oyster Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to Pearl Oyster Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.		
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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Land Hermit Crab Managed Fishery		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 17 February 2023, Woodside sent a letter to the Land Hermit Crab Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet.		

- On 9 March 2023, Woodside sent a letter to the Land Hermit Crab Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Onslow Prawn Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Onslow Prawn Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet.
- On 9 March 2023, Woodside sent a letter to Onslow Prawn Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and

	Woodside will apply its Management of Change and Revision process (see **Section 7.6**).	relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Western Australian Sea Cucumber Fishery		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 17 February 2023, Woodside sent a letter to Western Australian Sea Cucumber Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to Western Australian Sea Cucumber Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.		
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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Exmouth Gulf Prawn Managed Fishery		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 17 February 2023, Woodside sent a letter to Exmouth Gulf Prawn Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to Exmouth Gulf Prawn Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.		
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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Gascoyne Demersal Scalefish Fishery		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 17 February 2023, Woodside sent a letter to Gascoyne Demersal Scalefish Fishery advising of the proposed activity (Appendix G, reference 3.18), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to Gascoyne Demersal Scalefish Fishery following up on the proposed activity (Appendix G, reference 3.18.1) and to request any feedback.		

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

West Coast Rock Lobster Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to West Coast Rock Lobster Fishery advising of the proposed activity (Appendix G, reference 3.18), and provided a Consultation Information Sheet.
- On 9 March 2023, Woodside sent a letter to West Coast Rock Lobster Fishery following up on the proposed activity (Appendix G, reference 3.18.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and

		Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Kimberley Crab Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section **5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Kimberley Crab Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet.
- On 9 March 2023, Woodside sent a letter to Kimberley Crab Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6).	Woodside has assessed the relevancy of Commonwealth and State fisheries in Section 4.8.2 of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as PS 1.5 in this EP. No additional measures or controls are required.

Kimberley Prawn Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Kimberley Prawn Managed Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet.

- On 9 March 2023, Woodside sent a letter to Kimberley Prawn Managed Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6).	Woodside has assessed the relevancy of Commonwealth and State fisheries in Section 4.8.2 of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as PS 1.5 in this EP. No additional measures or controls are required.

Kimberley Gillnet and Barramundi Managed Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in Section 5.8 and below.

Summary of information provided and record of consultation:

- On 28 February 2023, Woodside sent a letter to Kimberley Gillnet and Barramundi Managed Fishery advising of the proposed activity (Appendix G, reference 3.20), and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside sent a letter to Kimberley Gillnet and Barramundi Managed Fishery following up on the proposed activity (Appendix G, reference 3.20.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6).	Woodside has assessed the relevancy of Commonwealth and State fisheries in Section 4.8.2 of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned

		activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as PS 1.5 in this EP. No additional measures or controls are required.
Exmouth Gulf Beach Seine and Mesh Net Managed Fishery		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 27 February 2023, Woodside sent a letter to Exmouth Gulf Beach Seine and Mesh Net Managed Fishery advising of the proposed activity (Appendix G, reference 3.21), and provided a Consultation Information Sheet. • On 31 March 2023, Woodside sent a letter to Exmouth Gulf Beach Seine and Mesh Net Managed Fishery following up on the proposed activity (Appendix G, reference 3.21.1) and to request any feedback.		
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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. Woodside considers the measures and controls in the EP address the fisheries functions, interests or activities. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Pilbara Trawl Fishery		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 8 March 2023, Woodside emailed Pilbara Trawl Fishery advising of the proposed activity (Appendix G, reference 3.22) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Pilbara Trawl Fishery following up on the proposed activity (Appendix G, 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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Pilbara Trap Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Pilbara Trap Fishery advising of the proposed activity (Appendix G, reference 1.12) and provided a Consultation Information.
- On 20 June 2022, Woodside emailed Pilbara Trap Fishery following up on the proposed activity (Appendix G, reference 2.8) and provided a Consultation Information Sheet and fisheries map.
- On 8 March 2023, Woodside emailed Pilbara Trap Fishery providing additional information on the proposed activity (Appendix G, reference 3.22) and provided an updated Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Pilbara Trap Fishery following up on the proposed activity (Appendix G, 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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Pilbara Line Fishery

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Pilbara Line Fishery advising of the proposed activity (Appendix G, reference 1.12) and provided a Consultation Information Sheet, and fisheries map.
- On 20 June 2022, Woodside emailed Pilbara Line Fishery following up on the proposed activity (Appendix G, reference 2.8) and provided a Consultation Information Sheet and fisheries map.
- On 8 March 2023, Woodside emailed Pilbara Line Fishery providing additional information on the proposed activity (Appendix G, reference 3.22) and provided an updated Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Pilbara Line Fishery following up on the proposed activity Appendix G, 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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the

	Woodside will apply its Management of Change and Revision process (see **Section 7.6**).	potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Western Australian Fishing Industry Council (WAFIC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 27 May 2022, Woodside had a phone call with WAFIC to request advice regarding consultation with the Mackerel Managed Fishery (Area 2) and advised that it would follow up this request with an email.
- On 27 May 2022, Woodside emailed WAFIC requesting updated advice regarding consultation with the Mackerel Managed Fishery (Area 2) for this EP revision.
- On 1 June 2022, WAFIC responded to Woodside providing updated advice to consult the Mackerel Managed Fishery (Area 2).
- On 1 June 2022, Woodside responded to WAFIC thanking it for its early advice and confirmed that it would consult the Mackerel Managed Fishery (Area 2).
- On 2 June 2022, Woodside emailed WAFIC advising of the proposed activity (Appendix G, reference 1.17) and provided a Consultation Information Sheet, and fisheries map (Appendix G, reference 1.21).
- On 20 June 2022, Woodside emailed WAFIC following up on the proposed activity (Appendix G, reference 2.6) and provided a Consultation Information Sheet and fisheries map.
- On 4 July 2022, WAFIC responded advising that as the EP is a revision, its previous comments remain valid and requested confirmation that WAFIC and relevant commercial fishers will be notified in the event of an unplanned release event.
- On 18 July 2022, Woodside responded thanking WAFIC for its feedback and advised:
  - Woodside's EP outlines its planned response to a spill event.
  - in the unlikely event of a spill, Woodside prioritises engagement with those stakeholders who may be directly affected.
  - should it be identified that commercial fishers may be affected, Woodside would, at the relevant time, engage with these parties.
- On 16 February 2023, Woodside emailed WAFIC providing additional information on the proposed activity (Appendix G, reference 3.23), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed WAFIC following up on the proposed activity (Appendix G, reference 3.23.1) and requested any feedback.
- On 5 May 2023, Woodside had a phone call with WAFIC to follow up on a number of EPs, including the activities proposed under this EP, and to request any further feedback. Woodside committed to providing WAFIC with a consolidated email outlining all the EPs Woodside is currently consulting WAFIC on for ease of feedback.
- On 5 May 2023, Woodside sent an email to WAFIC providing the status of feedback on a number of EPs, including the activities proposed under this EP. Woodside advised it would soon be submitting the EP for assessment and requested any further feedback.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
WAFIC requested confirmation that relevant commercial fishers will be notified in the event of an unplanned release event.	Woodside has addressed WAFIC's feedback, including advising: • Woodside's EP outlines its planned response to a spill event. • In the unlikely event of a spill, Woodside prioritises engagement with those stakeholders who may be directly affected. • Should it be identified that commercial fishers may be affected, Woodside would, at the relevant time, engage with these parties. Woodside has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Western Rock Lobster Council		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 16 February 2023, Woodside emailed the Western Rock Lobster Council regarding Woodside's environment plan consultation and engagement with the Council and the West Coast Rock Lobster Fishery. • On 27 February 2023, the Western Rock Lobster Managed Fishery emailed Woodside to request a map of all the activities Woodside is undertaking that it's relevant to and if there are timeframes in relation to each activity. • On 1 March 2023, Woodside emailed the Western Rock Lobster Council advising of the proposed activity and provided a Consultation Information Sheet (includes maps, summaries of potential key impacts and risks, and associated management measures) and timeframe for feedback. • On 14 March 2023, Woodside emailed the Western Rock Lobster Council following up on the proposed activity. • On 20 March 2023, Western Rock Lobster responded, thanking Woodside for their email and requested an extension of 2 weeks on the feedback dates. • On 30 March 2023, Woodside responded confirming the requested extension to provide feedback.		

- On 12 April 2023, Woodside emailed the Western Rock Lobster Council to follow up on feedback for a number of EPs, including the activities proposed under this EP.
- On 10 May 2023, Woodside had a phone call with the Western Rock Lobster Council to follow up on feedback relating to a number of EPs, including the activities proposed under this EP. Woodside referred to its email dated 12 April 2023 which referenced the EPs Woodside had provided consultation information to the Western Rock Lobster Council for. The Western Rock Lobster Council advised it would come back to Woodside the same day if it had any feedback.
- On 11 May 2023, Western Rock Lobster Council emailed Woodside to advise it didn't have any comments on the EPs, including the activities proposed under this EP.
- On 11 May 2023, Woodside responded to thank the Western Rock Lobster Council for its response and confirmed Woodside will continue to engage the Western Rock Lobster Council with respect to applicable EPs.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Western Rock Lobster Council emailed Woodside to request a map of all the activities Woodside is undertaking that it's relevant to and if there are timeframes in relation to each activity. Western Rock Lobster council confirmed it didn't have any comments on the proposed activities. Whilst feedback has been received, there were no objections or claims.	Western Rock Lobster Council confirmed it didn't have any comments on the proposed activities. Woodside has provided consultation information to DPIRD, WAFIC, the Western Rock Lobster Council and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Recreational marine users and representative bodies

Exmouth Recreational Marine Users

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Exmouth Recreational Marine Users advising of the proposed activity (Appendix G, reference 3.24), and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Exmouth Recreational Marine Users following up on the proposed activity (Appendix G, reference 3.24.1) and to request any feedback.

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 has provided consultation information to Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. 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 7.6**).	No additional measures or controls are required.
Gascoyne Recreational Marine Users		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 17 February 2023, Woodside sent a letter to Gascoyne Recreational Marine Users advising of the proposed activity (Appendix G, reference 3.25), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to Gascoyne Recreational Marine Users following up on the proposed activity (Appendix G, reference 3.25.1) and to request any feedback.		
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 has provided consultation information to Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. 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 7.6**).	No additional measures or controls are required.
Pilbara/Kimberley Recreational Marine Users		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Pilbara/Kimberley Recreational Marine Users advising of the proposed activity (Appendix G, reference 3.25), and provided a Consultation Information Sheet.
- On 9 March 2023, Woodside sent a letter to Pilbara/Kimberley Recreational Marine Users following up on the proposed activity (Appendix G, reference 3.25.1) and to request any feedback.

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 has provided consultation information to Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. 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 7.6**).	No additional measures or controls are required.

Karratha Recreational Marine Users *(formerly Karratha-based charter boat, tourism and dive operators)*

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Karratha based charter boat, tourism and dive operators advising of the proposed activity (Appendix G, reference 1.1) and a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed Karratha Recreational Marine Users providing additional information on the proposed activity (Appendix G, reference 3.24), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Karratha Recreational Marine Users following up on the proposed activity (Appendix G, reference 3.24.1) and to request any feedback.

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 has provided consultation information to Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users.	No additional measures or controls are required.

	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 7.6**).	

Christmas Island Recreational Marine Users

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 8 March 2023, Woodside sent a letter/email to Christmas Island Recreational Marine Users advising of the proposed activity (Appendix G, reference 3.27 and 3.28), and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside sent a letter/email to Christmas Island Recreational Marine Users following up on the proposed activity (Appendix G, reference 3.27.1 and 3.28.1) and to request any feedback.

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 has provided consultation information to Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. 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 7.6**).	No additional measures or controls are required.

Recfishwest

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Recfishwest advising of the proposed activity (Appendix G, reference 1.1) and a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed Recfishwest providing additional information on the proposed activity (Appendix G, reference 3.28), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Recfishwest following up on the proposed activity (Appendix G, reference 3.28.1) and to request any feedback.
- On 9 March 2023, Recfishwest responded with the following comments:
  - Potential impacts on recreational fishing, including charter fishing, due to the proposed activities' proximity to the Montebello Islands.

- Acknowledgment of the operational areas and exclusion zones, and the importance of being informed on the proposal's progress to communicate with the recreational fishing community.
- No objection to the plug and abandonment of the Julimar South-1 well if Woodside does not develop it, as subsea structures can develop productive fish habitats.
- No objection to Woodside's proposed activities.

- On 18 March 2023, Woodside responded thanking Recfishwest for their feedback and confirmed that Woodside will provide commencement and cessation of activity notifications to Recfishwest for the proposed activities.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Response from Recfishwest requesting info on: • It has no objections to the proposed activity. • Potential impacts on recreational fishing, including charter fishing, due to the proposed activities' proximity to the Montebello Islands. • Acknowledgment of the operational areas and exclusion zones, and the importance of being informed on the proposal's progress to communicate with the recreational fishing community.	Woodside has addressed Recfishwest's feedback including confirming it will provide commencement and cessation of activity notifications. Woodside has provided consultation information to Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. 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 7.6**).	Woodside will provide notifications to Recfishwest prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. Woodside considers the measures and controls in the EP are appropriate.

Marine Tourism WA

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Marine Tourism WA advising of the proposed activity (Appendix G, reference 1.1) and a Consultation Information Sheet.
- On 16 February 2023, Woodside emailed Marine Tourism WA providing additional information on the proposed activity (Appendix G, reference 3.28), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Marine Tourism WA following up on the proposed activity (Appendix G, reference 3.28.1) and to request any feedback.

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 has provided consultation information to Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. 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 7.6**).	No additional measures or controls are required.
WA Game Fishing Association		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 2 June 2022, Woodside emailed WA Game Fishing Association advising of the proposed activity (Appendix G, reference 1.1) and a Consultation Information Sheet. • On 16 February 2023, Woodside emailed WA Game Fishing Association providing additional information on the proposed activity (Appendix G, reference 3.28), and provided an updated Consultation Information Sheet. • On 7 March 2023, Woodside emailed WA Game Fishing Association following up on the proposed activity (Appendix G, reference 3.28.1) and to request any feedback.		
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 has provided consultation information to Recfishwest, Marine Tourism WA, WA Game Fishing Association and individual recreational marine users. 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 7.6**).	No additional measures or controls are required.
Titleholders and Operators		
Chevron Australia/ Osaka Gas Gorgon/ Tokyo Gas Gorgon/ JERA Gorgon		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Chevron Australia advising of the proposed activity (Appendix G, reference 1.14) and provided a Consultation Information Sheet, and Titleholder map (Appendix G, reference 1.24).
- On 16 February 2023, Woodside emailed Chevron Australia providing additional information on the proposed activity (Appendix G, reference 3.29, and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Chevron Australia following up on the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.
- On 22 March 2023, Chevron responded, thanking Woodside for the consultation information, advising that they are actively reviewing the information (expected completion by mid-April), and requesting GIS shape files for the EP.
- On 3 April 2023, Woodside responded, thanking Chevron for the feedback and provided the GIS shape files for the EP as requested.
- On 26 April 2023, Woodside emailed Chevron Australia following up on feedback with respect to the proposed activity.
- On 1 June 2023, Woodside emailed Chevron Australia following up on feedback with respect to the proposed activity.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Chevron responded, requesting GIS shape files to review the potential effect on their interests and activities. Whilst feedback has been received, there were no objections or claims.	Woodside has provided Chevron with GIS shape files for the EP as requested. Chevron has advised it will provide feedback on the EP in mid-April, which Woodside will address as applicable. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Chevron's functions, interests or activities. No additional measures or controls are required.

Western Gas

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Western Gas advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Western Gas following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Exxon Mobil Australia Resources Company

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Mobil Australia Resources Company advising of the proposed activity (Appendix G, reference 1.13) and provided a Consultation Information Sheet, and Titleholder map (Appendix G, reference 1.24).
- On 16 February 2023, Woodside emailed Exxon Mobil Australia Resources Company providing additional information on the proposed activity (Appendix G, reference 3.29), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Exxon Mobil Australia Resources Company following up on the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Shell Australia

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed Shell Australia advising of the proposed activity (Appendix G, reference 1.13) and provided a Consultation Information Sheet, and Titleholder map.

- On 16 February 2023, Woodside emailed Shell Australia providing additional information on the proposed activity (Appendix G, reference 3.30), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Shell Australia following up on the proposed activity (Appendix G, reference 3.30.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

BP Developments Australia

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed BP Developments Australia advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed BP Developments Australia following up on the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required

Carnarvon Energy

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Carnarvon Energy advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Carnarvon Energy following up on the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.
- On 8 March 2023, Carnarvon Energy responded thanking Woodside for its email and confirmed they had no comments.

- On 8 March 2023, Woodside responded thanking Carnarvon Energy for its email.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Carnarvon Energy advised it had no comments on the proposed EP. Whilst feedback has been received, there were no objections or claims.	Carnarvon Energy has confirmed it has no feedback relating to the proposed activity. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Carnarvon Energy's functions, interests or activities. No additional measures or controls are required.

PE Wheatstone

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed PE Wheatstone advising of the proposed activity (Appendix G, reference 1.13) and provided a Consultation Information Sheet, and Titleholder map.
- On 16 February 2023, Woodside emailed PE Wheatstone providing additional information on the proposed activity (Appendix G, reference 3.29), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed PE Wheatstone following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required

Kyushu Electric Wheatstone		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 2 June 2022, Woodside emailed Kyushu Electric Wheatstone advising of the proposed activity (Appendix G, reference 1.13) and provided a Consultation Information Sheet, and Titleholder map. • On 16 February 2023, Woodside emailed Kyushu Electric Wheatstone providing additional information on the proposed activity (Appendix G, reference 3.29), and provided an updated Consultation Information Sheet. • On 7 March 2023, Woodside emailed Kyushu Electric Wheatstone following up on the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.		
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 7.6**).	No additional measures or controls are required.
Eni Australia		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 16 February 2023, Woodside emailed ENI Australia advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet. • On 7 March 2023, Woodside emailed ENI Australia following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.		
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 7.6**).	No additional measures or controls are required.
Finder Energy (Finder No 16)		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Finder Energy advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Finder Energy following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Jadestone

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Jadestone Energy advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Jadestone Energy following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

KUFPEC

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 2 June 2022, Woodside emailed KUFPEC Australia (Wheatstone lago) advising of the proposed activity (Appendix G, reference 1.13) and provided a Consultation Information Sheet, and Titleholder map.
- On 16 February 2023, Woodside emailed KUFPEC providing additional information on the proposed activity (Appendix G, reference 3.29), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed KUFPEC following up on the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Santos providing additional information on the proposed activity (Appendix G, reference 3.29), and provided an updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Santos following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required

Coastal Oil and Gas

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Coastal Oil and Gas advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.

- On 7 March 2023, Woodside emailed Coastal Oil and Gas following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Bounty Oil and Gas

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Bounty Oil and Gas advising of the proposed activity (Appendix G, reference 3.29), and provided Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Bounty Oil and Gas following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

OMV Australia

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed OMV Australia advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Sapura OMV Australia and Gas following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

KATO Energy / KATO Corowa / KATO NWS / KATO Amulet

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Kato Energy advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Kato Energy following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

INPEX Alpha

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed INPEX Alpha advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed INPEX Alpha following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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	No additional measures or controls are required.

	been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see **Section 7.6**).	

JX Nippon O&G Exploration (Australia)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed JX Nippon advising of the proposed activity (Appendix G, reference 3.29), and provided a Consultation Information Sheet.
- On 24 February 2023, JX Nippon responded, thanking Woodside for its email and confirmed they will revert back.
- On 7 March 2023, Woodside emailed JX Nippon following up of the proposed activity (Appendix G, reference 3.30.1) and to request any feedback
- On 10 March 2023, Woodside emailed JX Nippon following up of the proposed activity (Appendix G, reference 3.30.2) provided a Consultation Information Sheet and to request any feedback

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 7.6**).	No additional measures or controls are required.

Buru Energy

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 8 March 2023, Woodside emailed Buru Energy advising of the proposed activity (Appendix G, reference 3.32), and provided an Updated Consultation Information Sheet.
- On 9 March 2023, Buru Energy emailed Woodside acknowledging receipt of the Consultation Information Sheet and advised it has no issues with the proposed activities.
- On 13 March 2023, Woodside thanked Buru Energy for its email.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Buru Energy advised it had no concerns with the proposed activities.	Woodside notes Buru Energy's advice it has no concerns with the proposed activities.	Woodside considers the measures and controls described within this EP address the potential

Whilst feedback has been received, there were no objections or claims.	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 7.6**).	impact from the proposed activities on Buru Energy's functions, interests or activities. No additional measures or controls are required.

Energy Resources

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 8 March 2023, Woodside emailed Energy Resources advising of the proposed activity (Appendix G, reference 3.32), and provided an Updated Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Energy Resources following up of the proposed activity (Appendix G, reference 3.32.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

National Energy Resource Australia (NERA) Collaborative Seismic Environment Plan Project (CSEP) acting for a consortium of operators

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed NERA advising of the proposed activity (Appendix G, reference 3.32), and provided a Updated Consultation Information Sheet
- On 24 February 2023, NERA responded, thanking Woodside for its email and confirmed it had no feedback for the proposed EP and would like to kept up to date with when the activities occur.
- On 28 February 2023, Woodside responded, thanking NERA for their feedback and confirmed that Woodside will provide NERA with commencement and cessation of activity notifications.
- On 1 March 2023, NERA responded confirming NERA will also keep Woodside updated with the progress of the CSEP.
- On 1 May 2023, NERA emailed Woodside on a separate project advising the Collaborative Seismic EP had been withdrawn and will no longer go ahead. NERA requested that the CSEP be removed from relevant person consultation.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
NERA advised it had no feedback on the proposed activities but requested to be kept up to date with when the activities occur. NERA subsequently advised the Collaborative Seismic EP had been withdrawn and will no longer go ahead.	Woodside has addressed NERA's feedback including confirming it would provide NERA with commencement and cessation of activity notifications. However, Woodside was subsequently updated that the Collaborative Seismic EP had been withdrawn. Activity notifications are therefore not required as there is no potential for interaction with NERA's activities. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on NERA's functions, interests or activities. No additional measures or controls are required.
Peak Industry Representative bodies		
APPEA		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 2 June 2022, Woodside emailed APPEA advising of the proposed activity (Appendix G, reference 1.1) and provided a Consultation Information Sheet. • On 16 February 2023, Woodside emailed APPEA providing additional information on the proposed activity (Appendix G, reference 3.32), and provided an updated Consultation Information Sheet. • On 7 March 2023, Woodside emailed APPEA following up on the proposed activity (Appendix G, reference 3.32.1) and to request any feedback.		
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 7.6**).	No additional measures or controls are required.
Traditional Custodians and nominated representative corporations		

Murujuga Aboriginal Corporation (MAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed MAC advising of the proposed activity (Appendix G, reference 3.41) and provided a Consultation Information Sheet.
- On 7 March, Woodside spoke with MAC to follow up on the material provided.
- On 30 March, Woodside spoke with MAC and followed up on the material provided.
- On 3 April MAC emailed Woodside asking for a list of outstanding issues that Woodside would like to progress
- On 5 April 2023 Woodside responded to MAC via email with a list of open topics, which included the request for feedback on the proposed activity. Woodside requested advice from MAC on:
  - How the activity could impact cultural values
  - If MAC proposes anything to be included in the EP prior to submission
  - If MAC would like a meeting to discuss the activity
  - Whether MAC does not intend to provide advice prior to EP submission
- On 12 April, Woodside spoke with MAC regarding a number of topics including feedback on the proposed activity. MAC responded that their Board of Directors are meeting soon and that Woodside can expect a forward plan on EP consultation

Ongoing Relationship Building

- As of 14 June 2023, Woodside was still awaiting feedback from MAC.
- Woodside will continue to pursue an ongoing two-way relationship with MAC focused on future opportunities to work together.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 24 February 2023, MAC has not provided feedback, objections or claims to date in response to the information provided	Woodside demonstrated reasonable effort to engage in two-way dialogue. Murujuga Aboriginal Corporation has had ample opportunity to participate in consultation. Consultation with Murujuga Aboriginal Corporation has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see **Section 7.8.2.1**). Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has	As no response was provided by Murujuga Aboriginal Corporation, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the Petroleum Activities Program or to provide a response. As identified in **Section 7.8.2.1** of this EP, Woodside will continue to consult MAC following acceptance of the EP, as requirement by the implementation strategy as set out in regulation 14(9) of the Environment Regulations.

	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 7.6**).	

Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

YMAC is the Native Title Representative Body (NTRB) for the Yamatji and Pilbara regions. NTRBs exist to provide assistance to native title claimants and holders regard to their native title rights. No native title has been recognised over the Project Area, however YMAC is identified in the North West Marine Parks Network Management Plan as the contact for identifying cultural values in nearby Australian Marine Parks.

- On 6 January 2023, Woodside phoned NTGAC via the representative body Yamatji Marlpa Aboriginal Corporation (YMAC) for the purpose of introduction and to explain that Woodside will be sending information concerning EPs.
- Between 1 and 13 February 2023, Woodside and YMAC had a series of phone conversations and emails confirming a meeting with the NTGAC Board on 16 February 2023.
- On 10 February 2023, Woodside spoke with NTGAC to inform that the petroleum activity will be advertised for feedback and that Woodside will provide information on the activity and include it in the scope of the meeting planned for 16 February
- On 16 February 2023, Woodside presented to a meeting of the NTGAC/YMAC Board:
  - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of Environment Plans.
  - Woodside encouraged NTGAC to raise anything which they feel is missing in the information provided during the meeting.
  - Woodside displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities which will be open for consultation in 2023.
  - Woodside described the proposed activity, its timing and purpose
    - NTGAC requested a picture of a wellhead, which Woodside noted for future action
  - Woodside described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely. It was noted that at a high level the categories of risks and impacts are similar to decommissioning previously discussed
  - Woodside described the worst case EMBA for the activity
    - NTGAC asked for further explanation of how the EMBA is developed for the activity, Woodside responded using an example of a deterministic scenario to describe how replicates are combined
    - NTGAC asked what probability of a blowout or vessel collision, Woodside responded that it is expected to be about 1 in 10,000 years
  - Woodside concluded discussion of the activity and asked for further feedback or questions, none were received.
  - Woodside provided personal contact details for further feedback
  - Woodside provided NOPSEMA contact details, should NTGAC desire to provide feedback directly to the regulator.

- On 21 February 2023, NTGAC/YMAC emailed Woodside to seek clarification of the attendee names at the 16 February 2023 Board meeting.
- On 21 February 2023, Woodside emailed NTGAC/YMAC the attendee names at the 16 February 2023 Board meeting and provided a copy of the presentation pack. Woodside followed up on request for any further feedback on the proposed activity (Appendix G, reference 3.35).
- On 22 February 2023, NTGAC (via YMAC) responded thanking and acknowledging Woodside for its email.
- On 22 March 2023, Woodside emailed NTGAC (via YMAC) following up on the proposed activity and to request any feedback.
- On 24 March 2023, NTGAC (via YMAC) responded that it would let Woodside know as soon as the Board has had the opportunity to review and provide comments.
- On 24 March 2023, Woodside emailed NTGAC (via YMAC) if Woodside can assist with anything.
- On 28 March 2023, NTGAC (via YMAC) emailed Woodside requested a few images and a diagram of a wellhead so that this can be forwarded through to the relevant NTGAC Directors.
- On 31 March 2023, Woodside emailed NTGAC (via YMAC) provided pictures / Diagram of wellhead as requested.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
During face-to-face engagement, the NTGAC requested further information on topics related to this proposed activity which was responded to during the meeting: • The expected probability of well loss of containment and vessel collision • An image of a wellhead for information. The NTGAC expressed a desire for ongoing engagement and partnership.	Woodside continues to engage NTGAC via YMAC in relation to feedback following the 16 February 2023 Board meeting. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see **Section 7.8.2.1**). NTGAC has had a reasonable opportunity to participate in consultation. Consultation with NTGAC has not identified any other groups or individuals relevant to communally held functions, activities or interests 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on NTGAC's functions, interests or activities. Based on the engagement to date, no additional controls have been identified.

Buurabalayji Thalanyji Aboriginal Corporation (BTAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 January 2023, Woodside emailed BTAC to set up an introductory discussion on a number of proposed activities:
  - Woodside advised it would like to and is required to consult with Thalanyji about the nature of any interests Thalanyji have in the "environment that may be affected" (EMBA) by this work, and any concerns Thalanyji may have about potential environmental impacts, so these concerns can be addressed through the environmental planning and approvals process.
  - Woodside provided further information about government guidelines for these consultations and provided a link to https://consultation.nopsema.gov.au/environment-division/consultation-guideline/.
  - Woodside advised information sheets on proposed activities will be provided.
  - Woodside said that it would like to arrange a meeting between senior Woodside staff and BTAC's Board if BTAC thought that was appropriate and it would await guidance from BTAC.
- On 20 February 2023, BTAC provided a letter to Woodside specific to consultation on other proposed activities, seeking support from Woodside and expressing desire to be involved in local emergency response capability. Woodside responded to this, and there has been other correspondence unrelated to this activity since.
- On 22 February 2023, Woodside emailed BTAC advising of the proposed activity (Appendix G, reference 3.37) and provided a Consultation Information Sheet
- On 17 March 2023, Woodside emailed a letter to BTAC:
  - Woodside thanked BTAC for its feedback and it looks forward to working with BTAC.
  - suggested a forward plan for consultation on all EPs that Woodside has notified BTAC about.
  - Woodside will formalise the matters outlined in its correspondence by including in each of the Environment Plans statements along the following lines:
    - BTAC for and on behalf of Thalanyji has interests and values in the EMBAs and is concerned about the possible impact on these interests and values, including to Sea Country, arising from Woodside's proposed activities.
    - BTAC, with support from Woodside and through the provision of independent expertise, will on an ongoing basis:
    - convey to Woodside the nature of Thalanyji interests and values, noting that BTAC would like to conduct work to articulate those values in a manner that Woodside understands.
    - provide information to Woodside about how those interests and values intersect with the EMBAs and how that should be managed.
    - Woodside will engage in ongoing consultation with BTAC for the purposes of ongoing monitoring, management and emergency response associated with environmental risk.
    - Woodside and BTAC will work under an adaptive management approach as the understanding of each other's values and interests, activities, needs and aspirations grow during the course of ongoing consultation. This means that Woodside's Environment Plans may be updated from time to time so they accurately reflect environmental risk as they relate to BTAC's interests and values, and the management measures that Woodside and BTAC will put in place to avoid and otherwise mitigate and manage environmental risk.
      - BTAC can at any time can make direct representations to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) about the nature of BTAC's interests and how they may be affected by Woodside's activities.
      - Woodside proposed if BTAC considers it appropriate, that the principles discussed in its correspondence (this 17 March 2023 letter and BTAC's correspondence of 20 February 2023) apply to the various decommissioning and drilling EPs that Woodside has notified BTAC about. This will ensure these arrangements are formalised into regulatory processes and documentation. As per Woodside's ongoing consultation approach, feedback continues to be assessed through the life of the EPs.

- Woodside advised BTAC that its letter of 20 February 2023 and this response will be included in the EP. Woodside requested that if their feedback is sensitive, please inform Woodside, and it will make this known to NOPSEMA upon submission of the Environment Plans to ensure this information remains confidential to NOPSEMA.

- On 30 March 2023, Woodside spoke with BTAC to follow up on correspondence described above. BTAC indicated that they desire a consultation agreement and intend to provide correspondence accordingly.
- On 18 April 2023, BTAC emailed Woodside, with a response regarding the next steps in consultation for all EPs
- On 28 April 2023, Woodside emailed BTAC, thanking them for their letter of 18 April 2023 and reiterating that consultation with BTAC is ongoing.
- On 4 May 2023, Woodside called BTAC. It was discussed that:
  - Woodside would be sending BTAC more EPs (for other activities) for consultation
  - Woodside is working on draft key terms/principles for the collaboration agreement for BTAC's consideration
  - A meeting between Woodside and the BTAC board may be possible in June
- On 4 May 2023, BTAC emailed Woodside to continue discussion regarding a potential future meeting between Woodside and the BTAC board to discuss activities on Thalanyji Country, activities for which BTAC's ongoing consultation is sought, the collaboration agreement and other items not related to this proposed activity.

Ongoing Relationship Building

- Woodside will continue to pursue an ongoing two-way relationship with BTAC including the development of a Collaboration Agreement focused on future opportunities to work together and working towards a meeting with the BTAC Board.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Through written correspondence relevant to the activity, BTAC has: • Requested Woodside supports BTAC in obtaining technical advice relating to the proposed activity • Expressed desire to be involved in local emergency response capability Woodside has responded to these items accordingly. BTAC expressed a desire for ongoing engagement and partnership.	Woodside has been in a two-way dialogue with BTAC since 4 January 2023. Consultation with BTAC has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing two-way consultation (see **Section 7.8.2.1**). This will be facilitated via the Collaboration Agreement that Woodside and BTAC are committed to working towards. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on BTAC's functions, interests or activities. Based on the engagement to date, no additional controls have been identified.

Yinggarda Aboriginal Corporation (YAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

YMAC is the Native Title Representative Body (NTRB) for the Yamatji and Pilbara regions. NTRBs exist to provide assistance to native title claimants and holders in regards to their native title rights. No native title has been recognised over the Project Area, however YMAC is identified in the North West Marine Parks Network Management Plan as the contact for identifying cultural values in nearby Australian Marine Parks.

- On 22 February 2023, Woodside emailed YAC advising of the proposed activity (Appendix G, reference 3.87) and provided a Consultation Information Sheet. Woodside noted it is seeking YAC's feedback as soon as possible on the proposed activity.
- On 24 February 2023, Woodside followed up with YAC/YMAC via phone call. YAC/YMAC advised it would send an email on 24 February to discuss an invitation for Woodside to meet with YAC.
- On 20 March 2023, Woodside emailed YMAC to follow up the discussed invitation for a face-to-face meeting with its Board of Directors (Appendix G, reference 3.38.1) Woodside noted it was seeking YAC's feedback as soon as possible on the proposed activity. Woodside stated that it would be grateful to meet with YAC at the earliest convenience at location of YAC's preference, providing budget and resources.
- On 23 March 2023, YMAC responded and proposed a meeting on 3 May 2023 in Carnarvon and provided an estimated of its proposed costs. The invitation was accepted and arrangements made for a pre-meeting with YMAC to coordinate details.
- On 23 March 2023, Woodside emailed YAC, via YMAC to confirm face to face meeting and request budget.
- On 24 March 2023, the YMAC lawyer emailed to arrange a pre-meet conversation on 31 April.
- On 24 March Woodside emailed to confirm the pre-meet conversation.
- On 27 March Woodside received an email from YAC via YMAC confirming pre-meet conversation
- On 30 March, the YMAC lawyer emailed to cancel the pre-meet conversation .
- On 30 March 2023, Woodside emailed YAC acknowledging YAC's email.
- On 27 April, Woodside emailed the YMAC lawyer to confirm timing and location for the face-to-face meeting on 3 May but the email bounced back requesting correspondence be forwarded to an alternate contact in YMAC
- On 27 April, Woodside forwarded the email seeking to confirm time and location for the planned meeting to the alternate contact in YMAC
- On 27 April, YMAC confirmed by email and phone call that they no longer represented Yinggara Aboriginal Corporation and that the meeting on 3 May had been cancelled. Gumala Aboriginal Corporation is now representing YAC and YMAC is in the process of hand over, including correspondence with Woodside
- On 27 April, Woodside acknowledged YMAC email re Gumala Aboriginal Corporation transition to new service provider.
- On 28 April, Woodside attempted to call Gumula Aboriginal Corporation and left a voicemail to establish connection
- On 28 April, Woodside emailed Gumula Aboriginal Corporation to establish contact and inform them of the prior context. Woodside stated that it is still interested in meeting with the YAC board if they are interested.
- On 8 May, Woodside phoned Gumula Aboriginal Corporation to follow up the email, explaining that it is seeking to consult Yinggarda on the proposed activity and how the meeting had been cancelled. Gumula Aboriginal Corporation indicated that the email address previously contacted was correct and indicated that it would call back. No return call was received.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 22 February 2023, YAC has not provided feedback, objections or claims to date in response to the information provided YAC invited Woodside to discuss the proposed activity with its Board of Directors, which has since been cancelled due to change of support services.	Woodside demonstrated reasonable effort to engage in two-way dialogue. YAC has had a reasonable opportunity to participate in consultation. Consultation with YAC has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see **Section 7.8.2.1)**. 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 7.6**).	As no response was provided by YAC Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response. As identified in **Section 7.8.2.1** of this EP, Woodside will continue to consult YAC following acceptance of the EP, as requirement by the implementation strategy as set out in regulation 14(9) of the Environment Regulations.
Kariyarra Aboriginal Corporation		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 24 February 2023, Woodside emailed the Kariyarra Aboriginal Corporation advising of the proposed activity (Appendix G, reference 3.42) and provided a Consultation Information Sheet. Email also followed up on previous correspondence and phone calls to determine interest for broader EP consultations. • On 24 March 2023, Woodside emailed the Kariyarra Aboriginal Corporation following up on the proposed activity (Appendix G, reference 3.342.1 and to request any feedback. • On 18 April 2023, Woodside emailed the Kariyarra Aboriginal Corporation enquiring whether they would like to arrange a meeting to discuss the proposed activity. • On 28 April 2023, Woodside emailed Kariyarra Aboriginal Corporation following up on the proposed activity and advising of the next steps in the EP consultation process. • On 2 May 2023, Woodside phoned Kariyarra Aboriginal Corporation and left a phone message. • On 3 May 2023, Woodside phoned Kariyarra Aboriginal Corporation and left a phone message. • On 9 May 2023, Woodside attended the Kariyarra office to try to meet with the CEO, Nic was unavailable. Woodside left a message and advised that they would be in town until noon 10 May and would be happy to meet.		

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 24 February 2023, Kariyarra AC has not provided feedback, objections or claims to date in response to the information provided.	Woodside demonstrated reasonable effort to engage in two way dialogue. Kariyarra AC has had a reasonable opportunity to participate in consultation. Consultation with Kariyarra AC has not identified any other groups or individuals relevant to communally held functions, activities or interests No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see **Section 7.8.2.1)**. 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 7.6**).	As no response was provided by Kariyarra AC Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response. As identified in **Section 7.8.2.1** of this EP, Woodside will continue to consult Kariyarra AC following acceptance of the EP, as requirement by the implementation strategy as set out in regulation 14(9) of the Environment Regulations.

Wirrawandi Aboriginal Corporation (WAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 21 February 2023, Woodside spoke with WAC to discuss a consultation meeting.
- On 24 February 2023, WAC emailed Woodside on a range of Woodside EPs, including the proposed activity (Appendix G, reference 3.43). Woodside noted it is seeking WAC's feedback as soon as possible on the proposed activity:
  - Woodside also requested confirmation of the opportunity to meet with the WAC Board when they are next due to meet in Perth in March
  - Further details and associated costs will be discussed once the meeting has been confirmed, in discussion with Woodside.
- On 24 February 2023, WAC responded acknowledging Woodside's email and advised that a meeting is still yet to be finalised and that further details and associated costs will be discussed once the meeting has been confirmed.
  - WAC acknowledged receiving the EP information and the meeting with proposed for the Elders and Directors in March, but that the meeting is still yet to be finalised.
  - Further details and associated costs will be discussed once the meeting has been confirmed, in discussion with Woodside.
- On 7 March 2023, WAC provided a formal quote, draft agenda and a meeting date of 23 March 2023 for presentation.
- On 7 March 2023, Woodside emailed WAC thanking them for sending through the quote and welcoming the opportunity to meet.
- On 15 March 2023, Woodside emailed WAC to follow up on details relating to the meeting of the Board and Elders on 23 March 2023 in Perth.

- On 15 March 2023, WAC emailed Woodside:
  - WAC advised the 23 March 2023 meeting has been scheduled and arranged.
  - WAC advised that as discussed previously the intention is to present to WAC Directors and Elders on information requires WAC feedback.
  - Woodside has continued to engage WAC on the proposed activity and in relation to presenting at the upcoming Board and Elders meeting.
- On 17 March 2023, Woodside emailed WAC:
  - Woodside advised it was looking forward to connect and would ensure relevant representation to provide the suite of EP information overviews and would cover the broader community activity for awareness as requested.
- On 17 March 2023, WAC emailed Woodside suggesting a meeting date in Perth on 29 March 2023.
- On 20 March 2023, Woodside emailed WAC confirming meeting date as suitable.
- On 23 March 2023, WAC emailed Woodside confirming availability.
- On 23 March 2023, Woodside presented to a meeting of the WAC Board and Elders in Perth:
  - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of Environment Plans.
  - Woodside encouraged WAC to raise anything which they feel is missing in the information provided during the meeting, or any issues or concerns.
  - Woodside displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities which will be open for consultation in 2023.
  - Woodside described the proposed activity, timing and purpose.
  - WAC asked how long these wells could be in operation for, Woodside responded that it varied but maximum could be 20-30 years
  - WAC asked about well decommissioning and how the state of the environment is assured afterwards.
  - Woodside responded that post-decommissioning surveys are undertaken and these are available following the activity.
  - Woodside described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely.
  - WAC asked how the EMBA influences consultation, Woodside responded that the EMBA has always been understood but it is now being used to identify people who may have an interest in the activity
  - WAC stated that this kind of information sharing is important, and that our time is appreciated. WAC asked whether this type of information is broadly available to the community, Woodside responded that there are a number of open community sessions available in the region where it could be discussed
  - WAC indicated that since they are engaging with a number of energy industry operators they will consider the information provided and discuss internally before any further response.
  - Woodside provided personal contact details for further feedback
  - Woodside provided NOPSEMA contact details, should WAC desire to provide feedback directly to the regulator.
- On 24 March, Woodside responded thanking WAC for the meeting and proposed a venue and time for the next meeting.
- On 24 March 2023, WAC responded thanking Woodside for the meeting and accepted the invite for the next meeting.
- On 24 March 2023, Woodside responded thanking WAC for its email.
- On 3 May 2023, Woodside emailed a letter to WAC as a follow up to the 23 March meeting held in Perth with WAC Directors and Elders

- Woodside thanked WAC for the careful consideration of matters
- Acknowledge the WAC have interests in the EMBA
- Woodside provided a response on matters raised at the meeting by WAC

- On 3 May 2023, Woodside emailed a letter to WAC regarding the meeting with the joint Robe River Kuruma and Wirrawandi Joint Heritage Advisory Committee (HAC) on 31 March:
  - Woodside thanked the HAC for the meeting, their careful consideration of the matters and feedback provided
  - Woodside acknowledged that the RRKAC have interests in the EMBA and noted that we want to ensure impacts are as minimal as reasonably practicable
  - A high level overview of presented topics was provided
  - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity. Woodside notified that the feedback and the letter will be included in Environment Plans that will be submitted to NOPSEMA.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
During face-to-face engagement with the WAC board and directors and circle of elders, WAC requested further information on topics related to this proposed activity which was responded to during the meeting: • The expected operational lifespan of the well. • Well decommissioning. WAC expressed a desire for ongoing engagement and partnership.	Woodside has continued to engage WAC on the proposed activity and in relation to establishing a meeting with the joint Heritage Advisory Committee. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see **Section 7.8.2.1**). 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on WAC's functions, interests or activities. Based on the engagement to date, no additional controls have been identified.

Robe River Kuruma Aboriginal Corporation (RRKAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 20 February 2023, Woodside emailed RRKAC advising of the proposed activity (Appendix G, reference 3.34) and provided a Summary Information Sheet.
- On 24 February 2023, Woodside emailed RRKAC providing further information of the proposed activity (Appendix G, reference 3.34.1) and provided a Consultation Information Sheet.
- On 9 March 2023, RRKAC emailed Woodside (and copied in CEO of Wirrawandi Aboriginal Corporation (WAC)):

  - RRKAC advised it has discussed the proposed activity with the Robe River Kuruma Heritage Advisory Committee and they have recommended that the interests of Robe River Kuruma people are best served through the joint Heritage Advisory Committee that is required under Yaburara Mardudhunera and Kuruma Marthudunera Indigenous Agreement.
  - RRKAC also suggested that WAC is required to facilitate this Committee and noted there is an emerging need to deal with other proponent matters, so there is an opportunity to link the engagement from a meeting efficiency perspective
- Between 15-17 March 2023, Woodside exchanged email correspondence with RRKAC (and WAC) in relation to establishing a meeting with the joint Heritage Advisory Committee. The meeting was confirmed for 31 March 2023.
- On 31 March 2023, Woodside met with the Robe River Kuruma and Wirrawandi Joint Heritage Advisory Committee (HAC) in Karratha:
  - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of Environment Plans.
  - Woodside encouraged HAC to raise anything which they feel is missing in the information provided during the meeting, or any issues or concerns.
  - Woodside displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities which will be open for consultation in 2023.
  - Woodside described the proposed activity
- HAC asked where Woodside's gas goes to, Woodside responded that some goes to the state supply and most of the remainder goes to SE Asia as LNG
- HAC asked whether the removal of hydrocarbons could cause global gravitational instability, Woodside responded that it is not considered credible and Woodside will provide a technical response separately
- HAC asked what will happen if there is a gas leak, Woodside responded that dry gas would be released, and a portion would be dissolved into the water before reaching surface depending on water depth, and gas reaching the surface could be a safety risk or contribute to greenhouse gas in the atmosphere
  - Woodside described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely.
  - WAC asked what response Woodside would implement for a diesel spill. Woodside responded that response arrangements are checked by NOPSEMA and since diesel rapidly evaporates and disperses response is mainly monitoring
  - Woodside provided personal contact details for further feedback
  - Woodside provided NOPSEMA contact details, should WAC desire to provide feedback directly to the regulator.
- On 3 May 2023, Woodside contacted RRKAC by mail to summarise the information presented at the meeting on 31 March 2023 and the actions for Woodside to follow up:
  - Woodside thanked the HAC for the meeting, their careful consideration of the matters and feedback provided.
  - Woodside acknowledged that the RRKAC have interests in the EMBA and noted that we want to ensure impacts are as minimal as reasonably practicable.
  - A high level overview of presented topics was provided.
  - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity.
  - Woodside notified that the feedback and the letter will be included in Environment Plans that will be submitted to NOPSEMA.
  - Woodside provided responses to questions noted from the meeting that were not related to the proposed activity.
  - Woodside notified that the feedback and the letter will be included in Environment Plans that will be submitted to NOPSEMA.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
During face-to-face engagement, the RRKAC HAC requested further information on topics related to this proposed activity which was responded to during the meeting: • The market for Woodside gas • Impact of an unplanned subsea gas loss of containment The HAC expressed a desire for ongoing engagement and partnership.	Woodside continues to engage RRKAC in relation to the proposed activity. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see **Section 7.8.2.1**). RRKAC has had a reasonable opportunity to participate in consultation Consultation with RRKAC has not identified any other groups or individuals relevant to communally held functions, activities or interests 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on RRKAC functions, interests or activities. Based on the engagement to date, no additional controls have been identified.

Ngarluma Aboriginal Corporation (NAC)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed NAC advising of the proposed activity (Appendix G, reference 3.44) and provided a Consultation Information Sheet.
- On 24 February 2023, NAC emailed Woodside acknowledging receipt of Woodside's emails noting that it was yet to attend to the emails and would do so following the w/c 27 February 2023
- On 9 March 2023, Woodside left a phone message to follow up on the email received 24 February 2023. Woodside advised it was seeking opportunity for Woodside to present to the NAC board with an EP overview and if there has been any progress in terms of securing a preferred day and timeslot.
- On 9 March 2023, NAC emailed Woodside to advise that the contact at NAC was unavailable to meet on 30 March 2023.
- On 9 March 2023, Woodside emailed NAC:
  - Woodside noted that during a previous meeting, NAC had advised its next board meeting would be held on 29 and 30 March and that Woodside would be potentially assigned time on the agenda to present to the NAC Board on either one of those days.
  - Woodside advised that this is an important opportunity to ensure that NAC board have the opportunity to provide feedback on the Environmental Plans and if they have interests in the environment that may be affected (EMBA).
  - Woodside welcomed the suggestion of alternative days/times or ways that it can provide an overview to NAC the board.

- On 10 March 2023, NAC emailed Woodside to advise that its March Board Meeting was full with overspills from January and February and at this stage will need to leave the environmental plan consultation until the April meeting.
- On 14 March 2023, Woodside emailed NAC to request the dates for the April board meeting and to confirm what time Woodside might be allocated to present at NAC's earliest convenience.
- On 14 March 2023, NAC emailed Woodside to advise that the Board meeting is tentatively set for 29th April at this stage. NAC advised this needs to be confirmed with its Board before it can commit to a time or date
- On 12 April 2023, Woodside emailed NAC to check the status of the next NAC Board meeting and if there was still an opportunity for Woodside Energy to provide an overview of the proposed activities.
- On 12 April 2023, NAC emailed Woodside, confirming they would arrange agenda items and get back to Woodside.
- On 17 April 2023, Woodside emailed NAC, asking whether there is an update on the agenda.
- On 17 April 2023, Woodside emailed NAC noting there had been no confirmation of an April meeting and seeking advice on whether NAC have feedback in relation to the proposed activities. The email explained that Woodside's plan to submit the EP and was seeking pre-submission feedback, noting that feedback could be provided for the life of the EP. Woodside sought an acknowledgement supporting the approach and reiterated that they looked forward to meeting to provide a more detailed overview.
- On 20 April 2023, NAC emailed Woodside acknowledging receipt of the materials and asked questions of an unrelated EP.
- On 20 April 2023, NAC emailed Woodside noting a date of 26 April 2023 for the next Board meeting and asking whether Woodside still wished to attend.
- On 20 April 2023, NAC emailed Woodside requesting documents for the board packs.
- On 20 April 2023, Woodside emailed NAC confirming they would attend and whether 15 minutes was still the allocation of time.
- On 21 April 2023, NAC advised that there was no time for Woodside on the April agenda but time would be set aside for May, with a tentative date of 17 May 2023.
- On 21 April 2023, Woodside thanked NAC for their response.
- On 28 April 2023 Woodside emailed NAC advising that the next step is for the EP to be submitted but no feedback has been received to date. Stated that before Woodside submits, Woodside seeks to understand whether there are any issues or concerns with the proposed activities that need to be reflected in the EP.
- On 10 May 2023, NAC replied to Woodside stating that they are supportive of submission of the EP and look forward to ongoing consultation.
- On 12 May 2023, NAC emailed Woodside to notify that Woodside had been allocated a one-hour window in the NAC Board Meeting of 17 May.
- On 17 May 2023, Woodside presented to the NAC Board of Directors in Karratha:
    - Woodside opened the meeting with introductions
    - Woodside thanked the Ngarluma Aboriginal Corporation (NAC) for inviting Woodside Energy to speak with them and provided Acknowledgement of Country
    - Woodside talked through agenda and reasons for consultation
    - Woodside introduced the regulations we need to comply with and the role of NOPSEMA. Explained that many of our activities could impact Ngarluma country in the highly unlikely event of an oil spill, and some activities like Scarborough could have a more direct impact
    - Woodside referred to an example EMBA and described how it is comprised of many replicates of a single spill
    - Woodside explained that we are consulting with many people up and down the coastline including multiple Aboriginal Corporations
    - Woodside proposed what consultation outcomes it would like to meet with NAC, including understanding
        - How the activities could impact cultural values, functions, interests or activities
        - Whether protecting the environment is enough to protect these things

- What NAC's concerns are about the proposed activities and what NAC thinks we should do about it
- If there's anything NAC would like included in EPs

- Woodside noted that feedback will be welcomed throughout the life of all Environment Plans
- Woodside provided a high-level overview of the Scarborough project
- NAC asked when these activities are proposed to happen, Woodside responded later this year pending government approvals
- Woodside asked if there was any further feedback or questions about these activities, none were received
- Woodside described the proposed activity
- Woodside described the planned and unplanned environmental impacts and risks of the activities described in the meeting and proposed controls, in accordance with the Information Sheets
- Woodside asked whether there are any questions on the environmental risks and impacts, none were received
- Woodside noted that any questions or considerations can be directed through Shanine, or the Quarterly Heritage Meetings which NAC has a standing invite to. This is also an opportunity to discuss job opportunities and other matters
- Woodside left hard copies of Information Sheets and Plain Language Summaries for each discussed activity with NAC attendees.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
NAC has not provided objections or claims in response to the information provided since consultation commenced on February 2023. NAC has confirmed receipt of materials, and there has been ample opportunity for two-way dialogue. During face-to-face engagement with the WAC board no objections, claims or feedback on the proposed activity was provided.	Consultation with NAC has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (**Section 7.8.2.1**) 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 7.6**).	Woodside considers the measures and controls in the EP address NAC's functions, interests or activities. Based on the engagement to date, no additional controls have been identified.

Yindjibarndi Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed the Yindjibarndi Aboriginal Corporation advising of the proposed activity (Appendix G, reference 3.45) and provided a Consultation Information Sheet.

- On 26 February 2023, Yindjibarndi emailed Woodside. Yindjibarndi advised that it will not be providing any comment on the proposed activity and noted it respected the traditional owners whose land and sea lies adjacent to, and within the precinct of, the projects, and will leave any comment and advice to be provided by them.
- On 28 February 2023, Woodside emailed Yindjibarndi to thank them and noted the response.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Yindjibarndi has provided a response and advised that it will not be providing any comment on the proposed activity. Yinjibarndi expressed that they would prefer that traditional owner groups with land and sea adjacent to and within the precent of the projects provide comment.	Yinjibarndi Aboriginal Corporation has informed Woodside that it does not intend to provide feedback. Woodside agrees with Yinjibarndi's position that traditional owners whose land and sea are adjacent to or within the precent of the projects should be able to provide comment. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Yindjibarndi Aboriginal Corporation's functions, interests or activities. Based on the engagement to date, no additional controls have been identified.

Wanparta Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed Wanparta Aboriginal Corporation advising of the proposed activity (Appendix G, reference 3.46) and provided a Consultation Information Sheet.
- On 2 March 2023, Wanparta responded to acknowledge receipt of material and informed that it was passed on to Directors who will advise whether any further engagement is required
- On 24 March 2023, Woodside emailed Wanparta asking whether the Directors have any questions or have advised whether they wish to discuss further
- On 27 March 2023, Wanparta contacted Woodside via email to clarify that the directors had not provided any questions or feedback
- On 18 April 2023, Woodside emailed Wanparta enquiring whether the Directors wish to clarify any points on the information provided. Woodside re-iterated the offer of a meeting, either face to face or on teams.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 24 February 2023, Wanparta has not provided feedback, objections to date or claims in response to the information provided.	Woodside demonstrated reasonable effort to engage in two way dialogue. Wanparta has had ample opportunity to participate in consultation.	Woodside considers the measures and controls in the EP address the Wanparta Aboriginal Corporation's functions, interests or activities.

	Consultation with Wanparta has not identified any other groups or individuals relevant to communally held functions, activities or interests. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation 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 7.6**).	Based on the engagement to date, no additional controls have been identified. As identified in **Section 7.8.2.1** of this EP, Woodside will continue to consult Wanparta following acceptance of the EP, as requirement by the implementation strategy as set out in regulation 14(9) of the Environment Regulations.

Malgana Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 22 February 2023, Malgana emailed Woodside regarding scheduling an opportunity for Woodside to present at an upcoming Malgana Board Meeting.
- On 7 March 2023, Malgana emailed Woodside
  - Malgana provided proposed dates (3-4 April 2023) for a meeting.
  - Malgana requested if one or two hours is requested for Woodside's presentation and discussion.
- On 9 March 2023, Woodside emailed Malgana:
  - Woodside confirmed the proposed meeting dates and logistics.
  - Woodside requested a half day to present on the EPs on which it is seeking feedback.
- On 17 March, Woodside emailed Malgana Aboriginal Corporation advising of the proposed activity (Appendix G, reference 3.56) and provided a Consultation Information Sheet, advising that they will be in the scope of the upcoming meeting and inviting feedback.
- On 22 March 2023, Malgana emailed Woodside to coordinate the upcoming meeting
- On 4 April 2023, Woodside met with Malgana Aboriginal Corporation (Malgana) representatives in Perth.
  - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of Environment Plans.
    - Malgana asked what arrangements are in place for earthquake tremors, Woodside responded that facilities and equipment are designed to withstand seismic activity which could be expected
      - Woodside encouraged Malgana to raise anything which they feel is missing in the information provided during the meeting, or any issues or concerns.

- Malgana stated that the Shark Bay environment is unique and has the largest living organism in the world. It also contains stromatolites and microbial mats which are among the oldest living organisms in the world. Woodside responded that stochastic modelling of the worst case credible spill scenario for the petroleum activity indicates that these receptors would not be contacted.
  - Woodside displayed a map of activities open for feedback to be discussed in the meeting and provided a list of other upcoming activities which will be open for consultation in 2023.
- Malgana expressed that they are very interested in genuine relationship and partnership building with long term structure. Woodside responded that it is very open to this and looks forward to working together.
  - Woodside described how EMBAs are prepared and their relevance to consultation
- Malgana stated that they believe there are flaws in modelling related to Shark Bay hydrodynamics. Woodside responded that nearshore processes may not be very accurate in the model, but it plans for spill response in Shark Bay regardless. Woodside considers the modelling approach robust.
  - Woodside provided an overview of the proposed activity and why it is relevant to Malgana because of the EMBA
  - Woodside described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely.
  - Woodside asked whether there were any further questions or feedback on the drilling activities, none were received
  - Woodside provided contact details and invited any further feedback, including NOPSEMA contact details, should Malgana desire to provide feedback directly to the regulator.

- On 20 April 2023, Malgana emailed Woodside, noting their appreciation of Woodside's proactive response in the meeting with Malgana and noted outcomes of the meeting and action points including:
  - There should be a long-term structured response to the relationship.
  - MAC emphasized the sensitivity and importance of Shark Bay both culturally and environmentally.
  - Noted that Woodside indicated a willingness to provide support to MAC to provide informed feedback.
  - A query on water flow from Woodside scientists.
  - Training for rangers on disaster response.
  - Woodside to provide timeframe for follow up meeting to discuss all points.
- On 18 May 2023, Woodside emailed a letter to MAC. The letter thanked MAC Directors, Elders and their team and addressed matters arising from the meeting of 4 April 2023. Including:
  - Response about Shark Bay hydrodynamics query, noting that further information has been requested from consultants and an update will be provided to MAC.
  - Response about ranger training programs which will be developed collaboratively with spill response agencies.
  - Reiterating that MAC is able to provide continued feedback in the course of preparing the EP.
  - Noting that Woodside is committed to ongoing consultation beyond that required for the submission of EP's.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
During face-to-face engagement, Malgana requested further information on topics related to this proposed activity which was responded to during the meeting: • Ability for infrastructure to withstand seismic activity • Spill response arrangements Malgana Aboriginal Corporation indicated that they have particular interest in sea grasses, stromatolites and microbial mats. The Malgana Aboriginal Corporation expressed a desire for ongoing engagement and partnership.	No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (see **Section 7.8.2.1**). Environmental sensitivities that Malgana noted as having particular interest within Shark Bay are not predicted to be impacted by the worst-case credible scenario. Malgana Aboriginal Corporation has had reasonable opportunity to engage in consultation. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Malgana's functions, interests or activities. Based on the engagement to date, no additional controls have been identified.

Nanda Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 3 February, Nanda emailed Woodside in response to the separate proposed activity, noting:
  - Nanda advised that in order to ensure Nanda is fully informed, and able to engage in meaningful consultation, the Nanda Board proposes the following:
    - Woodside attend a half-day (or full day, if that is Woodside's preference), workshop with Nanda to explain to the Nanda Board the proposed activities and the EP process; and
    - if, after the presentation Nanda still considers itself a relevant person, provide funds to Nanda:
      - to engage an expert(s) (such as environmental scientist and/or marine scientist) to advise the Nanda Board about the impact of the proposed activities; and
      - draft an appropriate response for Woodside to include in the EP.
    - Nanda proposed that as next steps it prepares can prepare a budget and look to arrange a date for Woodside to meet with the Board.
    - Nanda noted that this initial meeting does not in itself constitute 'consultation' on the EP as contemplated by the Guide or other applicable law

- On 10 February 2023, Woodside emailed Nanda/YMAC:
  - Woodside advised that it welcomes the opportunity to meet with Nanda to establish a relationship and requested an estimate and Nanda's preferred meeting date(s) at its earliest convenience.
  - Woodside advised it would be pleased to meet at a location that is suitable to Nanda and in funding this meeting would seek to receive some initial feedback from Nanda about their views of the proposed activities.
  - Woodside advised it consider requests to fund independent experts on a case-by-case basis. Woodside notes an expert would need to be agreed by Nanda and Woodside and be an expert in oil and gas environmental management in the marine context.
  - Woodside noted it plans to send Nanda consultation information on a further three EPs shortly for Nanda's consideration and there will be more scheduled over the course of the year. Woodside will be sending separate emails for each of these EPs.
  - Woodside requested that in anticipation of Woodside and Nanda meeting, if there is an opportunity for Woodside to meet with YMAC / Nanda representatives prior to the meeting, so that Woodside can best prepare, it would be most grateful for that opportunity.
- On 7 March 2023, Nanda/YMAC emailed Woodside to advise it would revert back shortly with a cost estimate and proposed dates.
- On 13 March, Woodside spoke with Nanda/YMAC legal representatives about consultation meeting coordination
- On 17 March, Woodside emailed Nanda advising of the proposed activity (Appendix G, reference 3.57) and provided a Consultation Information Sheet, informing Nanda that they will be covered in the upcoming meeting and inviting feedback.
- On 17 March 2023, Woodside emailed Nanda/YMAC following up for a date, cost estimate and logistical details for a meeting.
  - Woodside requested on whether a date and budget has been confirmed for a meeting with Nanda and to notify it of additional EPs for consideration by the Nanda Board.
- On 23 March 2023, Nanda/YMAC responded inviting Woodside to meeting the Board of Directors on 19 April in Geraldton. Woodside accepted the invitation
- On 23 March 2023, Woodside emailed Nanda accepting the proposed date and time.
- On 29 March 2023, Nanda/YMAC emailed Woodside providing a budget for consideration and approval
- On 5 April 2023, Nanda/YMAC emailed Woodside requesting approval of the proposed budget
- On 5 April 2023, Woodside emailed Nanda/YMAC confirming the budget was approved.
- On 19 April 2023, Woodside met with directors and other representatives from Nanda Aboriginal Corporation in Geraldton:
  - Woodside provided background on Woodside and explained the geographical location of the proposed activity relevant to Nanda
  - Woodside described the Environment Plan framework, referring to the Offshore Petroleum and Greenhouse Gas Storage Act (Environment) Regulations, NOPSEMA's role as regulator and general contents of Environment Plans.
    - Nanda asked whether Woodside has ever had an oil spill. Woodside said that we have had small spills but nothing that had lasting impact, and while worst case spills will be discussed today we have not had anything close to this scale happen before.
    - Nanda asked whether everything we put in the water will be removed, Woodside responded that this is correct except for instances where removing it would cause worse environmental damage such as buried anchors.
    - Nanda asked whether our activities are resistant to cyclones, Woodside responded that while some of our assets would continue operating the execution activities such as seabed intervention and pipelay would be moved away and made safe.
    - Nanda asked about control measures to avoid impacts to migratory whales, Woodside described control measures intended to be in place for the activity.

- Nanda asked for detail on oil spill response particularly shoreline impact, Woodside described hydrocarbon spill preparedness, emergency planning and the various response techniques.

- Woodside provided an overview of the proposed activity.
- Woodside described the planned and unplanned risks/impacts and discussed the EMBA for the activity:
  - Nanda asked about greenhouse emission reduction activities, Woodside responded that for this activity it is mainly to do with minimising vessel fuel and using more efficient vessels.
- Woodside called for any further questions or feedback. None were received.
- Woodside provided personal contact details for further feedback

- On 18 May 2023, Woodside emailed Nanda/YMAC with outcomes of the meeting held on 19 April 2023, Woodside thanked Nanda for the engagement and careful consideration of matters presented. Woodside acknowledged their commitment to ongoing consultation and engagement beyond that required for the submission of EP's.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 17 March, Nanda has not provided feedback, objections or claims to date in response to the information provided.	Woodside continues to engage Nanda in relation to feedback following the 19 April 2023 Board meeting. No material issues or concerns related to the proposed activity were raised during consultation to date. Woodside invited further feedback in accordance with Woodside's approach to ongoing consultation (**Section 7.8.2.1**) Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests. Nanda has had a reasonable opportunity to participate in consultation. 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 7.6**).	Woodside considers the measures and controls in the EP address Nanda's functions, interests or activities. Based on the engagement to date, no additional controls have been identified. As no response was provided by Nanda, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response. As identified in **Section 7.8.2.1** of this EP, Woodside will continue to consult Nanda following acceptance of the EP, as requirement by the implementation strategy as set out in regulation 14(9) of the Environment Regulations.

Gogolanyngor Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 28 February 2023, Woodside emailed Gogolanyngor Aboriginal Corporation (Gogolanyngor) via the representative body Kimberley Land Council (KLC) regarding the proposed activity (Appendix G, Section 3.51).
- On 28 February 2023, KLC emailed Woodside confirming that KLC had forwarded Woodside's email to Gogolanyngor's contact person for their consideration and attendance.
- On 8 March 2023, Woodside emailed KLC following up on the proposed activity and whether there were any initial concerns.
- On 5 April, Woodside phoned the Gogolanyngor's chairperson to request any questions Woodside can answer.
- On 13 April 2023, Woodside emailed Gogolanyngor's chairperson proposing a meeting date and confirming that Woodside is meeting one of the directors of the Gogolanyngor to discuss further questions.
- On 14 April 2023, Gogolanyngor's chairperson acknowledged the email.
- On 24 April 2023, Woodside emailed Gogolanyngor's chairperson requesting to meet any time between 1 March to 4 April 2023.
- On 26 April 2023, Gogolanyngor's chairperson emailed Woodside confirming he is available 1 May 2023.
- On 26 April 2023, Woodside emailed Gogolanyngor's chairperson confirming their availability.
- On 1 May 2023, Woodside met with Gogolanyngor's chairperson and explained the fact sheet relevant to this activity.
- On 2 May 2023, Woodside was asked into the Gogolanyngor Board meeting, Woodside explained the activities and information sheet, the Board had copies of the information sheets. The Board had no questions or concerns, Woodside requested that the take time to discuss the activity and if any questions or concerns arose to pass them on to Woodside.
- On 3 May 2023, the Gogolanyngor's chairperson phoned Woodside to inform that he was drafting a letter to say there are no concerns or queries about this activity.
- On 3 May 2023, Gogolanyngor sent a letter acknowledging this activity and noting if they had further questions they would contact Woodside.
- On 15 May 2023, Gogolanyngor's chairperson emailed Woodside that there is no interest in the EMBA for this activity.
- On 7 June 2023, Woodside emailed Gogolanyngor inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Environment Plan Controls**
On 15 May 2023 Gogolanyngor AC notified Woodside that they have no interest in the area of the EMBA for this activity.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests Gogolanyngor AC has had a reasonable opportunity to participate in consultation 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,	Based on the engagement to date, no additional controls have been identified.

	Woodside will apply its Management of Change and Revision process (see **Section 7.6**).	

Nimanburr Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 28 February 2023, Woodside emailed Nimanburr Aboriginal Corporation (Nimanburr) via the representative body Kimberley Land Council (KLC) regarding the proposed activity (Appendix G, Section 3.52).
- On 28 February 2023, KLC emailed Woodside confirming that KLC had forwarded Woodside's email to Nimanburr's contact person for their consideration and attendance.
- On 8 March 2023, Woodside emailed KLC following up on the proposed activity and asking whether there were any initial concerns.
- On 5 April 2023, Woodside phoned Nimanburr to check that there are no concerns or questions and offered to meet in-person to address any questions or concerns.
- On 5 April 2023, Woodside emailed Nimanburr following up on the proposed activity and to request any concerns or questions.
- On 2 May 2023, Woodside met with some Nimanburr Directors to agree a meeting date and place with further Nimanburr members.
- On 6 May 2023, Woodside met with Nimanburr Director and provided fact sheet and explanation of the EMBA and activity for this EP, requested any concerns or questions be put to Woodside (contact provided).
- ON 10 May 2023, phoned Nimanburr Director, not available, left a message to return call.
- On 10 May spoke to Nimanburr Director to seek feedback on this activity.
- On 11 May 2023, Nimanburr emailed via the KLC to request a meeting and presentation at their next Board meeting.
- On 7 June 2023, Woodside emailed Nimanburr inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 28 February, Nimanburr has not provided feedback, objections or claims to date in response to the information provided.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests Nimanburr AC has had a reasonable opportunity to participate in consultation 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,	Based on the engagement to date, no additional controls have been identified.

	Woodside will apply its Management of Change and Revision process (see **Section 7.6**).	

Nyul PBC Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 28 February 2023, Woodside emailed Nyul Nyul PBC Aboriginal Corporation (Nyal Nyal PBC) via the representative body Kimberley Land Council (KLC) regarding the proposed activity (Appendix G, Section 3.53).
- On 28 February 2023, KLC emailed Woodside confirming that KLC had forwarded Woodside's email to Nyul Nyul PBC's contact person for their consideration and attendance.
- On 5 April 2023, Woodside emailed Nyul Nyul PBC's contact person following up on the proposed activity and requesting to set up a meeting.
- On 5 April 2023, Nyul Nyul PBC's contact person emailed Woodside offering to forward Woodside's correspondence to Nyul Nyul PBC directors and Chairperson who will be able to set up a meeting.
- On 5 April 2023, Woodside emailed Nyul Nyul PBC's contact person offering to meet in person in Broome and that if any of the Nyul Nyul PBC directors resided in Broome.
- On 6 April 2023, Nyul Nyul PBC's contact person emailed Woodside providing the contact details for one of the Nyul Nyul PBC's directors residing in Broome.
- On 26 April 2023, Woodside emailed Nyul Nyul PBC's contact person thanking them for their email and asking whether there was a response from any of the directors or chairperson.
- On 10 May 2023, Woodside phoned Beagle Bay as advised to contact Nyul Nyul, left a message.
- On 15 May 2023, Woodside phoned Beagle Bay again to seek feedback on information sent, no answer.
- On 25 May 2023, Woodside phoned Nyul Nyul to seek a meeting time, Nyul Nyul invited Woodside to a meeting on 14 June 2023 to speak to Directors and members. Woodside accepted the invitation.
- On 7 June 2023, Woodside emailed Nyul Nyul inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.
- On 14 June 2023, Woodside attempted to meet with Nyul Nyul at their invitation, on arrival they were informed the agenda was full. Woodside were informed they may be placed on a Board meeting Agenda in August.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 28 February, Nyul Nyul PBC has not provided feedback, objections or claims to date in response to the information provided.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests Nyul Nyul AC has had a reasonable opportunity to participate in consultation 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 7.6**).	Based on the engagement to date, no additional controls have been identified.

Wanjina-Wunggurr (Native Title) Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 28 February 2023, Woodside emailed Wanjina-Wunggurr (Native Title) Aboriginal Corporation (Wanjina-Wunggurr) via the representative body Kimberley Land Council (KLC) regarding the proposed activity (Appendix G, Section 3.54).
- On 28 February 2023, KLC emailed Woodside confirming that KLC had forwarded Woodside's email to Wanjina-Wunggurr's contact person for their consideration and attendance.
- On 8 March 2023, Woodside emailed KLC following up on the proposed activity and asking whether there were any initial concerns.
- On 5 April, Woodside emailed KLC following up on the proposed activity and whether there were any initial concerns.
- On 6 April 2023, KLC emailed Woodside confirming that KLC had forwarded Woodside's email to Wanjina-Wunggurr's contact person for their consideration and attendance.
- On 8 June 2023, Woodside emailed Wanjina-Wunggurr inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 28 February, Wanjina-Wunggurr has not provided feedback,	No material issues or concerns related to the proposed activity were raised during consultation to date.	Based on the engagement to date, no additional controls have been identified.

objections or claims to date in response to the information provided.	Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests Wanjina-Wunggur AC has had a reasonable opportunity to participate in consultation 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 7.6**).	

Karajarri Traditional Lands Association (KTLA)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed KTLA regarding the proposed activity (Appendix G, Section 3.47).
- On 24 March 2023, Woodside emailed KTLA following up on the proposed activity and whether there were any initial concerns.
- On 18 April 2023, Woodside emailed KTLA following up on the proposed activity and offered to meet in person to discuss the information.
- On 19 April 2023, KTLA phoned Woodside in response to a message to discuss a time to meet with the KTLA Board.
- On 19 April 2023, Woodside emailed KTLA thanking them for their call and proposed to meet on 1 May 2023 and requested a proposed budget for the meeting.
- On 28 April 2023, Woodside emailed KTLA asking for any feedback on the activity or issues and concerns. Woodside noted that feedback is welcome for the life of the EP.
- On 2 May 2023, Woodside met with representative from KTLA to discuss meeting with members, KTLA talked about funding a members meeting. Woodside re-iterated that KTLA are welcome to comment at any time during preparation of the EP. KTLA said they would respond in writing.
- On 7 June 2023, Woodside emailed KTLA inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 24 February, KTLA has not provided feedback, objections or claims to date in response to the information provided.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests KTLA has had a reasonable opportunity to participate in consultation	Based on the engagement to date, no additional controls have been identified.

	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 7.6**).	

Myala Inninalang Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 28 February 2023, Woodside emailed Mayala Inninalang Aboriginal Corporation (Mayala Inninalang) via the representative body Kimberley Land Council (KLC) regarding the proposed activity (Appendix G, Section 3.55).
- On 28 February 2023, KLC emailed Woodside confirming that KLC had forwarded Woodside's email to Mayala Inninalang for their consideration and attendance.
- On 8 March 2023, Woodside emailed KLC following up on the proposed activity and asking whether there were any initial concerns.
- On 5 April, Woodside emailed KLC following up on the proposed activity and whether there were any initial concerns.
- On 6 April 2023, KLC emailed Woodside confirming that KLC had forwarded Woodside's email to Mayala Inninalang for their consideration and attendance.
- On 8 June 2023, Woodside emailed Mayala Inninalang inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 28 February, Mayala Inninalang has not provided feedback, objections or claims to date in response to the information provided.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests. Myala Inninalang has had a reasonable opportunity to participate in consultation. 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 7.6**).	Based on the engagement to date, no additional controls have been identified.

Nyangumarta Warrarn Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed Nyangumarta Warrarn Aboriginal Corporation (NWAC) regarding the proposed activity and requesting feedback (Appendix G, Section 3.48).
- On 24 March 2023, Woodside emailed NWAC to follow up on a number of emails including the proposed activity. Woodside provided personal phone number as an alternative contact point
- On 18 April 2023, Woodside left a voice mail with YMAC seeking alternate contact for NWAC. No response was received
- On 28 April 2023, Woodside emailed NWAC informing that submission of the EP for the proposed activity would son occur, and calling for any feedback prior. An offer of discussion was made. No feedback was received.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 24 February, Nyangumarta Warrarn Aborignal Corporation has not provided feedback, objections or claims to date in response to the information provided.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests Nyangumarta Warrarn AC has had a reasonable opportunity to participate in consultation 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 7.6**).	Based on the engagement to date, no additional controls have been identified.
Nyangumarta Karajarri Aboriginal Corporation		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed Nyangumarta Karajarri Aboriginal Corporation (NKAC) via the representative body Kimberley Land Council (KLC) regarding the proposed activity (Appendix G, Section 3.50).
- On 24 March 2023, Woodside emailed NKAC via KLC to follow up on a number of emails including the proposed activity. Woodside provided personal phone number as an alternative contact point
- On 24 March 2023, KLC emailed Woodside to state that materials had been provided to NKAC Directors and they would contact Woodside with any queries or concerns
- On 18 April, Woodside emailed NKAC via KLC to ask whether the directors had any updates
- On 18 April, the KLC emailed Woodside to state that no communications had been received from NKAC Directors
- On 28 April, Woodside emailed NKAC via KLC NWAC informing that submission of the EP for the proposed activity would son occur, and calling for any feedback prior. An offer of discussion was made. No feedback was received.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 24 February, Nyangumarta Karajarri has not provided feedback, objections or claims to date in response to the information provided.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests NK AC has had a reasonable opportunity to participate in consultation 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 7.6**).	Based on the engagement to date, no additional controls have been identified.

Yawuru Native Title Holders Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 23 February 2023, Woodside emailed Yawuru Native Title Holders Aboriginal Corporation **(**Yawuru Native Title Holders) regarding the proposed activity (Appendix G, Section 3.39).
- On 23 February 2023, Yawuru Native Title Holders emailed Woodside acknowledging receipt of email.

- On 23 February 2023, Woodside emailed Yawuru Native Title Holders thanking them for their email.
- On 4 April 2023, Yawuru Native Title Holders emailed Woodside proposing to meet on 4 April 2023 at their office.
- On 4 April, Woodside met with Yawuru's Manager Native Title & Environmental Services and discussed the fact sheets for this matter which Yawuru had received. The Manager said they did not need to understand anything further but would check with other Yawuru personnel.
- On 13 April 2023, Woodside emailed Yawuru Native Title Holders thanking them for meeting with Woodside and confirming Yawuru Native Title Holders had no comments on the proposed activity. Woodside informed Yawuru Native Title Holders that Woodside's Carbon team would get in touch with them regarding other activities.
- On 15 April 2023, Yawuru Native Title Holders emailed Woodside confirming they do not need to engage further with Woodside on their activities in Dampier this year.
- On 17 April 2023, Woodside emailed Yawuru Native Title Holders, thanking them for their email and requested confirmation that Yawuru Native Title Holders do not need to be engaged further in relation to the proposed drilling activity.
- On 7 June 2023, Woodside emailed Yawuru Native Title Holders inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 23 February, Yawuru Native Title Holders has not provided feedback, objections or claims to date in response to the information provided.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests Yawuru Native Title Holders AC has had a reasonable opportunity to participate in consultation 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 7.6**).	Woodside considers the measures and controls in the EP address Yawuru Native Title Holders' functions, interests or activities. Based on the engagement to date, no additional controls have been identified. As no response was provided by Yawuru Native Title Holders, Woodside is not in a position to assess the merits of any objection or claim about the adverse impact of the PAP or to provide a response. As identified in **Section 7.8.2.1** of this EP, Woodside will continue to consult Yawuru Native Title Holders following acceptance of the EP, as requirement by the implementation strategy as set out in regulation 14(9) of the Environment Regulations.

Dambimangari Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 23 February 2023, Woodside emailed Dambimangari Aboriginal Corporation (Dambimangari) regarding the proposed activity (Appendix G, Section 3.40).
- On 8 March 2023, Woodside emailed Dambimangari following up on the proposed activity and asking whether there were any initial concerns.

- On 5 April, Woodside emailed Dambimangari following up on the proposed activity and proposed to meet to discuss any initial concerns or questions.
- On 7 June 2023, Woodside emailed Dambimangari inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 23 February, Dambimangari has not provided feedback, objections or claims to date in response to the information provided.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests Dambimangari has had a reasonable opportunity to participate in consultation 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 7.6**).	Based on the engagement to date, no additional controls have been identified.

Bardi and Jawi Niimidiman Aboriginal Corporation

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 24 February 2023, Woodside emailed Bardi and Jawi Niimidiman Aboriginal Corporation (Bardi and Jawi Niimidiman) regarding the proposed activity (Appendix G, Section 3.49).
- On 8 March 2023, Woodside emailed Bardi and Jawi Niimidiman following up on the proposed activity and asking whether there were any initial concerns.
- On 5 April, Woodside emailed Bardi and Jawi Niimidiman following up on the proposed activity and proposed to meet to discuss any initial concerns or questions.
- On 14 April 2023, Bardi and Jawi Niimidiman emailed Woodside, advising that that they will be unable to engage with Woodside on a goodwill basis via attending and coordinating meetings, or with general correspondence and requested that Woodside factor in the values that are outlined in Bardi and Jawi Niimidiman's Joint Management Plan for the Park, into Woodside's environment plan for projects. Bardi and Jawai Niimidiman stated that they will provide Woodside a resourcing protocol within 28 days, and objected to Woodside progressing matters with the PBC or making a submission to NOPSEMA.
- On 7 June 2023, Woodside emailed Bardi and Jawi Niimidiman inviting them to a community information drop-in session. The email offered separate meeting if desired, and requested the invitation be passed on to members and any other individuals.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 24 February, Bardi and Jawi Niimidiman has not provided feedback on this matter, although they note they object to Woodside progressing matters with the PBC as well as making a submissions to NOPSEMA for EP's until they can provide Woodside with a resourcing protocol. This has not yet been received.	No material issues or concerns related to the proposed activity were raised during consultation to date. Consultation has not identified any other groups or individuals relevant to communally held functions, activities or interests Bardi and Jawi Niimidiman AC has had a reasonable opportunity to participate in consultation Woodside will assess the proposed resourcing protocol from Bardi and Jawi Niimidiman when it is received, and use this as a basis for ongoing consultation. 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 7.6**).	Based on the engagement to date, no additional controls have been identified.
Native Title Representative Bodies		
Yamatji Marlpa Aboriginal Corporation (YMAC)		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 21 February 2023, Woodside emailed YMAC advising of the proposed activity (Appendix G, reference 3.36) and provided a Consultation Information Sheet. • On 13 March 2023, Woodside emailed YMAC as to whether YMAC considers itself a 'relevant person' under subregulation 11 A (1) of the Environment Regulations for the purposes of consultation on EPs and, if so, whether that relevance is limited to a facilitation function in its capacity as a representative of Traditional Owner groups/corporations that overlap or adjacent to the environment that may be affected (EMBA) of a particular activity. • On 20 March 2023, YMAC replied to confirm that in its view it is a 'relevant person' under subregulation 11 A (1) of the Environment Regulations for the purposes of consultation on EPs only in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation. YMAC does not intend to provide substantive comment on the content of EPs. • On 20 March 2023, Woodside emailed YMAC to thank it for its reply and to advise that that this assessment would be included in Woodside's EPs.		

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
YMAC has provided feedback that in its view it is a 'relevant person' under subregulation 11 A (1) of the Environment Regulations for the purposes of consultation on EPs only in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation and does not intend to provide substantive comment on the content of EPs.	YMAC is the Native Title Representative Body for the Yamatji and Pilbara regions of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate representing the cultural rights of a Traditional Custodian Community but exist to assist native title claimants and holders. YMAC is identified in the North-west Marine Parks Network Management Plan 2018 (DNP, 2018) as the Native Title Representative Body, noting no marine parks overlap the Operational Area. Woodside has approached YMAC to confirm the best approach to confirm additional cultural values (if any) within the Operational Area. Woodside has consulted with YMAC in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation. 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 7.6**).	Based on the engagement to date, no additional controls have been identified.
Kimberley Land Council (KLC)		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 16 February 2023, Woodside emailed KLC advising of the proposed activity (Appendix G, reference 3.33). • On 23 February, Woodside emailed KLC with further information and providing consultation information sheet • Woodside has been engaging with KLC on behalf of its represented groups as described in relevant sections above		

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
In consultation in the course of preparing the EP since 23 February, the KLC has not provided feedback, objections or claims to date in response to the information provided.	KLC is the Native Title Representative Body for the Kimberley regions of Western Australia. As such, they are not a Prescribed or Registered Native Title Body Corporate representing the cultural rights of a Traditional Custodian Community but exist to assist native title claimants and holders. Woodside has consulted with KLC in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation. 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 7.6**).	Based on the engagement to date, no additional controls have been identified.

Historical cultural heritage groups or organisations

Western Australian Museum

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed WA Museum advising of the proposed activity (Appendix G, reference 3.56) and provided a Consultation Information Sheet.
- On 24 February 2023, WA Museum responded, thanking Woodside for their email and confirmed it had no feedback for the proposed EP.
- On 9 March 2023, Woodside responded, thanking WA Museum for their response.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
The Western Australian Museum advised it had no feedback on the proposed activity. Whilst feedback has been received, there were no objections or claims.	The Western Australian Museum confirmed it has no feedback for the proposed activity. 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	The Environment Plan demonstrates that there are no known underwater heritage sites or shipwrecks within the Petroleum Activities Area and identifies that there are no credible impacts to the values of any underwater heritage or shipwrecks as a result of planned activities (**Section 4.8.1.8**). While impacts to underwater

	Management of Change and Revision process (see **Section 7.6**).	heritage sites or shipwrecks are possible in the event of an unplanned hydrocarbon spill, Woodside considers it adopts appropriate controls to prevent a hydrocarbon spill and controls to respond in the highly unlikely event of a hydrocarbon spill, as demonstrated in **Section 6.7.2** and **Section 6.7.3.** Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Western Australian Museum's functions, interests or activities. No additional measures or controls are required.

Local government and community representative groups or organisations

Shire of Exmouth

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed the Shire of Exmouth advising of the proposed activity (Appendix G, reference 3.57) and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed the Shire of Exmouth following up on the proposed activity (Appendix G, reference 3.57.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Shire of Ashburton

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 18 February 2023, Woodside emailed Shire of Ashburton advising of the proposed activity (Appendix G, reference 3.58) and provided a Consultation Information Sheet.
- On 8 March 2023, Woodside emailed Shire of Ashburton following up on the proposed activity (Appendix G, reference 3.58.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

City of Karratha

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed City of Karratha advising of the proposed activity (Appendix G, reference 3.59) and provided a Consultation Information Sheet.
- On 8 March 2023, Woodside emailed City of Karratha following up on the proposed activity (Appendix G, reference 3.59.1) and provided a Consultation Information Sheet.
- On 3 April 2023, City of Karratha responded to Woodside, the City of Karratha has reviewed the referral for comment relating to the Environmental Plan and advised at this stage the City doesn't raise any significant concerns in relation to the aforementioned EP.
- On 24 April 2023, Woodside emailed City of Karratha thanking for their feedback with respect to the proposed activity.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
City of Karratha reviewed the referral for comment and advised it has no significant concerns at this stage. Whilst feedback has been received, there were no objections or claims.	The City of Karratha confirmed it has no significant concerns relating to the proposed activity at this stage. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the City of Karratha's functions, interests or activities. No additional measures or controls are required.

Shire of Carnarvon

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed Shire of Carnarvon advising of the proposed activity (Appendix G, reference 3.60) and provided a Consultation Information Sheet.
- On 20 March 2023, the Shire of Carnarvon emailed Woodside, expressing their interest in Woodside's plans to undertake drilling and installation of subsea infrastructure in the area and requested to have an to have an in-person briefing from Woodside.
- On 31 March 2023, Woodside emailed Shire of Carnarvon following up on the proposed activity (Appendix G, reference 3.60.1) and to request any feedback.
- On 13 April 2023, Woodside emailed the Shire of Carnarvon, thanking them for their email and welcomed the opportunity to meet with the Shire to provide an overview of the proposed activities and proposed to either have a virtual meeting in April 2023 or meet with Woodside have representatives who will be in Carnarvon on 3 May 2023.
- On 14 April 2023, the Shire of Carnarvon emailed Woodside, proposing to meet at 3pm on 3 May 2023 in Carnarvon.
- On 19 April 2023, the Shire of Carnarvon emailed Woodside, following up to confirm whether the time was suitable.
- On 19 April 2023, Woodside emailed the Shire of Carnarvon, advising that Woodside is in the process of finalising arrangements for a couple of other meetings in Carnarvon and would like to tentatively secure the meeting at 3pm on 3 May 2023.
- On 19 April 2023, the Shire of Carnarvon emailed Woodside, acknowledging Woodside's email.
- On 28 April 2023, Woodside emailed the Shire of Carnarvon, informing that Woodside's trip to Carnarvon on 3 May 2023 has been cancelled and requested to have the meeting online.
- On 28 April 2023, the Shire of Carnarvon emailed Woodside, confirming they have sent an online Teams link.
- On 3 May 2023, Woodside had a meeting with the Shire of Carnarvon (SoC) on a separate EP and provided an overview of activities proposed under this EP.
    - The SoC noted that they were struggling to see how the Shire may be impacted by Woodside's activities that it has been receiving consultation information for. Noted that the Town of Coral Bay is within the Shire of Carnarvon which is closer to Woodside's activities, but this is still quite a distance.
    - Noted that the townsite of Coral Bay may be more directly within Woodside's area of potential impact and is very reliant on the environment. Noted that there are fisheries based in Carnarvon going out to Shark Bay which are an important part of the economy and lifestyle.
    - Woodside thanked the SoC for its advice around engagement and agreed that the meeting was a good opportunity to establish a relationship with the SoC and determine the best method to engage moving forward.
    - Woodside explained recent changes to consultation and the expansive area titleholders are now required to consult on, referred to as the EMBA.
    - Woodside explained that the EMBA for each EP is determined based on the largest spatial extent where unplanned events could potentially have an environmental consequence. Explained that for each of the EPs Woodside would be discussing with the SoC, the EMBA is determined by the unlikely event of a hydrocarbon release.
    - Woodside explained that the SoC has the opportunity to provide feedback on each of Woodside's proposed activities that it would be providing an overview of.
    - Woodside provided an overview of the proposed activities, including:
        - explaining the proposal to drill wells to tie to Pluto.
        - noted the activities are around 566 km from Carnarvon.
        - noted there is one EP for the PLA08 operations - drilling of the well into the seabed, install xmas trees, installing all the infrastructure we need to tie it back to Pluto.

- noted the EP doesn't include the processing of the wells - that's under the existing Pluto EP. It does cover maintenance activities if required.
- explained there being 3 vessels to complete the activity and timing.
- explained the proposed timing of the activity and the planned and unplanned risks and impacts for PLA08, including that Woodside has a First Strike Plan in place.
  - The SoC noted that in the event of a spill, it would be good to understand where the Shire sits as part of the response to protect its habitats.
- Woodside explained it has oil spill response plans in place specific to the EP which it provides to DoT and AMSA for feedback as the response agencies.
- The SoC thanked Woodside for the overview of activities and advised it would consider the information within the context of the Shire's interests in the environment and its link to its economy.
- The SoC queried whether WE had consulted the Shire of Shark Bay and Yinggarda on the PLA08 activity.
- Woodside confirmed it had engaged the Shire of Shark Bay and Yinggarda for PLA08.
- The SoC noted that the risk profiles of Carnarvon compared to the townsite of Coral Bay are different and noted that Coral Bay is geographically close to Exmouth. SoC requested additional clarity on the contact points for Coral Bay for each of the activities.

- On 5 May 2023, Woodside sent an email to the Shire of Carnarvon thanking the Shire for the 3 May 2023 meeting and provided a consolidated email with all proposed activities Woodside is consulting the Shire on, including the activities proposed under this EP. Woodside confirmed it is looking into the likelihood of contact along Coral Bay for each of the EPs and committed to providing this additional information.
- On 29 May 2023, the SoC responded and:
  - thanked Woodside for providing the consultation information.
  - noted that it appreciated being kept informed and felt that the meeting was useful in allowing the Shire to better understand the potential risks for areas within the Shire and the mitigations measures in place.
  - requested that should risks to the Shire change for these projects or new risks emerge for these or other projects, it would appreciate being advised.
  - advised it had no further comment.
- On 29 May 2023, Woodside responded and:
  - Thanked the Shire for its feedback with respect to a number of EPs, including the activities proposed under this EP.
  - Noted the Shire's advice that:
    - it would like to be updated if risks to the Shire change for these projects or new risks emerge for these or other projects.
    - the Shire has no further comments.
  - Noted that at the 3 May 2023 meeting, Woodside committed to providing the Shire with the likelihood of contact along Coral Bay for each of the above EPs. Woodside:
    - explained the EMBA being determined by the highly unlikely event of a hydrocarbon release from activities within the scope of the EP.
    - explained that when Woodside models the EMBA for a hydrocarbon spill, we consider both the environmental and visual amenity risk. The outputs identify which areas of the marine environment could be exposed to hydrocarbons at levels exceeding certain threshold concentrations in the unlikely event of a spill.
    - summarised the probabilities of surface, shoreline and in-water hydrocarbon contact at Coral Bay for a number of EPs, including the activities proposed under this EP.

- On 29 May 2023, the SoC responded thanking Woodside for the information and suggested that Woodside brief the Shire's Local Emergency Management Committee (LEMC) as most of this risk is only in the event of an emergency.
- On 8 June 2023, Woodside responded thanking the Shire for its email and confirmed Woodside would welcome the opportunity to brief the Shire's LEMC.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Woodside had a meeting with the Shire of Carnarvon, where the Shire provided feedback that: • they were struggling to see how the Shire may be impacted by Woodside's activities that it has been receiving consultation information for. • undertook to give the Council an update and if they have further input, they would reach out to Woodside. • requested Woodside send an email with the full list of EPs it had consulted the Shire on, so they had it in one place, including this EP. • requested Woodside provide the contact points for Coral Bay for each of the environment plans discussed, including the activities proposed under this EP. • requested Woodside brief the Shire's LEMC.	Woodside has addressed the Shire of Carnarvon's feedback, including: • providing additional information on the proposed activities. • provided a consolidated email with all EPs Woodside was consulting the Shire on, including the activities proposed under this EP. • providing the Shire with the contact points to Coral Bay for each of the EPs, including the activities proposed under this EP. • agreed to a meeting with the Shire's LEMC to provide an oil spill briefing. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the Shire of Carnarvon's functions, interests or activities. No additional measures or controls are required.

Town of Port Hedland

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed Town of Port Hedland advising of the proposed activity (Appendix G, reference 3.61) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Town of Port Hedland following up on the proposed activity (Appendix G, reference 3.61.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.
Shire of Wyndham-East Kimberley		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 10 March 2023, Woodside emailed Shire of Wyndham-East Kimberley advising of the proposed activity (Appendix G, reference 3.62) and provided a Consultation Information Sheet. • On 13 March 2023, Shire of Wyndham-East Kimberley emailed Woodside, acknowledging receipt of email and confirmed while the activity will not affect the Shire of Wyndham-East Kimberley area it appreciated the opportunity to provide feedback. • On 10 May 2023, Woodside responded thanking the Shire for its feedback.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Environment Plan Controls**
The Shire of Wyndham-East Kimberley confirmed the activity will not affect the Shire of Wyndham-East Kimberley area. Whilst feedback has been received, there were no objections or claims.	Woodside notes the Shire of Wyndham-East Kimberley has confirmed the activity will not affect the Shire of Wyndham-East Kimberley area. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the Shire of Wyndham-East Kimberley's functions, interests or activities. No additional measures or controls are required.
Shire of East Pilbara		

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed Shire of East Pilbara advising of the proposed activity (Appendix G, reference 3.64) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Shire of East Pilbara following up on the proposed activity (Appendix G, reference 3.64.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Shire of Broome

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed Shire of Broome advising of the proposed activity (Appendix G, reference 3.65) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Shire of Broome following up on the proposed activity (Appendix G, reference 3.65.1) and to request any feedback.
- On 31 March 2023, the Shire of Broome emailed Woodside, thanking Woodside and acknowledging receipt of their email.
- On 9 April 2023, the Shire of Broome emailed Woodside, requesting the following to be undertaken:
  - Noise emissions from this site as received at the nearest noise sensitive premises should comply with the requirements of Environmental Protection (Noise) Regulations 1997.
  - Submit your detailed Discharge Management Plan to the Shire of Broome, detailing all measure that you undertake when discharging. Ensure that all discharge licences are obtained from Dept of Environmental Regulations.
  - Submit to the Shire of Broome a detailed Atmospheric Emission Management Plan.
  - Submit to the Shire of Broome a detailed Hydrocarbon Release Management Plan.
  - Submit to the Shire of Broome a detailed Hazardous Substance Management Plan.
- On 23 May 2023, Woodside emailed the Shire of Broome to thank it for its feedback and advised:
  - The Operational Area for this activity is within Commonwealth waters approximately 170 km from Dampier and approximately 770 km from Broome.
  - The proposed activities are in Commonwealth waters, and as such, the relevant regulator NOPSEMA and the relevant regulations that this EP will be assessed under is the OPGGS Environment Regulations.

- As the activities will occur in Commonwealth Waters, it is not expected that noise emissions will be received at noise sensitive premises as defined under the State Environmental Protection (Noise) Regulations 1997.
- Potential discharges to the marine environment, atmospheric emissions and release of hazardous substances from this activity aren't managed via separate plans. They would be managed to ALARP and acceptable, as required by the OPGGS Environment Regulations, through the implementation of the EP.
- Woodside advised key measures in the EP to support management to ALARP.
- Woodside has a number of documents to support a response in the unlikely event of a hydrocarbon release, including:
  - The Woodside Oil Pollution Emergency Arrangements (Australia)
  - The Oil Pollution First Strike Plan
  - Oil Spill Preparedness and Response Mitigation Assessment
- The Oil Pollution First Strike Plan had been provided to DoT as the relevant control agency for hydrocarbon spills in State waters and AMSA – Marine Pollution branch as the relevant control agency for hydrocarbon spills in Commonwealth waters.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
The Shire of Broome requested additional information relating to noise, discharges, atmospheric emissions, hydrocarbon release and hazardous substances.	Woodside has addressed the Shire of Broome's feedback, including advising: • As the activities will occur in Commonwealth Waters, it is not expected that noise emissions will be received at noise sensitive premises as defined under the State Environmental Protection (Noise) Regulations 1997. • Potential discharges to the marine environment, atmospheric emissions and release of hazardous substances from this activity aren't managed via separate plans. They would be managed to ALARP and acceptable, as required by the OPGGS Environment Regulations, through the implementation of the EP. • Woodside advised key measures in the EP to support management to ALARP. • The documents Woodside uses in the unlikely event of a hydrocarbon release and advised the relevant control agencies. 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	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the Shire of Broome's functions, interests or activities. No additional measures or controls are required.

	Management of Change and Revision process (see **Section 7.6**).	

Shire of Christmas Island

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed the Shire of Christmas Island advising of the proposed activity (Appendix G, reference 3.67) and provided a Consultation Information Sheet.
- On 23 March 2023, Woodside emailed the Shire of Christmas Island advising of the proposed activity (Appendix G, reference 3.67.1) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed the Shire of Christmas Island following up on the proposed activity (Appendix G, reference 3.67.2) and to request any feedback.
- On 17 April 2023, Woodside emailed the Shire of Christmas Island following up on the proposed activity (Appendix G, reference 3.67.3) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Exmouth Community Liaison Group (CLG)

- Base Marine
- Bgahwan Marine
- Cape Conservation Group Inc.
- DBCA
- Department of Defence
- Department of Transport
- Exmouth Bus Charter
- Exmouth Chamber of Commerce and Industry
- Exmouth District High School
- Exmouth Freight and Logistics
- Exmouth Game Fishing Club
- Exmouth Tackle and Camping Supplies

• Exmouth Visitors Centre • Exmouth Volunteer Marine Rescue • Fat Marine • Gascoyne Development Commission • Gun Marine Services • Ningaloo Lodge • Offshore Unlimited • Shire of Exmouth • Santos • Community Member		
Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below. **Summary of information provided and record of consultation:** • On 16 February 2023, Woodside emailed Exmouth Community Liaison Group advising of the proposed activity (Appendix G, reference 3.68) and provided a Consultation Information Sheet. • On 7 March 2023, Woodside emailed Exmouth Community Liaison Group following up on the proposed activity (Appendix G, reference 3.68.1) and to request any feedback.		
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 7.6**).	No additional measures or controls are required.
Karratha Community Liaison Group (CLG) • WA Police • Karratha Health Care • Development WA • Ngarluma Yindjibarndi Foundation Ltd (NYFL) • Department of Education • Pilbara Ports Authority • Regional Development Australia		

- Pilbara Development Commission
- Dampier Community Association
- City of Karratha
- Karratha & Districts Chamber of Commerce and Industry
- Horizon Power
- Murujuga Aboriginal Corporation (MAC)*
- Department of Local Government, Sport and Cultural Industries

**MAC was consulted directly as described above.*

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside emailed Karratha Community Liaison Group advising of the proposed activity (Appendix G, reference 3.69) and provided a Consultation Information Sheet.
- On 8 March 2023, Woodside emailed Karratha Community Liaison Group following up on the proposed activity (Appendix G, reference 3.69.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Onslow Chamber of Commerce and Industry

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 18 February 2023, Woodside emailed Onslow Chamber of Commerce and Industry advising of the proposed activity (Appendix G, reference 3.70) and provided a Consultation Information Sheet.
- On 8 March 2023, Woodside emailed Onslow Chamber of Commerce and Industry following up on the proposed activity (Appendix G, reference 3.70.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Port Hedland Chamber of Commerce and Industry

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed Port Hedland Chamber of Commerce and Industry advising of the proposed activity (Appendix G, reference 3.71) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Port Hedland Chamber of Commerce and Industry following up on the proposed activity (Appendix G, reference 3.71.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Carnarvon Chamber of Commerce and Industry

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed Carnarvon Chamber of Commerce and Industry advising of the proposed activity (Appendix G, reference 3.72) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Carnarvon Chamber of Commerce and Industry following up on the proposed activity (Appendix G, reference 3.72.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

East Kimberley Chamber of Commerce and Industry

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed East Kimberley Chamber of Commerce and Industry advising of the proposed activity (Appendix G, reference 3.73) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed East Kimberley Chamber of Commerce and Industry following up on the proposed activity (Appendix G, reference 3.73.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Derby Chamber of Commerce and Industry

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed Derby Chamber of Commerce and Industry advising of the proposed activity (Appendix G, reference 3.74) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Derby Chamber of Commerce and Industry following up on the proposed activity (Appendix G, reference 3.74.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Broome Chamber of Commerce and Industry (BCCI)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed BCCI advising of the proposed activity (Appendix G, reference 3.75) and provided a Consultation Information Sheet.
- On 10 March 2023, BCCI emailed providing Woodside the opportunity to present to the Board.
- On 11 April 2023, Woodside emailed BCCI confirming they would like to present and asked for a suitable date and time for the meeting
- On 13 April 2023, BCCI emailed Woodside providing the dates for their upcoming board meetings and asked Woodside to confirm a day to present either face-to-face or online
- On 19 April 2023, Woodside emailed BCCI thanking them for providing the dates and advised they would like to present on 17 May 2023 via Teams. Woodside also requested some additional time to present on other proposed activities
- On 19 April 2023, BCCI emailed Woodside confirming the date and time for the presentation. BCCI also asked who will be presenting and the email address to which the meeting invite should be sent to.
- On 21 April 2023, Woodside emailed BCCI, advising that they do not have confirmation on BCCI's queries yet and will get back to BCCI soon.
- On 2 May 2023, BCCI emailed Woodside to follow up on the meeting information.
- On 3 May 2023, Woodside emailed BCCI advising it would provide the information by BCCI's requested deadline.
- On 5 May 2023, Woodside emailed BCCI requesting the Board be provided with a copy of the EP consultation information sheet and re-attached a copy, and advised Woodside meeting attendees.
- On 17 May 2023, Woodside had a meeting with the BCCI and:
    - Provided an overview of Environment Plans and the change in consultation requirements for consultation on the environment that may be affected (EMBA) by planned or unplanned activities the subject of the EP.
    - Explained the EMBA for the WA-34-L Pyxis Drilling and Installation (referred to as thePLA08 EP) and Stybarrow P&A EPs which predict that in the unlikely event of a hydrocarbon spill, the spill may reach coastlines around Broome
    - Provided an overview of the PLA08 EP and Stybarrow P&A EP activities
    - BCCI queried whether the consultation was the same for decommissioning and new activities. Woodside confirmed the consultation approach is the same for decommissioning and new activities

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
Woodside had a meeting with the BCCI and proposed an overview of proposed activities. Whilst feedback has been received, there were no objections or claims.	Woodside notes there were no objections or claims for the proposed activity during its meeting with BCCI. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on the BCCI's functions, interests or activities. No additional measures or controls are required.

Christmas Island Business Association

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 23 March 2023, Woodside emailed Christmas Island Business Association advising of the proposed activity (Appendix G, reference 3.81) and provided a Consultation Information Sheet.
- On 17 April 2023, Woodside emailed Christmas Island Business Association following up of the proposed activity (Appendix G, reference 3.81.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Indian Ocean Territories Regional Development Organisation (RDO)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 23 March 2023, Woodside emailed Indian Ocean Territories RDO advising of the proposed activity (Appendix G, reference 3.82) and provided a Consultation Information Sheet.
- On 17 April 2023, Woodside emailed Indian Ocean Territories RDO following up of the proposed activity (Appendix G, reference 3.82.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Research institutes and local conservation groups or organisations

Cape Conservation Group (CCG)

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed CCG advising of the proposed activity (Appendix G, reference 3.76) and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed CCG following up on the proposed activity (Appendix G, reference 3.76.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Protect Ningaloo

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Protect Ningaloo advising of the proposed activity (Appendix G, reference 3.76) and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Protect Ningaloo following up on the proposed activity (Appendix G, reference 3.76.1) and to request any feedback.

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	No additional measures or controls are required.

	been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see **Section 7.6**).	

Table 5-5: Engagement report with persons and/ or organisations assessed as not relevant

Commonwealth and WA State Government Departments or Agencies – Environment
Shark Bay World Heritage Advisory Committee

Summary of information provided and record of consultation:
• On 15 March 2023, the Shark Bay World Heritage Advisory Committee (SBWHAC) emailed Woodside following being provided with the consultation information by the Shire of Bark Bay and provided a map of the SBWHA and the Statement of Outstanding Universal Values for the property and requested the following:
  ○ The committee be provided with a map that overlays the Shark Bay World Heritage Area boundary with the Environment that May Be Affected (EMBA) area.
  ○ Information on what potential activities/impacts are likely to occur in the southern leg of the EMBA, proximal to the Shark Bay World Heritage Area.
  ○ A complete a risk assessment of any potential impacts from the activity, planned or unplanned, might have on the Outstanding Universal Values (OUVs) of the Shark Bay World Heritage Area be provided to the SBWHAC to allow the committee to understand those risks.
• On 15 May 2023, Woodside emailed the SBWHAC to thank it for its feedback and advised:
  ○ Woodside has been undertaking updated modelling for this EP and we wanted to ensure this information informs our response.
  ○ Explained the EMBA for this EP.
  ○ Advised that Woodside has conducted further engineering studies which have resulted in a reduction to the approximate time required to successfully drill an intervention well from 72 days to 60 days. This reduction in the number of days required for drilling has also therefore reduced the hydrocarbon release volume and EMBA for this EP.
  ○ Provided a figure of the updated EMBA which shows there is no predicted contact with the Shark Bay World Heritage Area.
  ○ Requested that Woodside's response is provided to the Shire of Shark Bay for their information or requested contact details for the best person to pass the information onto.
• On 17 May 2023, the SBWHAC responded asking what the basis was for the modelling and requested either a copy of the EP or modelling to better understand the variation.
• On 16 June 2023, Woodside responded thanking the SBWHAC for its query and advised:
  ○ The EP defines the spatial extent of the EMBA by the petroleum activity and assesses all potential risks and impacts within that EMBA.
  ○ The EMBA is the largest spatial extent where an impact from the activity may be experienced. For the PLA08 EP, the activity that has potential to cause the greatest extent of impact is the unplanned release of hydrocarbons from a loss of well containment.
  ○ Quantitative hydrocarbon spill modelling is undertaken by a third party, using a three-dimensional hydrocarbon spill trajectory and weathering model.
  ○ The modelling results are analysed and reported based on the 'fate' of the hydrocarbon, which are summarised as: floating hydrocarbons, accumulated hydrocarbons, entrained hydrocarbons and dissolved hydrocarbons.
  ○ Hydrocarbon contact, at the different 'fates', can occur at different thresholds to assess both environmental (ecological) and socio-cultural risks.
  ○ The EMBA does not contact the Shark Bay World Heritage Area.
  ○ The portion of the EMBA that intercepts the Shark Bay Australian Marine Park is not expected to result in any biological impacts in the Marine Park, and provided a figure illustrating the boundary of the ecological EMBA and socio-cultural EMBA for the EP.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
The SBWHAC on behalf of the Shire of Shark Bay requested: • The Committee be provided with a map that overlays the SBWHA boundary with the EMBA. • Information on what potential activities/impacts are likely to proximal to the Shark Bay World Heritage Area. • A risk assessment of any potential impacts from the activity, planned or unplanned, might have on the OUVs of the SBWHA. Whilst feedback has been received, there were no objections or claims.	Woodside has addressed the SBWHAC and Shire of Shark Bay's feedback, including: • Advised that Woodside has conducted further engineering studies which have resulted in a reduction to the approximate time required to successfully drill an intervention well from 72 days to 60 days. This reduction in the number of days required for drilling has also therefore reduced the hydrocarbon release volume and EMBA for this EP. • Provided a figure of the updated EMBA which shows there is no predicted contact with the Shark Bay World Heritage Area. 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 7.6**).	Woodside considers the measures and controls in the EP are appropriate. 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 2 June 2022, Woodside emailed the ASBTIA advising of the proposed activity (Appendix G, reference 1.15) and provided a Consultation Information Sheet and fisheries map (Appendix G, reference 1.20). • On 20 June 2022, Woodside emailed ASBTIA following up on the proposed activity (Appendix G, reference 2.3) and provided a Consultation Information Sheet and fisheries map. • On 15 February 2023, Woodside emailed ASBTIA providing additional information on the proposed activity (Appendix G, reference 3.14), and provided an updated Consultation Information Sheet. • On 7 March 2023, Woodside emailed ASBTIA following up on the proposed activity (Appendix G, reference 3.14.1) and to request any feedback.		

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 has provided consultation information to AFMA, DAFF - Fisheries, CFA, ASBTIA, Tuna Australia and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
State Commercial fisheries and representative bodies		
West Coast Demersal Scalefish Fishery		
Summary of information provided and record of consultation: • On 17 February 2023, Woodside sent a letter to West Coast Demersal Scalefish Fishery advising of the proposed activity (Appendix G, reference 3.18), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to West Coast Demersal Scalefish Fishery following up on the proposed activity (Appendix G, reference 3.18.1) and to request any feedback. • On 24 February 2023, WAFIC responded on behalf of a West Coast Demersal Scalefish Fishery licence holder and: o Noted the fisheries operations aren't affected by Woodside's planned activities. o Re-provided WAFIC's position on engagement with stakeholders for unplanned activities. o Raised concerns with the QR approach for providing information sheets. o Noted an alternative approach that could be considered to deal with consultation with stakeholders in the EMBA, if necessary, would be an annual meeting with commercial fishers and peak bodies. • On 1 March 2023, Woodside responded to WAFIC and the West Coast Demersal Scalefish Fishery licence holder and: o Noted its appreciation for WAFIC's feedback on how it could improve its correspondence. o Noted Woodside's recent shift to using QR codes for consultation issued via post, which was taken due to the significant increase in regulatory consultation requirements on the EMBA and the environmental impact of printing multiple large documents for over a thousand fishery licence holders for these EPs.		

- Noted Woodside's preference would be to send consultation via email with attachments, but unfortunately DPIRD only provides postal contact details.
- Noted its appreciation for the work WAFIC had undertaken to develop a position on engagement with commercial fisheries that WAFIC represents for unplanned activities. However, Woodside had not yet received advice from NOPSEMA regarding acceptability of WAFIC's position.
- Woodside would welcome the opportunity to meet with commercial fishers and peak bodies to discuss proposed EPs at an annual event.
- Offered to remove the licence holder him from its distribution list for activities where their operations were only impacted by unplanned activities.

- On 2 March 2023, the West Coast Demersal Scalefish Fishery licence holder responded and advised its contact details so it could be removed from Woodside's distribution list for activities where their operations were only impacted by unplanned activities.
- On 2 March, Woodside responded clarifying the contact details to remove the licence holder from its distribution list, which was confirmed by the licence holder.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
WAFIC provided feedback on behalf of a West Coast Demersal Scalefish Fishery licence holder, including: • Noted the fisheries operations aren't affected by Woodside's planned activities. • Re-provided WAFIC's position on engagement with stakeholders for unplanned activities. • Raised concerns with the QR approach for providing information sheets. • Noted an alternative approach that could be considered to deal with consultation with stakeholders in the EMBA, if necessary, would be an annual meeting with commercial fishers and peak bodies.	Woodside has addressed WAFIC and the West Coast Demersal Scalefish Fishery licence holder's feedback, including: • Noted its appreciation for WAFIC's feedback on how it could improve its correspondence. • Noted Woodside's recent shift to using QR codes for consultation issued via post, which was taken due to the significant increase in regulatory consultation requirements on the EMBA and the environmental impact of printing multiple large documents for over a thousand fishery licence holders for these EPs. • Noted its appreciation for the work WAFIC had undertaken to develop a position on engagement with commercial fisheries that WAFIC represents for unplanned activities. However, Woodside had not yet received advice from NOPSEMA regarding acceptability of WAFIC's position. • Removed the licence holder from its distribution list for activities where their operations were only impacted by unplanned activities. Woodside has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Shark Bay Crab Managed Fishery		
Summary of information provided and record of consultation: • On 17 February 2023, Woodside sent a letter to Shark Bay Crab Fishery advising of the proposed activity (Appendix G, reference 3.18), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to Shark Bay Crab Fishery following up on the proposed activity (Appendix G, reference 3.18.1) and to request any feedback.		
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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Shark Bay Prawn Managed Fishery		
Summary of information provided and record of consultation: • On 17 February 2023, Woodside sent a letter to Shark Bay Prawn Fishery advising of the proposed activity (Appendix G, reference 3.18), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to Shark Bay Prawn Fishery following up on the proposed activity (Appendix G, reference 3.18.1) and to request any feedback.		
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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders.	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP.

	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 7.6**).	Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
Shark Bay Scallop Managed Fishery		
Summary of information provided and record of consultation: • On 17 February 2023, Woodside sent a letter to Shark Bay Scallop Fishery advising of the proposed activity (Appendix G, reference 3.18), and provided a Consultation Information Sheet. • On 9 March 2023, Woodside sent a letter to Shark Bay Scallop Fishery following up on the proposed activity (Appendix G, reference 3.18.1) and to request any feedback.		
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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.
FBL Condition 74 Fish Trapping		

Summary of information provided and record of consultation:

- On 28 February 2023, Woodside sent a letter to FBL Condition 74 Fish Trapping advising of the proposed activity (Appendix G, reference 3.20), and provided a Consultation Information Sheet.
- On 19 April 2023, Woodside sent a letter to FBL Condition 74 Fish Trapping following up on the proposed activity (Appendix G, reference 3.20.2) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders. 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 7.6**).	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC, and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.2** in this EP. No additional measures or controls are required.

Northern Demersal Scalefish Fishery

Summary of information provided and record of consultation:

- On 17 February 2023, Woodside sent a letter to Northern Demersal Scalefish Fishery advising of the proposed activity (Appendix G, reference 3.17), and provided a Consultation Information Sheet.
- On 9 March 2023, Woodside sent a letter to Northern Demersal Scalefish Fishery following up on the proposed activity (Appendix G, reference 3.17.1) and to request any feedback.

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 has provided consultation information to DPIRD, WAFIC and individual relevant licence holders.	Woodside has assessed the relevancy of Commonwealth and State fisheries in **Section 4.8.2** of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA, DPIRD, WAFIC,

	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 7.6**).	and relevant Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery and Pilbara Line Fishery) prior to the commencement and at the end of the activity, as referenced as **PS 1.5** in this EP. No additional measures or controls are required.

Titleholders and Operators

Fugro Exploration

Woodside considers it has discharged its obligations under regulation 11A by providing consultation materials and conducting various forms of engagement as set out in **Section 5.8** and below.

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed Fugro Exploration advising of the proposed activity (Appendix G, reference 3.29), and provided an Updated Consultation Information Sheet.
- On 7 March 2023, Woodside emailed Fugro Exploration following up of the proposed activity (Appendix G, reference 3.29.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Local government and community representative groups or organisations

Shire of Derby/West Kimberley

Summary of information provided and record of consultation:

- On 10 March 2023, Woodside emailed Shire of Derby/West Kimberley advising of the proposed activity (Appendix G, reference 3.63) and provided a Consultation Information Sheet.
- On 31 March 2023, Woodside emailed Shire of Derby/West Kimberley following up on the proposed activity (Appendix G, reference 3.63.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.
Shire of Shark Bay		
Summary of information provided and record of consultation: • On 10 March 2023, Woodside emailed Shire of Shark Bay advising of the proposed activity (Appendix G, reference 3.66) and provided a Consultation Information Sheet. • On 31 March 2023, Woodside emailed the Shire of Shark Bay following up on the proposed activity (Appendix G, reference 3.66.1).		
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 7.6**).	No additional measures or controls are required.
Other non-government groups or organisations		
350 Australia (350A)		
Summary of information provided and record of consultation: • On 16 February 2023, Woodside emailed 350A advising of the proposed activity (Appendix G, reference 3.76) and provided a Consultation Information Sheet. • On 7 March 2023, Woodside emailed 350A following up on the proposed activity (Appendix G, reference 3.76.1) and to request any feedback.		
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 7.6**).	No additional measures or controls are required.
Australian Conservation Foundation (ACF)		

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed ACF advising of the proposed activity (Appendix G, reference 3.76) and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed ACF following up on the proposed activity (Appendix G, reference 3.76.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Australian Marine Conservation Society (AMCS)

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed AMCS advising of the proposed activity (Appendix G, reference 3.76) and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed AMCS following up on the proposed activity (Appendix G, reference 3.76.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Conservation Council of Western Australia (CCWA)

Summary of information provided and record of consultation:

- On 16 February 2023, Woodside emailed CCWA advising of the proposed activity (Appendix G, reference 3.76) and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed CCWA following up on the proposed activity (Appendix G, reference 3.76.1) and to request any feedback.

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 7.6**).	No additional measures or controls are required.

Greenpeace Australia Pacific (GAP)		
Summary of information provided and record of consultation: • On 16 February 2023, Woodside emailed GAP advising of the proposed activity (Appendix G, reference 3.76) and provided a Consultation Information Sheet. • On 7 March 2023, Woodside emailed GAP following up on the proposed activity (Appendix G, reference 3.76.1) and to request any feedback.		
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 7.6**).	No additional measures or controls are required.
Research institutes and local conservation groups or organisations		
University of Western Australia (UWA)		
Summary of information provided and record of consultation: • On 21 February 2023, Woodside emailed UWA advising of the proposed activity (Appendix G, reference 3.77) and provided a Consultation Information Sheet. • On 7 March 2023, Woodside emailed UWA following up on the proposed activity (Appendix G, reference 3.77.1) and to request any feedback.		
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 7.6**).	No additional measures or controls are required.
Western Australian Marine Science Institution (WAMSI)		
Summary of information provided and record of consultation: • On 21 February 2023, Woodside emailed WAMSI advising of the proposed activity (Appendix G, reference 3.78) and provided a Consultation Information Sheet. • On 7 March 2023, Woodside emailed WAMSI following up on the proposed activity (Appendix G, reference 3.78.1) and to request any feedback.		

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 7.6**).	No additional measures or controls are required.

Commonwealth Scientific and Industrial Research Organisation (CSIRO)

Summary of information provided and record of consultation:

- On 21 February 2023, Woodside emailed CSIRO advising of the proposed activity (Appendix G, reference 3.79) and provided a Consultation Information Sheet.
- On 21 February 2023, CSIRO responded thanking Woodside for their email and confirmed that CSIRO will respond.
- On 22 February 2023, CSIRO confirmed that Woodside's email request had been forwarded.
- On 7 March 2023, Woodside emailed CSIRO following up on the proposed activity (Appendix G, reference 3.79.1) and to request any feedback.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
CSIRO responded and confirmed that Woodside's email request had been forwarded. 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 7.6**).	No additional measures or controls are required.

Australian Institute of Marine Science (AIMS)

Summary of information provided and record of consultation:

- On 21 February 2023, Woodside emailed AIMS advising of the proposed activity (Appendix G, reference 3.80) and provided a Consultation Information Sheet.
- On 7 March 2023, Woodside emailed AIMS following up of the proposed activity (Appendix G, reference 3.80.1) and to request any feedback.
- On 14 March 2023, AIMS responded thanking Woodside for their email and confirmed that there are no overlaps with planned AIMS science activities in the area.
- On 15 March 2023, Woodside responded, thanking AIMS for their feedback.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Environment Plan Controls
AIMS responded and confirmed that there are no overlaps with planned AIMS science activities in the area. Whilst feedback has been received, there were no objections or claims.	AIMS responded and confirmed that there are no overlaps with planned AIMS science activities in the area. 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 7.6**).	Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on AIMS's functions, interests or activities. No additional measures or controls are required.

6 ENVIRONMENTAL RISK ASSESSMENT, PERFORMANCE OUTCOMES, STANDARDS AND MEASUREMENT CRITERIA

6.1 Overview

This section presents the impact and risk analysis, evaluation and environment performance outcomes, environmental performance standards and measurement criteria for the Petroleum Activities Program, using the methodology described in **Section 1.10.2.1** of the EP.

6.2 Impact and Risk Analysis and Evaluation

As required by Regulations 13(5) and 13(6) of the Environment Regulations, the following analysis and evaluation demonstrates that the identified impacts and risks associated with the Petroleum Activities Program are reduced to ALARP, are of an acceptable level and consider all operations of the activity, including potential emergency conditions. The impact assessment for planned activities has been based on the size of the Operational Area.

The impacts and risks identified during the ENVID workshops (including decision type, current risk level, acceptability of impacts and risks, and tools used to demonstrate acceptability and ALARP) have been divided into two broad categories:

- planned activities (routine and non-routine) which have the potential for inherent environmental impacts
- unplanned events (accidents, incidents or emergency situations) with an environmental consequence, termed risks.

Within these categories, impact and risk assessment groupings are based on environmental aspects[9] such as emissions and physical presence. In all cases, the worst-case risk was assumed.

The ENVID (performed in accordance with the methodology described in **Section 1.10.2.1**) identified 19 sources of environmental impacts and risks. A summary of the ENVID is provided in **Table 6-1**.

The impact and risk analysis and evaluation for the Petroleum Activities Program indicate that all current environmental risks and impacts associated with the activity are reduced to ALARP and are of an acceptable level, as discussed further in **Sections 6.6** and **6.7**.

6.2.1 Cumulative Impacts

Existing subsea infrastructure within the Operational Area are described in **Section 3.9.1** and the closest petroleum facilities are described in **Section 4.8.6**. Woodside has assessed the cumulative impacts[10] of the Petroleum Activities Program in relation to other relevant petroleum activities which could realistically result in overlapping temporal and spatial extents. The operation of the Pluto facility is the only other petroleum activity within Production Licence WA-34-L. Woodside will not conduct concurrent drilling operations within the Operational Area.

Scarborough seabed intervention and trunkline installation activities are planned both within and nearby the Operational Area. Notional timing of activities is based on current project schedules, vessel availability and internal and external approvals. As per current project schedules, the only planned concurrent activities in this petroleum activities program include PLA08 drilling and subsea installation which may be performed concurrently with Scarborough pre-lay survey (~Q3 2023). The PLA08 well is located approximately 4.8 km from the proposed Scarborough trunkline route and the

[9] *An environmental aspect is an element of the activity that can interact with the environment.*

[10] *Cumulative impacts from the Petroleum Activities Program is addressed under each relevant impact in* ***Section 6.6.***

Scarborough pre-lay survey is expected to move through the area in <24hrs, therefore cumulative impacts are not expected to occur and have not been assessed.

Table 6-1: Environmental risk analysis and summary

Aspect	EP Section	Risk Rating				Acceptability
		Impact/ Consequence	Potential Impact/Consequence Level	Likelihood	Current Risk Rating	
Physical presence: Interference with or displacement of third-party vessels	**6.6.1**	F	Social and Cultural – no lasting effect (<1 month), localised impact not significant to areas/items of cultural significance.	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Physical presence: Disturbance to benthic habitat from drilling operations, ROV operation and subsea infrastructure	**6.6.2**	F	Environment – No lasting effect (<1 month); localised impact not significant to environmental receptors (e.g., protected species).	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Routine acoustic emissions: Generation of noise from project vessels, MODU and positioning equipment	**6.6.3**	E	Environment – Slight, short term local impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Routine and non-routine discharges: MODU and project vessels	**6.6.4**	F	Environment – No lasting effect (<1 month); localised impact not significant to environmental receptors (e.g., water quality).	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Routine and non-routine discharges: Drill cuttings and drilling fluids (WBM and NWBM)	**6.6.5**	D	Environment – Minor, short-term impact (102 years) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Routine and non-routine discharges: cement, cementing fluids, grout, subsea well fluids and unused bulk products	**6.6.6**	E	Environment – Slight, short term local impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**

Aspect	EP Section	Risk Rating				Acceptability
		Impact/ Consequence	Potential Impact/Consequence Level	Likelihood	Current Risk Rating	
Routine and non-routine discharges: Flowline and subsea installation fluids	**6.6.7**	F	Environment – No lasting effect (<1 month) localised impact not significant on environmental receptors (e.g. species)	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Routine atmospheric and greenhouse gas emissions: Fuel combustion, flaring, incineration and venting	**6.6.8**	F	Environment – No lasting effect (<1 month); localised impact not significant to environmental receptors (e.g., air quality).	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Routine light emissions: External lighting on MODU and project vessels	**6.6.9**	E	Environment – Slight, short term local impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Accidental hydrocarbon release: Loss of well integrity	**6.7.2**	B	Environment – Major, long term impact (10–50 years) on highly valued ecosystems, species, habitat, physical or biological attributes. Reputation/brand – National concern and/or international interest. Medium to long-term impact (5–20 years) to reputation and brand. Venture and/or asset operations restricted.	1	M	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Accidental hydrocarbon release: Vessel collision	**6.7.3**	D	Environment – Minor, short-term impact (1–2 years) on species, habitat (but not affecting ecosystems), physical or biological attributes.	1	M	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Accidental hydrocarbon release: Bunkering	**6.7.4**	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**

Aspect	EP Section	Risk Rating				Acceptability
		Impact/ Consequence	Potential Impact/Consequence Level	Likelihood	Current Risk Rating	
Unplanned discharges: Drilling fluids	**6.7.5**	E	Environment – Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Unplanned discharges: Deck and subsea spills	**6.7.6**	F	Environment – No lasting effect (<1 month); localised impact not significant to environmental receptors (e.g., water quality).	1	L	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Unplanned discharges: Loss of solid hazardous and non-hazardous wastes/equipment	**6.7.7**	F	Environment – No lasting effect (<1 month); localised impact not significant to environmental receptors (e.g., water quality).	2	L	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Physical presence: Vessel collision with marine fauna	**6.7.8**	E	Environment – Slight, short term local impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Physical presence: Dropped object resulting in seabed disturbance	**6.7.9**	F	Environment – No lasting effect (<1 month); localised impact not significant to environmental receptors (e.g., benthic habitats).	2	L	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**
Physical presence: Accidental introduction and establishment of IMS	**6.7.10**	D	Environment – Minor, short-term impact (1–2 years) on species, habitat (but not affecting ecosystems), physical or biological attributes.	0	L	Broadly acceptable Has been shown to meet requirements listed in **Section 2.7.2**

6.3 Environmental Performance Outcomes, Standards and Measurement Criteria

Regulation 13(7) of the Environment Regulations requires that an EP includes environmental performance outcomes, environmental performance standards and measurement criteria that address legislative and other controls to manage the environmental risks of the activity to ALARP and acceptable levels.

EPOs, EPSs and MC for the Petroleum Activities Program have been identified to allow the measurement of Woodside's environmental performance and the implementation of this EP to determine whether the environmental performance outcomes and standards have been met.

The EPOs, EPSs and MC specified are consistent with legislative requirements and Woodside's standards and procedures. They have been developed based on the Codes and Standards, Good Industry Practices and Professional Judgement outlined in **Section 1.10.2.1**, as part of the acceptability and ALARP justification process.

The EPOs, EPSs and MC are presented throughout this section and in **Appendix D** (Oil Spill Preparedness and Response Mitigation Assessment). A breach of these environmental performance outcomes or standards constitutes a 'Recordable Incident' under the Environment Regulations (refer to **Section 7.8.4**).

6.4 Presentation

The environmental impact and risk analysis and evaluation (ALARP and acceptability), environmental performance outcomes, standards and measurement criteria are presented in the following tabular form throughout this section. Italicised/green text in the following example denotes the purpose of each part of the table with reference to the relevant sections of the Environment Regulations and/or this EP.

Context **<Description of the context for the impact/risk. Regulation 13(1, 13(2) and 13(3)>**		
Description of the Activity – Regulation 13(1)	*Description of the Environment – Regulations 13(2)(3)*	*Consultation – Regulation 11A*

Impacts/Risks Evaluation Summary – *Summary of ENVID outcomes*														
Source of Impact/Risk *Regulation 13(1)*	***Environmental Value Potentially Impacted*** *Regulations 13(2)(3)*							***Evaluation*** ***Section 2.6*** *and* ***Section 2.7***						
	Soil and Groundwater	***Marine Sediment***	***Water Quality***	***Air Quality (incl Odour)***	***Ecosystems/Habitat***	***Species***	***Socio-economic***	***Decision Type***	***Impact/Consequence***	***Likelihood***	***Current Risk Rating***	***ALARP Tools***	***Acceptability***	***Outcome***
Summary of source of risk														

Description of Source of Impact/Risk

Description of the identified impact/risk including sources or threats that may lead to the risk or identified event. Regulation 13(1).

Impact/Risk Assessment

Discussion and assessment of the potential impacts/risks to the identified environment value(s). Regulation 13(5)(6).

*Potential impacts/risks to environmental values have been assigned and discussed based on Woodside's Environmental Consequence Definitions for Use in Environmental Risk Assessments (**Table 2-3**).*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[11]***	***Benefit in Impact/Risk Reduction[12]***	***Proportionality***	***Control Adopted***
ALARP Tool Used – Section 2.6.1.4 and Section 2.7.1				
Summary of control considered to ensure that the impacts and risks are continuously reduced to ALARP. *Regulation 13(5) (c)*	*Technical/logistical feasibility of the control.* *Cost/sacrifice required to implement the control (qualitative measure).*	*Qualitative commentary of impact/risk that could be averted/ environmental benefit gained if the cost/sacrifice is made and the control is adopted.*	*Proportionality of cost/sacrifice versus environmental benefit. If proportionate (benefits outweigh costs) the control will be adopted. If disproportionate (costs outweigh benefits) the control will not be adopted.*	*If control is adopted.* *Reference to Control # provided.*

ALARP Statement:

*Made on the basis of the environmental risk assessment outcomes, use of the relevant tools appropriate to the decision type (**Section 2.6** and **Figure 2-4**) and a proportionality assessment. Regulation 10A(b).*

[11] *Qualitative measure.*

[12] *Measured in terms of reduction of likelihood, consequence and current risk rating.*

Demonstration of Acceptability
Acceptability Statement: *Made on the basis of the application of the process described in* ***Section 2.7.2****, taking into account internal and external expectations, risk to environmental thresholds and use of environment decision principles. Regulation 10A (c)*

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO# S: *Specific performance which addresses the legislative and other controls that manage the activity and against which performance by Woodside in protecting the environment is measured.* M: *Performance against the outcome is measured by measuring implementation of the controls via the measurement criteria.* A: *Achievability/feasibility of the outcome demonstrated via discussion of feasibility of controls in ALARP demonstration. Controls are directly linked to the outcome.* R: *The outcome is relevant to the source of risk and the potentially impacted environmental value.* T: *The outcome states the timeframe during which the outcome will apply or by which it will be achieved*.	**C#** *Identified control adopted to ensure the impacts and risks are continuously reduced to ALARP.* *Regulation 13(5)(c)*	**PS**# *Statement of the performance required of a control measure.* *Regulation 13(7)(a)*	**MC**# *Measurement criteria for determining whether the outcomes and standards have been met.* *Regulation 13(7)(c)*

6.5 Potential Environment Risks Not Included Within the Scope of this Environment Plan

The ENVID identified environmental risks that were assessed as not being applicable (refer to **Section 2.5**) within or outside the Operational Area as a result of the Petroleum Activities Program, and therefore were determined to not form part of this EP. These are described in the following sections for information only.

6.5.1 Shallow/Near-Shore Activities

The Petroleum Activities Program is located in water depths > 100 m and at a distance about 50 km from the nearest landfall (Montebello Islands). Consequently, risks associated with shallow/ near-shore activities such as vessel anchoring and risks of grounding were assessed as not credible.

6.5.2 Loss of Containment from Abandoned Wellheads

Several existing wellheads occur within the Operational Area for this EP that have been plugged and abandoned in accordance with applicable legislation at the time of the activity. Barriers are in place down the wells, so if a wellhead was inadvertently damaged or removed, through dropped objects, no loss of containment would occur. Therefore, the scenario of loss of containment from existing wellheads is not considered credible and is not assessed further.

6.5.3 Loss of Containment from Existing Subsea Infrastructure

As described in **Section 3.9.1** existing subsea infrastructure is present in the Operational Area as part of the Pluto Production System. A subsea loss of containment from a rupture of live infrastructure within the Operational Area could occur, in the event of a significant dropped object.

A worst-case credible hydrocarbon release scenario from existing subsea infrastructure has been defined in the Pluto Facility Operations EP as a rupture of the export riser or a full bore rupture of the export pipeline discharging at seabed. This could result in a release of up to 1800 m^3 of Pluto condensate.

The worst case credible release scenario from ruptured subsea infrastructure as a result of a highly unlikely unplanned dropped object impact during the Petroleum Activities Program could resulting in approximately 266m^3 of Pluto condensate released as indicated by AMSA[13] guidance. This release scenario is most likely to occur at minimum turn down rates at approximately 250MMscf, when condensate presence is at its estimated highest.

As a result, loss of containment scenarios present in the existing Pluto Operations EP present the worst case scenario. The in-force Pluto Facility Operations EP provides a description and assessment of impacts and risks. Management controls and response capabilities are detailed in that EP. Additional controls for operating the MODU are provided throughout **Sections 6.6** and **6.7**. In particular, controls are included for the prevention of dropped objects (**Section 6.7.9**).

6.5.4 Underwater Noise Emissions from Flaring, Helicopters and ROVs

It is not credible that airborne noise from flaring and helicopter transfers would add to levels of underwater noise emanating from the MODU, project vessels and positioning equipment. Similarly, it is not credible that noise from ROV operations at the seabed would add to levels of noise emanating from the MODU and project vessels just below the sea surface, or noise emissions from transponders on the seabed. Noise emissions from these other sources would not add to cumulative sound fields from MODU, project vessel and transponders to any discernible extent. As such noise emissions from these sources has not been considered in **Section 6.6.3**.

[13] *AMSA Marine and Coastal facilities Technical Guidelines - https://www.amsa.gov.au/sites/default/files/2015-04-np-gui012-contingency-planning.pdf: "Maximum daily flow rate x 1 hour + Volume of the pipeline"*

6.6 Planned Activities (Routine and Non-routine)

6.6.1 Physical Presence: Interference with or Displacement of Third Party Vessels

Context

Relevant Activities	Existing Environment	Consultation
Project vessels – **Section 3.5** Subsea infrastructure – **Section 3.9** Wellhead assembly left in-situ – **Section 3.11.9**	Socio-economic environment – **Section 4.8**	consultation – **Section 5**

Impacts Evaluation Summary

Source of Impact	*Context*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Impact*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Displacement of other users – proximity of MODU and vessels causing interference with or displacement to third party vessels (commercial fishing and commercial shipping)							X	A	F	-	-	GP PJ	Broadly Acceptable	EPO 1
Presence of subsea infrastructure (including wellhead left in-situ) causing interference with or displacement to third party vessels (commercial fishing)							X	A	F	-	-			
Proximity of helicopters causing interference with other aerial operations							X	A	F	-	-			

Description of Source of Impact

Presence of MODU and Vessels and Subsea Infrastructure

Woodside proposes to drill one new production well (PLA08), and may also intervene or workover any of the 12 wells within the operational area tied back to the Pluto facility (including PLA08) if required. The MODU will be present within the Operational Area for about 50 days to drill the PLA08 well, and may be present for about 70 additional days per well if well interventions or workovers are required. When underway, activities will be 24 hours per day, seven days per week. There are no planned concurrent drilling or installation activities under the EP.

Subsea installation vessels will be used to install and cold commission the flowlines and subsea infrastructure following the completion of drilling the new well. This is expected to take approximately 4 weeks. Flowlines and subsea infrastructure will remain in place and be operated under the Pluto Facility Operations Environment Plan.

Woodside will implement a 500 m safety exclusion zone around vessels and MODUs in order to safely manage interactions with other users of the sea. These zones are temporary and will only be in effect while the vessel or MODU is undertaking the petroleum activities program.

The Petroleum Activities Program is not planned to be executed as a single campaign or in a consecutive sequence; therefore, the presence of the MODU, subsea installation vessels and other vessels may occur at any time during the two year approval period of the EP, notwithstanding the constraints described above.

Other vessels may also be required during the activities, including a subsea support vessel for light well intervention vessels (LWIV) and other support vessels. Some vessels will need to transit in and out of the Operational Area to port for emergency and routine operations. The support vessels will make about two to four trips per week during drilling operations.

The presence of the MODU, subsea installation vessels, subsea support vessel for contingency activities and other support vessel movements could present a navigational hazard to shipping and commercial fishing activities in the Operational Area.

The physical presence of the subsea xmas tree and PLA08 wellhead infrastructure will remain for the duration of field life. Wellheads and xmas trees take up a small area on the seabed and will rise several meters above the seabed. As outlined in **Sections 3.11.9** and **3.11.9**, wellhead assemblies may be left *in situ* at the end of production life if routine removal techniques are unsuccessful. Additionally, for technical reasons, the lower section of the PLA08 well may be abandoned, prior to sidetracking, or in the event that a re-spud is required (**Section 3.11.1**). This is considered a contingent activity and if the well is abandoned due to re-spud, reasonable attempts to remove the wellhead will be made. The wellhead assembly may be left *in situ* if these reasonable attempts are unsuccessful. If a wellhead is left *in situ*, it could potentially interfere with third party activities (commercial activities).

Impact Assessment

Potential Impacts to Socio-Economic Environment

Displacement or Interference with Commercial Fishing Activities

Potential impacts to commercial fisheries include damage to fishing and loss of commercial catch due to displacement from fishing grounds. Damage to trawl nets could occur if they catch or snag on subsea infrastructure or wellheads. The PLA08 wellhead will be at approximately 820 m water depth, which is substantially deeper than the depth at which the active fisheries in the region operate. However, such infrastructure occupies a small area within the Operational Area only. Additionally, wellheads left *in situ* would be very unlikely and only occur in the case of re-spudding where removal attempts are unsuccessful.

The Operational Area overlaps four Commonwealth and twelve State managed fisheries. However, only the Pilbara Line Fishery, the Pilbara Trap Fishery and the North West Slope Trawl Fishery are considered to be active in the vicinity of the Operational Area (**Sections 4.8.2** and **5**). WAFIC also advised that impacts to Pilbara Trap fishers would be minimal, as per their previous advice in relation to activities in the vicinity of the Production Licence, with the Mackerel Managed Fishery the only fishery that may be active (**Sections 4.8.2**). The Operational Area is located in water depths ranging from about 170–990 m, the shallower extent of which is within the depth range where typical fishing effort occurs for the Pilbara Line Fishery and the North West Slope Trawl Fishery. Therefore, interactions with participants in the commercial fishery have the potential to occur.

The only fishery using trawled gear that is currently permitted to operate in the vicinity of the Operational Area is the North West Slope Trawl Fishery. There is little historical fishing effort in this fishery in the vicinity of the Operational Area. The subsea equipment and wellheads within the scope of this EP are below the typical depths in which the North West Slope Trawl Fishery operates, although well intervention activities may occur in depths that overlap the fishery's typical depths. The presence of subsea infrastructure and wellhead assemblies abandoned *in situ* would only affect a very small portion of the total area where the fishery is permitted to operate. The potential impact is considered to be of no lasting effect.

The presence of commercial fishing vessels in the Operational Area would likely be short term, potentially resulting in a minor interference (navigational hazard) and localised displacement/avoidance by commercial fishing vessels within the immediate vicinity of the MODU or vessels. The presence of the MODU and vessels in the Operational Area is temporary, and displacement of commercial shipping would only credibly occur when the MODU or vessels are undertaking the Petroleum Activities Program. The potential impact is considered to be of no lasting effect.

Displacement of Recreational Fishing

Recreational fishing in the region is concentrated around the coastal waters and islands of the NWMR such as the Montebello Islands (about 50 km southeast of the Operational Area). Due to the distance offshore and water depths, recreational fishing is unlikely to occur in the Operational Area. In the event that recreational fishing effort occurred within the Operational Area while drilling is being undertaken, displacement as a result of the Petroleum Activities Program would be minimal and relate only to the safety exclusion zones (500 m radius) that would be in place. Additionally, fishing activity may be excluded from the immediate area around the subsea locations during installation activities. The presence of the MODU and vessels in the Operational Area is temporary, and displacement of commercial shipping would only credibly occur when the MODU or vessels are undertaking the Petroleum Activities Program. Therefore, the potential impact is considered to be temporary with no lasting effect. . Additionally, Recfishwest, WA Game Fishing Association, WA Tourism Association and Karratha charter boat operators did not raise any specific concerns about the Petroleum Activities Program (**Section 5**).

Given the distance of the Operational Area offshore and depth greater than 170 m, snagging hazards to recreational fishing equipment as a result of the wellhead remaining *in situ* are considered to be of no lasting effect.

Displacement to Commercial Shipping

The presence of the MODU, installation vessels and support vessels could potentially cause temporary disruption to commercial shipping. The Operational Area does not overlap with any designated shipping fairways in the region although commercial vessel traffic is relatively high (**Figure 4-14**). Shipping in the area is mainly related to the resources industry, and particularly associated with the Woodside -operated Pluto facility. The potential impacts associated with this Petroleum Activities Program may include displacement of vessels as they make slight course alterations to avoid the MODU, subsea installation vessels, subsea support vessels for contingency activities or other vessels. The presence of the MODU and vessels in the Operational Area is temporary, and displacement of commercial shipping would only credibly occur when the MODU or vessels are undertaking the Petroleum Activities Program. Therefore, the potential impact is considered to be isolated and temporary.

AMSA did not raise specific concerns about the Petroleum Activities Program (**Section 5**) and noted that some heavy vessels traverse through the northern part of the Production Licence.

Given the water depth of the proposed wells (> 170 m), impacts to commercial shipping as a result of the wellhead assemblies abandoned *in situ* are not credible.

Interference with Existing Oil and Gas Infrastructure

The Operational Area is within Production Licence WA-34-L, which is a petroleum title operated by Woodside. Activities by other titleholders are not permitted within Production Licence WA-34-L without Woodside's consent. Oil and gas infrastructure in the vicinity of the PPA includes:

- Woodside-operated Pluto pipeline (overlaps the Operational Area)
- Woodside-operated Julimar/Brunello pipeline (approximately 1 km from the Operational Area at the closest point)
- Chevron-operated Wheatstone pipeline (approximately 3 km from the Operational Area at the closest point)
- Woodside-operated Pluto Platform (approximately 12 km from the Operational Area at the closest point)
- Chevron-operated Wheatstone Platform (approximately 14 km from the Operational Area at the closest point)

Impacts to the petroleum activities of other titleholders from the planned physical presence aspect of the Petroleum Activities Program will be slight and temporary in nature.

Defence

Defence activities in the vicinity of the PAA may include Naval vessel traffic and Air Force training exercise areas. Neither of these types of activities are expected to be a consistent presence in the area. The PAA is on the outer extent of the training area associated with the Learmonth Air Force Base. Department of Defence were notified, No objections or claims have been received about activity impacts or risks. DoD requested notifications prior to commencement of the activity (PS 5.8).

Cumulative Impacts

The potential for cumulative impacts from the physical presence aspect of the Petroleum Activities Program on other users is negligible. The open water environment of the Operational Area does not preclude other users carrying out their activities in an adjacent location, and the level of activity by other users in the vicinity of the Operational Area is very low.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that physical presence of the MODU, subsea installation vessels, subsea support vessels for LWIV or other vessels, interference with other aerial operations will be localised with no lasting impact to shipping and commercial/recreational fishing interests (i.e. Reputation and Brand Impacts – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*	*Benefit in Impact/ Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
Vessels to adhere to the navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders.	F: Yes. CS: Minimal cost. Standard practice.	The Navigation Act regulates ship related activities and invokes certain requirements of MARPOL. Vessels (relevant to class) will adhere to requirements.	Benefits outweigh cost/ sacrifice. Control is also standard practice.	Yes **C 1.1**
Establishment of a 500m petroleum safety	F: Yes. CS: Minimal cost.	Establishment of a 500m petroleum	Benefits outweigh cost/ sacrifice.	Yes **C 1.2**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
zone around MODU and communicated to marine users.	Standard practice.	safety zone around MODU and decommissioning vessel reduces the likelihood of interaction with other marine users.	Control is also standard practice.	
Reasonable attempts at removal of wellhead(s) will be made in the event of a respud.	F: Yes. CS: Additional cost. Standard practice	In accordance with OPGGS Act Section 572	Benefits outweigh cost/ sacrifice. Control is also standard practice.	Yes **C 1.3**
Good Practice				
Australian Hydrographic Office (AHO) will be notified of activities and movements no less than four working weeks prior to scheduled activity commencement date.	F: Yes. CS: Minimal cost. Standard practice.	Notification of AHO will enable them to update maritime charts thereby reducing the likelihood of interaction with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes **C 1.4**
Notify relevant fishing industry government departments, representative bodies and licence holders of activities prior to commencement and upon completion of activities.	F: Yes. CS: Minimal cost. Standard practice.	Communication of the Petroleum Activities Program to other marine users ensures they are informed and aware, thereby reducing the likelihood of interference with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes **C 1.5**
Notify AMSA Joint Rescue Coordination Centre (JRCC) of activities and movements 24–48 hours before operations commence.	F: Yes. CS: Minimal cost. Standard practice.	Communication of the Petroleum Activities Program to other marine users ensures they are informed and aware, thereby reducing the likelihood of interference with other marine users.	Benefits outweigh cost/sacrifice. Control is also standard practice.	Yes **C 1.6**
Notify relevant persons for activities within the Petroleum Activities Program that commence more than a year after EP acceptance.	F: Yes. CS: Minimal cost. Standard practice.	Communicating the Petroleum Activities Program to other marine users ensures they are informed and aware, thereby reducing the likelihood of interference with other marine users.	Benefits outweigh cost/ sacrifice. Control is also standard practice.	Yes **C 1.7**
Notify DoD of activity no less than five	F: Yes CS: Additional cost. Standard practice.	In accordance with request made by	Benefits outweigh cost/sacrifice	Yes **C 1.8**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
weeks before operations commence.		DoD during consultation.		
Professional Judgement – Eliminate				
Limit drilling activities to avoid peak shipping and commercial fishing activities.	F: No. Shipping occurs year-round and cannot be avoided. Overlap between the Petroleum Activities Program and fishing seasons cannot be eliminated as exact timings for all activities are not confirmed. CS: Not considered, control not feasible.	Not considered, control not feasible.	Not considered, control not feasible.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
Over-trawl protection on subsea infrastructure.	F: Yes. Over-trawl protection could mitigate against the potential for commercial fishing trawl gear to damage subsea infrastructure and/or result in loss of trawl gear. CS: Significant additional cost.	Reduce the potential for snagging of trawl nets if a wellhead is left in-situ following abandonment during drilling. However, given the low level of trawling activity occurring in the Operational Area, the benefit is low.	Disproportionate. Significant additional costs.	No

ALARP Statement

On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A; **Section 2.6.1**), Woodside considers the adopted controls appropriate to manage the impacts of the physical presence of the MODU, subsea installation vessels, LWIV, associated support vessels, helicopters and potentially wellhead assemblies left in-situ (if required), on other users, such as commercial fisheries, recreational fishing, shipping and defence.

As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that, given the adopted controls, physical presence of the MODU, subsea installation vessels, subsea support vessels for LWIV or other vessels, helicopters and potentially wellhead assemblies left *in situ*, as contingency may result in minor and generally short-term impacts to commercial fishing, recreational fishing, shipping and defence. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet requirements of Australian Marine Orders, and expectations of AMSA and AHO provided in consultation..

The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of physical presence of the Petroleum Activities Program to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 1 Undertake the Petroleum Activities Program in a manner that does not interfere with other marine users to a greater extent than is necessary for the exercise of right conferred by the titles granted.	**C 1.1** Vessels to adhere to navigation safety requirements including the Navigation Act 2012 and any subsequent Marine Orders.	**PS 1.1** Activity support vessels and MODU compliant with Navigation Act and Marine Order 21 (Safety of navigation and emergency procedures) 2012	**MC 1.1.1** Marine assurance inspectiuon records demonstrate compliance
	C 1.2 Establishment of a 500 m petroleum safety zone around MODU (and decommissioning vessel if required) and communicated to marine users.	**PS 1.2** No entry of unauthorised vessels within the 500 m safety exclusion zone.	**MC 1.2.1** Records demonstrate breaches by unauthorised vessels within the petroleum safety zone are recorded.
			MC 1.2.2 Consultation records demonstrate that AHO has been notified prior to commencement of the activity to allow generation of navigation warnings (Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) (including AUSCOAST warnings where relevant)), which communicate safety exclusion zones to marine users.
	C 1.3 Reasonable attempts at removal of wellhead(s) will be made in the event of a respud.	**PS 1.3** Removal of wellheads attempted during the Petroleum Activities Program in the event of a respud.	**MC 1.3.1** Records demonstrate reasonable attempts at wellhead removal are made.
	C 1.4 Notify AHO of activities and movements no less than four working weeks prior to the scheduled activity commencement date.	**PS 1.4** Notification to AHO of activities and movements to allow generation of navigation warnings (Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) (including AUSCOAST warnings where relevant)).	**MC 1.4.1** Consultation records demonstrate that AHO has been notified prior to commencement of an activity to allow generation of navigation warnings (MSIN and NTM (including AUSCOAST warnings where relevant)).
	C 1.5 Notify relevant government departments, fishing industry representative bodies and licence holders of activities prior to commencement and following completion of activities.	**PS 1.5** Notification to AFMA, DCCEEW, CFA, DPIRD, WAFIC and relevant Fishery Licence Holders (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Line Fishery and Pilbara Trap Fishery) at least ten days before activity commences and following completion of activities.	**MC 1.5.1** Consultation records demonstrate that AFMA, DCCEEW, CFA, DPIRD, WAFIC and relevant Fishery Licence Holders (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Line Fishery and Pilbara Trap Fishery) have been notified prior to commencementand following completion of drilling or subsea installation activities.

	C 1.6 Notify AMSA JRCC of activities and movements 24–48 hours before operations commence.	**PS 1.6** Notification to AMSA JRCC to prevent activities interfering with other marine users. AMSA's JRCC will require the MODU's details (including name, callsign and Maritime Mobile Service Identity), satellite communications details (including INMARSAT-C and satellite telephone), area of operation, requested clearance from other vessels and need to be advised when operations start and end.	**MC 1.6.1** Consultation records demonstrate that AMSA JRCC has been notified prior to commencement of the activity within required timeframes.
	C 1.7 Undertake consultation with relevant persons and/ or organisations for activities and movements that commence more than a year after EP acceptance.	**PS 1.7** Relevant persons and/ or organisations will be notified no less than four working weeks prior to scheduled activity commencement date where activities and movements are to commence more than a year after EP acceptance.	**MC 1.7.1** Consultation records demonstrate relevant persons and/ or organisations have been consulted.
	C 1.8 Notify DoD of activity no less than five weeks before operations commence.	**PS 1.8** Woodside will provide DoD activity notification no less than five weeks prior to commencement of drilling, well interventions / work-overs or subsea installation activities.	**MC 1.8.1** Consultation records demonstrate that DoD and AHO have been notified prior to commencement of drilling or subsea installation activities.

6.6.2 Physical Presence: Seabed Disturbance from Drilling Operations, ROV Operation and Subsea Infrastructure

Context

Relevant Activities	**Existing Environment**
Project vessel-based activities – **Section 3.7** Drilling activities – **Section 3.8** Subsea installation and cold commissioning activities – **Section 3.9** Wellhead assembly left in-situ – **Section 3.11.9**	Regional context – **Section 4.2** Physical Environment – **Section 4.4** Habitats and biological communities – **Section 4.5**

Impacts Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***							***Evaluation***						
	Soil and Groundwater	***Marine Sediment***	***Water Quality***	***Air Quality (incl Odour)***	***Ecosystems/Habitat***	***Species***	***Socio-Economic***	***Decision Type***	***Impact***	***Likelihood***	***Current Risk Rating***	***ALARP Tools***	***Acceptability***	***Outcome***
Disturbance to seabed from drilling operations					X		X	A	F	-	-	GP PJ	Broadly Acceptable	EPO 2
Disturbance to seabed from ROV operation (including localised sediment relocation from sediment mobilisation techniques)					X		X	A	F	-	-			
Disturbance to seabed from subsea installation of infrastructure (flowlines, umbilicals, flying leads, etc.), stabilisation systems (concrete mattresses etc.)					X		X	A	F	-	-			
Disturbance to seabed from wellhead remaining *in situ* (if required)					X		X	A	F	-	-			
Placement and retrieval of seabed transponders and temporary installation aids					X		X	A	F	-	-			

Description of Source of Impact

Drilling

Drilling activities will result in direct seabed disturbance of about 100 m radius around the PLA08 well location due to the installation of the BOP and conductor. The generation and discharge of cuttings and drilling fluids are considered in **Section 6.6.5.**

Subsea Installation Activities

Subsea installation of the infrastructure components described in **Table 3-5** will result in temporary disturbance and suspension of sediment causing increased turbidity and impacts to benthic habitats during the installation process.

The installation of subsea infrastructure and supporting structures may result in localised disturbance to benthic habitats in the form of loss of habitat and a scour around the subsea infrastructure during the lifespan of the equipment.

Span rectification and stabilisation may be required through the installation of structures such as concrete mattresses positioned at the identified free span location by the use of ROV. The dimensions for each concrete mattress are expected to be 6 m by 3 m.

An array of underwater acoustic positioning transponders will be placed on the seafloor and are required for accurate positioning. Long base line transponders may be moored to the seabed by a clump weight. The standard clump weights used will likely weigh about 100 kg. At the completion of installation, the LBL transponders will be recovered via an acoustic release mechanism, leaving only the concrete clump weight on the seafloor.

Temporary wet storage of infrastructure components on the seabed, if required, may also result in localised disturbance to the seafloor.

ROV

The use of the ROV during Petroleum Activities Program may result in temporary seabed disturbance and suspension of sediment causing increased turbidity as a result of working close to, or occasionally on, the seabed. ROV use close to or on the seabed is limited to that required for effective and safe subsea activities. The footprint of a typical ROV is about 2.5 m × 1.7 m.

An ROV may be used to relocate sediment material around the well location to help manage cement or cuttings flow. Sediment relocation techniques are described in **Section 3.11.10**. This will cause localised and temporary impacts to water quality from increased turbidity and may cause localised and temporary impacts to benthic habitats.

Contingency Activities

Woodside may need to intervene or workover wells within the Operational Area. Any seabed disturbance would be the same as those described for Drilling Operations and MODU Operations. In addition, in the event of a respud of the PLA08 well the base case would be to remove the wellhead. However, if reasonable attempts at wellhead removal are unsuccessful, a wellhead may remain in situ until the end of field life.

Impact Assessment

Potential Impacts to Ecosystems/Habitats

Deepwater Benthic Habitats

Drilling operations, subsea installation activities and ROV operations are likely to result in localised physical modification to the seabed and disturbance to soft sediment.

The Operational Area overlaps a section of the Continental Slope Demersal Fish Communities KEF. The Operational Area is expected to consist primarily of soft, fine, unconsolidated sediments, which are typical of the broader NWMR. As discussed in **Section 4.5**, benthic communities of the Operational Area associated with this substrate show typical low diversity representative of the wider region.

Physical impacts from drilling activities (excluding impacts from routine and non-routine discharges such as drill cuttings assessed in **Section 6.6.5**) are expected to be for the most part confined to sediment burrowing infauna and surface epifauna invertebrates, particularly filter feeders, inhabiting the seabed directly around the well location, typically within 10 m of the well (Gates and Jones, 2012; Hughes et al., 2010). Impacts from the installation of subsea infrastructure are expected to be confined to sediment burrowing infauna and surface epifauna invertebrates, particularly filter feeders, inhabiting the seabed directly around the installation site. Impacts to these broadly represented communities are expected to be highly localised with no significant impact.

ROV activities near the seafloor and associated sediment relocation activities may result in slight and short-term impacts to deepwater biota, detailed above, as a result of elevated turbidity and the clogging of respiratory and feeding parts (turbidity) of filter feeding organisms. However, elevated turbidity would only be expected to be very localised, short term and temporary, and is therefore not expected to have any significant impact to environment receptors, particularly given the low densities of benthic organisms at the water depths of the Operational Area. The closest coral reef habitat is at Rankin Bank, about 36 km from the Operational Area.

Additionally, the ROV may be used to relocate sediment material around the well location to help manage cement or cuttings flow and to create a short corridor to submerge flowlines and umbilicals for crossings. This will cause localised and temporary impacts to water quality from increased turbidity, which may in turn have a slight, localised and temporary impact to to benthic habitats. During contingent operations, an ROV-mounted suction pump/dredging unit may be used to relocate sediment/cuttings around the wellhead to keep the area clear and safe for operations and equipment. This may generate plumes of suspended sediment during pumping and cause disturbance to benthic fauna in the immediate area. Any plumes are expected to dissipate and will result in negligible impacts to benthic habitats, given the relatively low density of biota and widespread nature of benthic communities. Impacts to demersal fish communities would be minor with temporary avoidance of the disturbed area.

In the unlikely event the wellhead cannot be removed, over time the cement surrounding the wellhead will likely become buried in sediment as a result of prevailing ocean currents. Over time, the steel wellhead structure will corrode and marine fouling is expected to accumulate, whereby a marine life structure may remain above the seafloor. The wellhead remaining *in situ* is expected to have a localised non-significant impact to environment receptors. No further impacts to benthic habitats are likely.

Survey findings at the Goodwyn facility (McLean et al., 2017) showed the presence of subsea infrastructure (pipeline) resulted in the development of demersal fish communities that would otherwise not occur. Generally speaking, the structures that are located in shallower water (< 135 m) had a greater diversity of fish compared to habitats at 350 m depth, where the number of fish species and abundance declined markedly (Bond et al., 2018; McLean et al., 2017).

The study by Bond et al. (2018) also confirmed that compared to adjacent natural seabed habitats, pipeline fish fauna were characterised by higher relative abundance and biomass of commercially important species. The additional subsea infrastructure to be installed as part of the Petroleum Activities Program is likely to provide additional hard substrates which would be colonised over time by epifauna and provide habitat for demersal fish communities.

Based on the above assessment, seabed disturbance is unlikely to impact on the ecological value of the Continental Slope Demersal Fish Communities KEF or any commercial fishers that may operate in the area.

Cumulative Impacts

Given the current petroleum activities and existing infrastructure within the Operational Area, there is the potential for cumulative disturbance to the seabed and benthic communities. Cumulative seabed disturbance associated with the Petroleum Activities Program is expected to be restricted to an accumulation of disturbance areas from the PLA08 well and subsea infrastructure installation sites. While these areas have previously been disturbed by previous Pluto project drilling and subsea installation activities, recovery from any such cumulative impacts is expected to be relatively rapid due to the expected re-colonisation from adjacent sediments.

As benthic habitats within the Operational Area are well represented throughout the North West Shelf and wider NWMR, cumulative impacts associated with seabed disturbance are not expected to significantly increase the risk to benthic habitats present within the Operational Area, including those of the Continental Slope Demersal Fish Communities KEF and commercial fishers.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, seabed disturbance from the Petroleum Activities Program will result in localised, slight and short-term impacts to benthic habitat and communities (i.e. Environment Impact – E).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
Reasonable attempt(s) at removal of wellhead will be undertaken in the event of a respud.	F: Yes CS: Additional cost. Standard practice.	In accordance with OPGGS Act section 572	Benefits outweigh cost/ sacrifice.	Yes **C 1.3**
Good Practice				
Project -specific Basis of Well Design, which includes an assessment of seabed sensitivity.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of disturbance occurring in areas of high sensitivity.	Benefits outweigh cost/sacrifice.	Yes **C 2.1**
Positioning technology used to place seabed infrastructure within the design footprint to reduce seabed disturbance.	F: Yes. CS: Minimal cost. Standard practice.	Use of positioning technology to position infrastructure on the seabed with accuracy will reduce seabed disturbance.	Benefits outweigh cost/sacrifice.	Yes **C 2.2**
Wet parked items will be tracked and removed from the seabed	F: Yes CS: Minimal cost. Standard practice.	Ensures inventory of equipment is maintained and no wet parked items are unintentionally left *in situ*	Benefits outweigh cost/sacrifice.	Yes **C 2.3**
Environmental monitoring of the seabed prior to and following the	F: Yes. CS: Significant. Monitoring of the seabed, particularly the deep waters of the	Environmental monitoring would not result in any additional information	Control grossly disproportionate. Monitoring will not reduce the	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Petroleum Activities Program to assess any impacts to seabed.	Operational Area, would have significant additional costs to obtain and analyse data with the spatial resolution to accurately assess changes to the seabed habitat.	of the seabed above the Woodside Well Location and Site Appraisal Data Sheet. Therefore, no additional reductions in likelihood or consequence would occur.	consequence or likelihood of any impacts to the seabed, and the cost associated with the level of monitoring required to accurately assess any impacts greatly outweighs the benefits gained. Although adoption of this control could be used to verify EPOs alternative controls identified also allow demonstration that the environmental outcome has been met based on the nature of the activity (i.e. predictable impacts) and relatively low sensitivity of the area.	
Professional Judgement – Eliminate				
Do not use ROV close to, or on, the seabed.	F: No. The use of ROVs (including work close to or occasionally landed on the seabed) is critical as the ROV is the main tool used to guide and manipulate equipment during drilling. 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. CS: Not assessed, control not feasible.	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Pre-lay survey undertaken prior to installation of flowlines.	F: Yes CS: Minimal cost.	May identify potential environmental sensitivities within subsea infrastructure footprint. Given the relatively small footprint and previous observations in the	Benefits outweigh cost/sacrifice.	Yes **C 2.4**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
		Operational Area, no particularly sensitive benthic habitats are expected to occur. Pre-lay surveys are routinely undertaken for engineering purposes.		
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement				
On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, **Section 2.6.1**), Woodside considers the adopted controls appropriate to manage the impacts of benthic habitat disturbance from MODU station keeping, drilling operations, subsea infrastructure installations and ROV operations. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement
The impact assessment has determined that, given the adopted controls, disturbance to benthic habitats may result in slight and short term effects on habitat (but not affecting ecosystems function). Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered industry best practice and meet the requirements of Woodside's relevant systems and procedures. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of disturbance to benthic habitat to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 2 No impact to benthic habitats greater than a consequence level of E inside the Operational Area during the Petroleum Activities Program[14]	**C 1.3** Reasonable attempt(s) at removal of wellhead will be undertaken in the event of a respud.	**PS 1.3.1** Refer **Section 6.6.1**	**MC 1.3.1** Refer **Section 6.6.1**
	C 2.1 Positioning technology used to place seabed infrastructure within the design footprint to reduce seabed disturbance.	**PS 2.1.1** Infrastructure will be positioned in the planned location where impacts have been assessed.	**MC 2.1.1** As-built surveys verify installation of equipment within acceptable tolerance[15]

*[14] Defined as 'Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystems function), physical or biological attributes' as in **Table 2-3/Section 2.6.3.***

[15] Acceptable tolerance is considered to be ±150 m given the low sensitivity habitat.

	C 2.2 Project -specific Basis of Well Design, which includes an assessment of seabed sensitivity.	**PS 2.2.1** MODU well site locations consider seabed sensitivities.	**MC 2.2.1** Records confirm Basis of Well Design includes the assessment of seabed sensitivities.
	C 2.3 Wet parked items will be tracked and removed from the seabed.	**PS 2.3.1** Wet parked equipment inventory maintained, with equipment removed from the seabed.	**MC 2.3.1** Records demonstrate wet parked equipment is recorded and removed.
	C 2.4 Pre-lay survey undertaken prior to installation of flowlines.	**PS 2.4.1** Pre-lay survey will be undertaken prior to the installation of flowlines.	**MC 2.4.1** Records demonstrate a pre-lay survey was undertaken prior to installation of flowlines.

6.6.3 Routine Acoustic Emissions: Generation of Noise from Project Vessels, MODU and Positioning Equipment

Context

Relevant Activities	**Existing Environment**
Project vessels – **Section 3.5**	Regional context – **Section 4.2** Protected Species – **Section 4.6**

Impacts Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***							***Evaluation***						
	Soil and Groundwater	***Marine Sediment***	***Water Quality***	***Air Quality (incl Odour)***	***Ecosystems/Habitat***	***Species***	***Socio-Economic***	***Decision Type***	***Impact***	***Likelihood***	***Current Risk Rating***	***ALARP Tools***	***Acceptability***	***Outcome***
Generation of acoustic signals from MODU (drilling operations), support vessels and installation vessels during normal operations						X	X	A	E	-	-	LCS GP PJ	Broadly Acceptable	EPO 3
Generation of acoustic signals from dynamic positioning systems on MODU/project vessels and on the seabed						X	X	A	F	-	-			

Description of Source of Impact

MODUs, installation vessels and support vessels undertaking the Petroleum Activities Program will generate noise both in the air and underwater, due to the operation of thrusters' engines, propeller movement, drilling operations, etc. These noises will contribute to and can exceed ambient noise levels which range from around 90 dB re 1 µPa (root square mean sound pressure level (RMS SPL)) under very calm, low wind conditions, to 120 dB re 1 µPa (RMS SPL) under windy conditions (McCauley, 2005). The following information describes the source sound levels for the MODU (drilling activity and while on DP) with standby and resupply vessel support and other project vessels.

MODU Operations whilst drilling (under DP)

During drilling operations, the MODU will produce low-intensity continuous sound. Sound produced from an active MODU while drilling is predominantly below 2 kHz, with peak frequencies below 500 Hz. Measured frequencies for the West Aquarius MODU, which is considered to be representative of drilling by the MODU that will be contracted for the PLA08 drilling activity, recorded a peak frequency at 190 Hz (Martin et al., 2019). A range of broadband values, 59 to 188 dB re 1 µPa at 1 m (SPL), have been quoted for various MODUs (Jiménez-Arranz et al., 2020). McCauley (1998) recorded source noise levels for moored MODUs from 149-154 dB re 1 µPa at 1 m while actively drilling (with support vessel on anchor) and Greene (1987) recorded source levels of two moored drillships from 145-158 dB re 1 µPa at 1 m during drilling (with support vessels idling nearby). An acoustic monitoring program commissioned by Santos was conducted during an exploratory drilling program in 2003, which indicated that the drilling operation was not audible from between 8-28 km from the MODU (or beyond) (McCauley, 2005). Austin et al. (2018) recorded broadband source levels from MODU operations (excluding DP thrusters) to be 170.7 dB re 1 µPa. This source level is representative of the drilling activity (machinery noise and a single thruster) and was used as one of the source inputs to inform sound transmission loss modelling commissioned by Woodside and conducted by JASCO (Wecker et al., 2022) to inform the underwater noise impact assessment.

DP MODU underwater noise measurements were taken for the West Aquarius MODU by JASCO on the Scotian Shelf in Canada, which is expected to have a similar thruster configuration to the MODU that will be contracted for the PLA08 drilling activity. The 90th percentile of the broadband radiated sound levels was 186.3 dB re 1 µPa (Martin et al., 2019). This is similar to measurements taken for the Maersk Discoverer drill rig on the North West Shelf (Woodside Energy Limited, 2011), where the system emitted tonal signals between 200 Hz to 1.2 kHz, at a source level between 176 and 185 dB re 1 µPa SPL at 1 m.

The MODU is expected to be on location for about 50 days for the PLA08 well, and up to 70 days for per well for contingency well intervention and workover activities.

Project Vessels

The Petroleum Activities Program will be supported by a number of DP capable vessels including; installation and light well intervention vessels, and offshore support vessels (OSVs) used for standby and resupply services.

Vessels produce low frequency sound (i.e. below 1 kHz) from the operation of machinery, hydrodynamic flow sound around the hull and from propeller cavitation, which is typically the dominant source of sound (Jiménez-Arranz et al., 2020).

Vessels in the 50-100 m size class (e.g. supply ships, crew boats, research vessels) produce broadband source levels in the 165–180 dB re 1 µPa SPL range (Götz et al., 2009). In comparison, underwater sound levels generated by large ships can produce levels exceeding 190 dB re 1 µPa (Götz et al., 2009), and small vessels up to the 20 m size class typically produce sound at source levels of 151 to 156 dB re 1µPa (Richardson et al., 1995).

McCauley (1998) measured underwater broadband noise equivalent to about 182 dB re 1 µPa at 1 m (RMS SPL) from a support vessel holding station in the Timor Sea; it is expected that similar noise levels will be generated by offshore support vessels used for this Petroleum Activities Program.

Source sound levels representative of MODU (drilling operations) and Project Vessels on DP

The Petroleum Activities Program source sound levels to inform sound transmission loss modelling conducted by JASCO (Wecker et al., 2022) and presented in **Table 6-2**. The source sounds were applied to the modelling scenarios for drilling and well intervention activities. The MODU under DP was confirmed as a suitable analogue for offshore construction vessels (OCV) conducting subsea installation and cold commissioning activities based on the acoustic characterisation completed for the Deep Orient (Quijano and McPherson, 2021).

Table 6-2: Source level for the Petroleum Activity Program activities and vessels input to the JASCO modelling (source: Wecker et al. 2022)

Vessel	Sound Level (dB re 1 $\mu Pa^2.m^2.s$)
MODU under DP	187.7
OSV stationary under DP (resupply scenario)	187.6
OSV slow transit	177.8

Generation of Underwater Noise from Positioning Equipment

An array of long baseline (LBL) and/or ultra-short baseline (USBL) transponders may be installed on the seabed for metrology and positioning. An array of transponders is proposed within a radius of 500 m from the proposed location of the wells and will be in place for a period of about two months for the PLA08 well and for an additional period of about two months for any contingency well intervention and workover activities.

Transponders typically emit pulses (impulsive noise) of medium frequency sound, generally within the range 21 to 31 kHz. The estimated SPL would be 180 to 206 dB re 1 µPa at 1 m (Jiménez-Arranz et al., 2017). LBL will be used for MODU activities, however the xmas tree deployment vessel will use USBL. Transmissions are not continuous but consist of short 'chirps' with a duration that ranges from 3 to 40 milliseconds. Transponders will not emit any sound when on standby and are planned to only actively emit sound for about six hours per well. When required for general positioning they will emit one chirp every five seconds (estimated to be required for four hours at a time). When required for precise positioning they will emit one chirp every second (estimated to be required for two hours at a time). An array of transponders will be active whilst the DP MODU is on location.

Sound Transmission Loss Modelling

Woodside commissioned JASCO (Wecker et al., 2022) to undertake sound transmission loss modelling of several scenarios at two representative well locations (PLA08 and XNA02). The two representative locations differ in water depth – PLA08 is in approximately 820 m (representative of Pluto and Pyxis wells) and XNA02[16] is in approximately 182 m (representative of Xena wells). These scenarios included several permutations of support vessels and the DP MODU undertaking activities, used to inform the worst-case credible noise propagation scenarios (including concurrent activities). The scenarios used in this assessment are presented in

Table 6-3. Note that sound transmission loss modelling for a DP MODU is presented at the XNA02 well location to inform contingency well interventions and workovers for Xena wells. Additionally, subsea installation and cold commissioning vessel-based activities are represented by Scenarios 1 and 6.

[16] *The XNA02 well has been drilled; drilling of this well is outside the scope of this EP. Location used to represent contingency well intervention activities.*

Table 6-3: Descriptions of sound transmission loss modelling undertaken by JASCO (Wecker et al., 2022)

Scenario Number	Description
PLA08 drilling – note: Scenario 3 represents normal operations and Scenario 4 is worst-case credible.	
1	MODU under DP, drilling at PLA08 (24 hr)
2	MODU under DP, drilling at PLA08 (24 hr) + support vessel resupply, under DP (8 hr)
3	MODU under DP, drilling at PLA08 (24 hr) + support vessel on standby (24 hr)
4	MODU under DP, drilling at PLA08 (24 hr) + support vessel resupply, under DP (8 hr) + support vessel resupply on standby (24 hr)
Xena (XNA02) – note: Scenario 7 represents normal operations and Scenario 10 is worst-case credible.	
5	MODU under DP, drilling at XNA02 (24 hr)
6	MODU under DP, drilling at XNA02 (24 hr) + support vessel resupply, under DP (8 hr)
7	MODU under DP, drilling at XNA02 (24 hr) + support vessel on standby (24 hr)
8	MODU under DP, drilling at XNA02 (24 hr) + support vessel resupply, under DP (8 hr) + support vessel resupply on standby (24 hr)

The study assessed distances from operations where underwater sound levels reached underwater noise emissions thresholds corresponding to behavioural response, injury (temporary reduction in hearing sensitivity or TTS and permanent threshold shift or PTS) for 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 sound pressure levels (SPL, L_p), and as accumulated sound exposure levels (SEL, L_E) as appropriate for different noise effect criteria, behavioural response and injury (TTS and TPS), respectively. In this report, 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 within 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, marine mammals (as well as pelagic fish and turtles) 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 injury (TTS or PTS) if it remained in that location for 24 hours.

Animal Movement and Exposure Modelling (ANIMAT Modelling)

In addition to the acoustic modelling commissioned specifically for this EP, ANIMAT modelling to perform an acoustic exposure analysis study for pygmy blue whales within the migration BIA in response to several scenarios associated with the Scarborough trunkline (Connell et al., 2022) has been applied in this assessment. The pygmy blue whale ANIMAT modelling considered the behaviour of migrating pygmy blue whales in the region and specifically for southbound migration behaviour in response to the presence of vessels installing the trunkline, including large vessels holding position using DP. The noise source characteristics of the Scarborough trunkline DP vessels applied to the ANIMAT modelling are similar to those of the MODU and support vessels under DP as described in the JASCO sound transmission loss study (Wecker et al., 2022), and presented in **Table 6-2** and **Table 6-3**.

The ANIMAT modelling study considered a range of source locations west of the Scarborough Seabed Intervention and Trunkline Installation Operational Area in 1,380 m to 1,143 m water depth, the nearest of which was approximately 6 km from the WA-34-L Pyxis Drilling and Subsea Installation Operational Area. As such, the acoustic source and the environment considered in this modelling is analogous to the environment in the Pluto field.

Sound exposure distribution estimates were determined by moving large numbers of simulated animals (animats) through a modelled time-evolving sound field, computed using the predicted sound source levels and sound propagation modelling outputs. This approach provides the most realistic prediction of the maximum expected root-mean-square SPL and the temporal accumulation of SEL that are considered the most relevant sound metrics for impact assessment.

The distribution of distances of modelled animals predicted to be exposed to sound levels above impact thresholds was used to calculate the 95th percentile exposure ranges ($ER_{95\%}$) in kilometers (km) over a 24 hour period for injury (TTS and PTS, SEL_{24h}) and behavioural response SPL (L_p; dB re 1 µPa) (Connell et al., 2022).

Impact Assessment

Potential Impacts to Protected Species

The Operational Area is located in water depths of approximately 170-990 m, with the PLA08 well in approximately 820 m water depth. The fauna associated with this area will be predominantly pelagic fishes, with seasonal, migratory species such as cetaceans and marine turtles potentially occurring in the area (**Section 4.6**). Anthropogenic noise has been identified as a threat to a number of migratory and threatened cetaceans and marine turtles that may occur within the Operational Area, including the pygmy blue whale. Relevant actions included in recovery plans for these species are outlined in **Section 6.8**.

The Operational Area is located inside the eastern perimeter of the pygmy blue whale migration BIA. The nearest possible foraging BIA is the Ningaloo possible foraging BIA located approximately 238 km south-west of the Operational Area (refer to **Section 4.6.3**). Pygmy blue whales may transit the Operational Area during April to July (northbound migration) and October to January (southbound migration) during their seasonal migrations as indicated from the telemetry and passive acoustic data based understanding of pygmy blue whale movement and behaviour most recently described in Thums et al. (2022). A humpback whale migration BIA is located about 27 km south-east of the Operational Area and given the Operational Area is outside the migration BIA the likelihood of humpback whale encounters is considered low though possible, particularly on the northbound migration as shown in **Figure 4-8.**

An internesting buffer BIA for the flatback turtle partially overlaps the Operational Area. Given the water depths and distance from shore, the Operational Area does not represent suitable foraging or internesting habitat.Therefore, encounters with flatback turtles within the Operational Area are expected to be infrequent and of a low likelihood.

The whale shark foraging BIA overlaps the Operational Area and while the occasional whale sharks may be in this area of the NWS, there is a low likelihood of whale shark encounters given the Operational Area is located 228 km to the north-west of the main aggregation area represented by the high density prey foraging BIA at Ningaloo (refer to **Section 4.6.3**).

The continental slope between North West Cape and the Montebello Trough has been identified as one of the most diverse slope assemblages in Australian waters, with over 508 fish species and the highest number of endemic species (76) of any Australian slope habitat (DEWHA, 2008). The Continental Slope Demersal Fish Communities KEF is described in **Section 4.6.6**.

Elevated underwater noise can affect marine fauna, including cetaceans, fish, turtles, sharks and rays, in three main ways (*Oceans of noise*, 2004; Richardson et al., 1995):

(1) by causing direct physical effects on hearing or other organs (injury)

(2) by masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey)

(3) through disturbance leading to behavioural changes or displacement from important areas (e.g., BIAs).

The extent of the impacts of underwater noise on marine fauna will depend upon the frequency range and intensity of the niose produced, and the type of acoustic signal.

Consideration of sound propagation is also important as increasing the distance from the noise source results in the level of noise reducing, due primarily to the spreading of the sound energy with distance. The way that the noise spreads (geometrical divergence) will depend upon several factors such as water column depth, pressure, temperature gradients, and salinity, as well as surface and bottom conditions.

Cetaceans

Marine mammals and especially cetaceans rely on sound for important life functions including individual recognition, socialising, detecting predators and prey, navigation and reproduction (Erbe, 2012; Erbe et al., 2016; Weilgart, 2007). Underwater noise can affect marine mammals in various ways including interfering with communication (masking), behavioural changes, a shift in the hearing threshold (PTS and TTS), physical damage and stress (Erbe, 2012).

The thresholds that could result in a behavioural response, temporary threshold shift (TTS) and permanent threshold shift (PTS) for cetaceans as a result of continuous noise sources are presented in **Table 6-4**. These thresholds have been adopted by the United States National Oceanic and Atmospheric Administration (NOAA) (National Marine Fisheries Service [NMFS], 2014, 2018; Southall et al., 2019; NOAA, 2019). The adopted thresholds are based on best data available and published in peer-reviewed literature and represent conservative internationally accepted and applied impact evaluation thresholds for continuous (non-impulsive sound sources).

Table 6-4: Thresholds for PTS, TTS and behavioural response onset for low-frequency (LF) and high-frequency (HF) cetaceans for continuous noise

Hearing Group and Generalised Hearing Range	PTS Onset Threshold: SEL_{24h} (dB re 1 µPa^2.s)	TTS Onset Thresholds SEL_{24h} (dB re 1 µPa^2.s)	Behavioural Response (dB re 1 µPa)
LF cetaceans	199	179	120

HF cetaceans	198	178	120

Source: NMFS (2018), Southall et al. (2019), NOAA (2019)

The *Conservation Management Plan for the Blue Whale (BWCMP)* (Commonwealth of Australia, 2015a), a recovery plan made under the EPBC Act, defines important areas for pygmy blue whales and these are also described with reference to BIAs in the National Conservation Values Atlas (NCVA), with particular emphasis placed on foraging areas and migration corridors. As noted above and in **Section 4.6.3**, the Operational Area is located within the eastern perimeter of the pygmy blue whale migration BIA, with the nearest foraging BIA (Ningaloo possible foraging area) approximately 238 km to the south-west of the Operational Area. Action Area A.2.3 of the BWCMP states: "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"

Based on the *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (DAWE, 2021), underwater noise emissions from the petroleum activities program must not:

- Result in injury[17] (TTS or PTS) to any pygmy blue whale in BIAs; or
- Displace a pygmy blue whale from a foraging BIA.

Drilling and Subsea Installation Activities

Predicted Underwater Noise Impacts to LF Cetaceans

Injury

The sound transmission loss modelling study by JASCO (Wecker et al., 2022) indicated that the PTS and TTS thresholds for low frequency (LF) cetaceans may occur out to a maximum range of 0.08-0.12 km and 0.85-1.03 km for PLA08 drilling and subsea installation, respectively and a maximum range of 0.08 km to 0.13 km and 1.87 to 2.66 km for well intervention at Xena wells (XNA02 representative modelling) (**Table 6-5**).

Considering the Southall et al. (2019) SEL_{24h} TTS and PTS threshold criteria for LF cetaceans (179 dB re 1 µPa².s and 199 dB re 1 µPa².s, respectively), TTS onset was predicted to occur within several hundred metres to several kilometres and PTS onset was predicted to occur within tens of metres (refer to the modelling results in **Table 6-5**). The PTS and TTS thresholds are frequency-weighted cumulative sound exposure levels over a complete 24 hour period, which assumes that the animal receiving the sound is constantly within the sound field over 24 hours.

The results of the animat movement modelling predicted that between 11 and 88% of modelled animats within $ER_{95\%}$ for the scenarios modelled for the Scarborough trunkline installation would be exposed above threshold (Connell et al., 2022). For normal operations of the pipelay installation vessel activities which is considered a suitable analogue for drilling activities (MODU under DP and DP vessels), PTS onset probability of exposure of 11% within the 95th percentile exposure range ($ER_{95\%}$) only occurs if a pygmy blue whale is within 0.01 km of the sound source over a 24 hr period. TTS onset probability of exposure of 88% within the 95th percentile exposure range ($ER_{95\%}$) only occurs if a pygmy blue whale is within 0.03 km distance of the sound source over a 24 hr period.As expected, $ER_{95\%}$ for the SEL_{24h} metric for moving animats was shorter than the predicted range for static receivers because of the shorter dwell time in the sound field.

The animat movement modelling demonstrates that PTS and TTS threshold exceedances are within short onset ranges. With further consideration of these modelling predictions and the highly mobile movement of migrating pygmy blue whaes, for example, the median speed estimate for northbound migrating pygmy blue whales was between 1.8-4.2 km/hr in the northwest (Thums et al. 2022), and the behaviour of migratory whale species that may occur near or within the Operational Area, it is highly unlikely injury due to noise exposure could occur to migrating pygmy blue whales and humpback whales resulting from the Petroleum Activities Program.

Behavioural Response

The sound transmission loss modelling study by JASCO (Wecker et al., 2022) indicated that the behavioural response threshold for low frequency (LF) cetaceans may occur out to a maximum range of 12-13 km, for PLA08 (drilling and subsea installation) and 17-21 km for well intervention at Xena wells (XNA02 representative modelling), (**Table 6-5**). Single-exposure metrics, such as SPL, are not sensitive to changes in dwell time, but rather the distribution of noise within the water column and the use of the water column by the modelled animat, and therefore $ER_{95\%}$ tends to be comparable to that predicted by acoustic propagation modelling. The $ER_{95\%}$ to the behavioural response SPL threshold ranged from ~5 to 14 km. There was no significant variation in exposure range between the six modelled scenarios by Connell et al. (2022). The modelling incorporating animat behaviour by JASCO supports the assertion that typical pygmy blue whale behaviour reduces sound exposure, with ranges to impact thresholds considerably lower than results that assume stationary animals remain in the sound field indefinitely (Connell et al., 2022).

Potential behavioural disturbance to pygmy blue whales within the migration BIA and distribution range is limited to any overlap with the northbound (April to July) and southbound (October to January) migratory seasons. Migrating humpback whales have shown avoidance behaviours (increased movement rate and dive frequency) when exposed

[17] 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 anthropogrnic sources of underwater noise (DAWE, 2021).

to underwater noise generated by a vessel (Dunlop et al., 2015), and it is reasonable to assume that pygmy blue whales would exhibit similar responses.

There is limited data to indicate that the Operational Area represents an area where opportunistic foraging by pygmy blue whales occurs. Based on an overlap of three different metrics (occupancy, number of whales in a cell and move persistence) Thums et al. (2022) identified the most important foraging areas for pygmy blue whales offshore from Western Australia but also recognised such areas are not static but dependent of the interplay of oceanographic and prey dynamics. The included areas encompassed the shelf edge from Ningaloo Reef to the Rowley Shoals, but none of the important foraging areas identified were on the shelf edge or slope where the Operational Area is located. Hence, it cannot be reasonably predicted that pygmy blue whale foraging is probable or known in the Operational Area. Furthermore, all of the identified important foraging areas identified by Thums et al. (2022) in offshore NW Australian waters are located beyond the maximum range (km) at which the TTS and behavioural impact thresholds for LF cetaceans are predicted to occur based on modelling commissioned specifically for this petroleum activity program.

The *Conservation Management Plan for the Blue Whale* (Commonwealth of Australia, 2015a) and associated guidance on key terms requires that pygmy blue whales not be displaced from a foraging area. The nearest recognised foraging BIA is off the Ningaloo Coast, approximately 238 km south-west of the Operational Area at the closest point. The sound transmission loss modelling study by JASCO (Wecker et al., 2022) predicted that behavioural responses (a conservative surrogate for displacement) could occur up to 20.7 km from the noise source (less than one tenth of the distance to the foraging BIA) (**Table 6-5**). Hence, displacement of pygmy blue whales from this foraging BIA as a result of the petroleum activities program will not occur.

Humpback whales occur in the region, with a migration BIA lying shoreward of the Operational Area (approximately 29 km at the closest point). Aerial surveys of migrating humpback whales in the region showed that the majority of migrating humpbacks occur in the mid- and inner-continental shelf waters, rather than the outer part of the migration BIA (RPS Environment and Planning, 2010). The sound transmission loss modelling study by JASCO (Wecker et al., 2022) predicted that received noise levels within the humpback whale migration BIA are below levels that would cause TTS or behavioural impacts. Furthermore, there is only a low likelihood of humpback whales (on northbound migrations) being exposure to noise levels above behavioural response threshold.

The Operational Area is surrounded by open water, with no restrictions (e.g., shallow waters, embayments) to an animal's ability to avoid the activities. Behavioural response by LF cetaceans (such as pygmy blue whales) may result in a deviation in course during migration, which is expected to be insignificant in the context of the long distances over which individuals migrate (thousands of kilometres). Cetaceans that are frequently exposed to sounds such as vessel noise may also habituate and adapt to this noise (Richardson et al. 1995; NRCC, 2003). This may be the case for the humpback whale population that regularly passes through areas of significant shipping traffic during their migrations.

Table 6-5: Summary of sound transmission loss modelling results for combined cetacean functional hearing groups behavioural and TTS thresholds (source: JASCO (Wecker et al., 2022))

Activity (and modelling scenario)	Behavioural Response R_{max}* (km)	Behavioural Response $R_{95\%}$** (km)	TTS R_{max}* (km)	PTS R_{max}* (km)
PLA08 drilling				
MODU under DP drilling at PLA08 (24 hr) (scenario 1)	12.4	11.4	0.85	0.08
MODU under DP, drilling PLA08 (24 hr) +support vessel resupply under DP only (8 hrs) (scenario 3)	12.8	11.8	0.99	0.12
MODU under DP, drilling at PLA08 (24 hr) + support vessel on standby (24 hr) (scenario 4)	12.5	11.5	0.87	0.08
MODU under DP, drilling at PLA08 (24 hr) + support vessel resupply, under DP (8 hr) + support vessel on standby (24 hr) (scenario 5)	13.1	11.9	1.78	0.12
Xena (XNA02)				
MODU under DP, drilling at XNA02 (24 hr) (scenario 6)	17.1	14.2	1.87	0.08
MODU under DP, drilling at XNA02 (24 hr) + support vessel resupply under DP only (8 hr) (scenario 8)	20.5	17.0	2.57	0.13

MODU under DP, drilling at XNA02 (24 hr) + support vessel on standby (24 hr) (scenario 9)	17.2	14.1	2.17	0.08
MODU under DP, drilling at XNA02 (24 hr) + support vessel resupply, under DP (8 hr) + support vessel on standby (24 hr) (scenario 10)	20.7	17.0	2.66	0.13

* 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

Note: The difference between the reported distances (refer to **Table 6-5**) at the PLA08 and XNA02 well sites are likely due to the difference in bathymetry and seabed composition. Sandy seabed sediments compared to a silty or muddy seabed can increase the acoustic reflectivity, particularly for angles that influence longer range levels; This is the case at XNA02. Furthermore, water depths of around a few hundred meters can result in optimal propagation conditions for levels at frequencies around a few a few hundred hertz and these frequencies are the largest for the considered sources. The combination of the high levels at frequencies with more favourable propagation in the considered water depths and better seabed reflections results in larger distances to thresholds and criteria (Wecker et al., 2022).

Generation of Underwater Noise from Positioning Equipment

Transponders used for positioning have the potential to cause some temporary behavioural disturbance to cetaceans; however, noise levels will be well below injury thresholds. Based on empirical spreading loss estimates measured by Warner and McCrodan (2011), received levels from USBL transponders are expected to exceed the cetacean behavioural response threshold for impulsive sources out to about 42 m. Given the short-duration chirps and the mid frequencies used by positioning equipment, the acoustic noise from a single transponder is unlikely to have any substantial effect on the behavioural patterns of migrating cetaceans. Therefore, potential impacts from transponder noise are likely to be restricted to temporary and localised avoidance behaviour of individuals transiting through the Operational Area, and therefore are considered localised with no lasting effect.

Overall Potential Underwater Noise Emissions Impacts to Cetaceans

Potential impacts from predicted noise levels from project vessels (including MODU and support vessels) and transponders are not considered to be ecologically significant at a population level.

With consideration of all vessel-based activities of the proposed petroleum activity program and based on the observed migration speeds of pygmy blue whales, results of modelling studies, and assumed behavioural responses to underwater noise, it highly unlikely that pygmy blue whales would be exposed to noise levels sufficient to cause TTS. As such, injury - as defined by the *Guidance on Key Terms within the Blue Whale Conservation Management Plan* (DAWE, 2021) – is highly unlikely to occur.

Marine Turtles

There is a paucity of data regarding responses of marine turtles to underwater noise. However, turtles have been shown to respond to low frequency sound, with indications that they have the highest hearing sensitivity in the frequency range 100–700 Hz (Ketten and Bartol, 2006).

Popper et al. (2014) assessed thresholds for marine turtles and found qualitative results that TTS was only moderate for near field exposure, and low for both intermediate and far field exposure. McCauley et al. (2000) noted that sea turtles exhibit increased swimming activity at 166 dB re 1 µPa. No numerical thresholds have been developed for impacts of continuous sources (e.g., vessel noise) on marine turtles.

The thresholds listed in **Table 6-6** are considered appropriate for the assessment of impacts from continuous acoustic discharges to marine turtles from the Petroleum Activities Program.

Table 6-6: Impact thresholds to marine turtles for continuous noise

Hearing group	Continuous		
	PTS onset thresholds: SEL_{24h} (dB re 1 µPa².s)	**TTS onset thresholds: SEL_{24h} (dB re 1 µPa².s)**	**Behavioural response (dB re 1 µPa)**
Marine turtles	220	200	(N) High (I) Moderate (F) Low

*Source: PTS and TTS thresholds (Finneran et al., 2017), * behavioural response threshold (NSF 2011), + behavioural disturbance threshold (McCauley et al. 2000).*

Note: The sound units provided in the table above for continuous noise include: relative risk (high, medium and low) is given for marine turtles 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) (after Popper et al. 2014).

The *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017) notes there is limited information available on the impact of noise on marine turtles and that the impact of noise on turtle stocks may vary depending on whether exposure is short (acute) or long-term (chronic). However, given the thresholds outlined in **Table 6-6**, it is reasonable to expect that marine turtles may demonstrate avoidance or attraction behaviour to the noise generated by the Petroleum Activities Program.

The Operational Area partially overlaps an internesting BIA for flatback turtles, however the water depths in the Operational Area are substantially deeper (> 170 m) than observed for the internesting diving depths in flatback turtles (Sperling et al., 2010; Whittock et al., 2014, 2016a). Furthermore, tracking studies at Barrow and Thevenard islands suggest internesting flatback turtles remain in shallow water, close (< 3 km) to nesting beaches (Whittock et al., 2014). The Operational Area overlaps internesting Habitat Critical to the survival of flatback turtles, which is also designated a BIA. However, it is noted that the defined BIA and Habitat Critical are considered very conservative as they are based on the maximum range of internesting females rather than direct studies that show marine turtles are more likely to remain near their nesting beaches. There is no evidence to date to indicate flatback turtles swim out into deep offshore waters during the internesting period. Hence it is considered highly unlikely that the Operational Area is utilised by inter-nesting flatback turtles. Marine turtle presence in general and specific to flatback turtles is expected to be infrequent, and potential impacts from predicted noise levels from the project vessels (including MODU and support vessels) are expected to be short-term and localised, if they occur and are not considered to be ecologically significant at a population level.

Fish, Sharks and Rays

Fish perceive sound through the ears and the lateral line, which are sensitive to vibration. Some species of teleost or bony fish (e.g., herring) have a structure linking the gas-filled swim bladder and ear, and these species usually have increased hearing sensitivity. These species are considered to be more sensitive to anthropogenic underwater noise sources than species such as cod (*Gadus* sp.), which do not possess a structure linking the swim bladder and inner ear. Fish species that either do not have a swim bladder (e.g., elasmobranchs (sharks and rays) and scombrid fish (mackerel and tunas)) or have a much-reduced swim bladder (e.g., flat fish) tend to have a relatively low auditory sensitivity.

Considering these differences in fish physiology, Popper et al. (2014) developed sound exposure guidelines for fish; which are presented in **Table 6-7** and are considered appropriate to assess continuous acoustic discharges to fish from the petroleum activities program.

Table 6-7: Impact thresholds for fish, sharks and rays for continuous noise

Hearing group	Continuous		
	PTS onset thresholds: SEL_{24h} (dB re 1 µPa².s)	**TTS onset thresholds: SEL_{24h} (dB re 1 µPa².s)**	**Behavioural response (dB re 1 µPa)**
Fish: no swim bladder	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Moderate (F) Low
Fish: swim bladder not involved in hearing	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) Moderate (I) Moderate (F) Low
Fish: swim bladder involving hearing	170 dB rms SPL for 48-hours	158 dB rms SPL for 12-hours	(N) High (I) Moderate

			(F) Low

Continuous noise:

- *rms SPL: root mean square of time-series pressure level, useful for quantifying continuous noise sources.*

Relative risk (high, moderate, or low) is given for animals at three distances from the source defined in relative terms as near (N), intermediate (I), and far (F). Source: Popper et al. (2014)

A number of demersal and pelagic fish species will be present within the Operational Area which overlaps the continental slope demersal fish communities KEF, as described in **Section 4.6.7**. However, given species richness has been shown to correlate with habitat complexity (Gratwicke and Speight, 2005), it is unlikely that the sand/silt sediments that comprise the largest proportion of the Operational Area will support a wide diversity of species.

Maximum-over-depth horizontal distances to PTS and TTS thresholds for fish with a swim bladder involved in hearing as a result of underwater noise from a support vessel are approximately 10 m or less from the source based on modelling from JASCO for the Scarborough field (McPherson et al. 2019). For fish with a swim bladder not involved in hearing, and fish without a swim bladder (including whale sharks) the likelihood of PTS or TTS is low. Based on an intermediate spreading equation to estimate sound propagation loss from the MODU (15Log(R)), noise levels would drop below PTS and TTS thresholds for fish with a swim bladder involved in hearing within 15 m and 78 m respectively. It is expected that potential impact to demersal and pelagic fish and sharks/rays will be limited to a behavioural response. Behavioural responses are expected to be short-lived, with duration of effect less than or equal to the duration of exposure.

Whale sharks do frequent the wider NWS outside their seasonal aggregation period (peak: April and May) within the high density prey foraging BIA at Ningaloo. The Operational Area is over 200 km from the Ningaloo high density prey foraging BIA and therefore likelihood of whale shark encounters is not considered high but is possible. Acoustic detections of tagged whale sharks at the North Rankin A and Goodwyn A platforms during two periods—June to July and October to January were recorded (Thomson et al. 2021) and supported anecdotal evidence of whale shark presence on NWS . Behavioural disturbance to whale sharks as a result of vessel noise may result in a temporary deviation on their migration route, however this is over a wide area and is not spatially restricted.

Given the thresholds outlined in **Table 6-7**, it is reasonable to expect that fish, sharks and rays may demonstrate avoidance or attraction behaviour to the noise generated by the Petroleum Activities Program with no lasting effect.

Cumulative Impacts

Cumulative impacts from multiple sound sources associated with the Petroleum Activities Program have been modelled (sound transmission loss modelling study by JASCO (Wecker et al., 2022)) and a range of scenarios that would generate underwater noise considered in the impact assessment. Woodside is not aware of any other scheduled petroleum activity programs with associated underwater noise sources in the region that would result in impacts to marine fauna in addition to noise arising from the Petroleum Activities Program.

Summary of Potential Impacts to Environmental Value(s)

It is considered that noise generated by the installation vessel, support vessels, MODU drilling activities, helicopters and positioning transponders will be limited to slight and short term effects (i.e., Environmental Impact-E).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*	*Benefit in Impact/ Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures[18]: • Project vessels will not travel greater than 6 knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale.	F: Yes. CS: Minimal cost. Standard practice.	Implementation of controls for reduced vessel speed around cetaceans can potentially reduce the underwater noise footprint of a vessel and lower the likelihood of noise exposure above impact thresholds	Controls based on legislative requirements – must be adopted.	Yes **C 3.1**

[18] *For safety reasons, the distance requirements below are not applied for a vessel holding station or with limited manoeuvrability e.g. loading, back-loading, bunkering, close standby cover for overside working and emergency situations.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
• Project 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). • If the cetacean or turtle shows signs of being disturbed, project vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. • Vessels will not travel greater than 8 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.				
Cetacean and whale shark sightings will be reported. All project vessels and the MODU will be provided with sighting recording sheets which will be posted on notice boards for opportunistic reporting of cetacean and whale shark sightings. Awareness of sightings reporting will also be included in project inductions. These sightings reports will be collated and summarised on an annual basis and submitted to the Australian Antarctic Division of the Department of the Environment and Energy to satisfy condition 1(c)(vi) of EPBC Approval Decision 2006/2968.	F: Yes. CS: Minimal cost.	Collecting of sightings data does not provide benefit in impact reduction but may support environmental knowledge.	Controls based on legislative requirements – must be adopted.	Yes **C 3.2**
Good Practice				
Implement adaptive management procedure prior to supply vessel commencing approach to move alongside the MODU/ installation vessel within the Operational Area, during daylight hours hours. Adaptive management procedure to include: • Implement monitoring for pygmy blue whales	F: Yes CS: Time / Cost associated with person used for observations. Schedule delays associated with waiting on pygmy blue whale activity to cease / move on.	Given the Operational Areas overlap, or are adjacent to the pygmy blue whale migration BIA, detecting pygmy blue whale presence in the area before supply vessel moves alongside the MODU / installation vesselsreduces the likelihood of noise	Benefits outweigh cost/sacrifice.	Yes **C 3.3**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
30 minutes prior to supply vessel commencing approach. • Proceed with move only when no pygmy blue whales have not been sighted within the limits of visibility.		exposure impact or influence on the activity of pygmy blue whales that may be present.		
The use of dedicated Marine Fauna Observers (MFOs) on support vessels for the duration of the Petroleum Activities Program to watch for whales and provide direction on and monitor compliance with Part 8 of the EPBC Regulations.	F: Yes. However, support vessel bridge crews already maintain a constant watch during operations. CS: Additional cost of MFOs.	Given that support vessel bridge crews already maintain a constant watch during operations, and trained crew will be on the MODU and installation vessels, additional MFOs would not further reduce the likelihood of an individual being within close proximity of the acoustic source during start-up or during operations.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No
Use additional detection controls (e.g., drones for aerial observations, passive Acoustic Monitoring for use at night, thermal imaging for use at night) to observe whales within 500 m reactive management zone around MODU.	F: Yes CS: Time / Cost associated with additional personnel and technology onboard vessels.	May increase likelihood of detection of whales, particularly during periods of poor visibility. Additional detection technologies can be degraded by metocean conditions (e.g., sea state).	Cost/sacrifice outweighs benefit. Lack of proven application in detection of cetaceans in deep water environment and limitations of the technology reduce potential benefit gained when compared with low likelihood of expected cetacean activity and low likelihood of MODU/ installation vessel movement at night	No
Professional Judgement – Eliminate				
Remove support vessel on standby at the Petroleum Activities Program location.	F: No. Activity support vessel required for safety reasons, particularly for maintaining the 500 m petroleum safety zone around the MODU/installation vessels. CS: Introduces unacceptable safety risk.	Not considered, control not feasible.	Not considered, control not feasible.	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Eliminate generation of noise from the MODU, installation vessel, support vessels or survey positioning equipment.	F: No. The generation of noise from these sources cannot be eliminated due to operating requirements. Note that vessels operating on DP may be a safety critical requirement. CS: Inability to conduct the Petroleum Activities Program. Loss of project.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional Judgement – Substitute				
Management of vessel noise by varying the timing of the Petroleum Activities Program to avoid migration periods of pygmy blue whales.	F: Not feasible. Variation of timing of specific activities is not feasible as activity is subject to schedule constraints and vessel availability. CS: Significant cost and schedule impacts deeming the project unviable if activities avoid specific timeframes.Additionally, ongoing decommissioning programs are scheduled to be undertaken using the same MODU, meaning variation of thiming of this activity would affect timing of decommissioning activities, which are seasonally constrained due to weather conditions.	Not considered, control not feasible.	Not considered, control not feasible.	No
Professional Judgement – Engineered Solution				
Passive Acoustic Monitoring (PAM)	F: No. PAM has limited ability to detect calls from baleen whales such as the Pygmy Blue Whale, particularly with added background noise from drilling/ installation vessel activities and known reliability and practicality limitations of the technology.	Not considered – control not feasible.	Not considered – control not feasible.	No.

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
	CS: Costs associated with PAM technology acquisition and implementation.			
Use of thermal imaging equipment at night or periods of low visibility to identify cetacean presence.	F: Yes. Feasible to install on support vessel CS: Costs associated with infrared technology acquisition and implementation.	Can increase likelihood of identifying cetacean presence however limitations on detection distance/depth, interpretation of data (identification of cetacean type for example) and practicality.	Cost/sacrifice outweighs benefit. Lack of proven application in detection of cetaceans in deep water environment and limitations of the technology reduce potential benefit gained when compared with low likelihood of expected cetacean activity and low likelihood of MODU/ installation vessel movement at night.	No
Use of Autonomous Underwater Vehicle (AUV) to monitor for presence of pygmy blue whales using detection of their vocalisations.	F: Yes. Could be deployed from support vessel. CS: Costs associated with obtaining and operating the technology. Schedule delays while data is collected and interpreted (not real time monitoring)	Limited benefit as the technology relies on Pygmy Blue Whale vocalisation, which is currently not well understood, particularly during foraging activities. Technology and applications still under development and not widely tested in field. Application limited due to lack of real time capability.	Cost/sacrifice outweighs benefit. Adequate observations are able to be made from the MODU Bridge due to height and surveillance by a trained crew. It is not expected that an AUV would add significantly more value than this, to warrant deployment.	No.

ALARP Statement

On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A, **Section 2.6.1**), Woodside considers the potential impacts from routine support vessel, installation vessel, MODU, helicopter and positioning transponder noise emissions to be ALARP in its current risk state. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

As identified in the DAWE and NOPSEMA guidance on key terms within the *Conservation Management Plan for the Blue Whale: A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025* (Commonwealth of Australia, 2015a), 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.

The impact assessment has determined that support vessel, installation vessel, MODU drilling and positioning transponder noise disturbance may result in localised impacts not significant to marine fauna, with no lasting effect. Further opportunities to reduce the impacts have been investigated above. The potential impacts are considered broadly acceptable. Therefore, Woodside considers standard operations appropriate to manage the impacts of support vessel, installation vessel, MODU drilling and positioning transponder noise emissions to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 3 Undertake the Petroleum Activities Program in a manner that prevents injury to pygmy blue whales, or biologically significant behavioural disturbance.	**C 3.1** EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures[18]: • Project vessels will not travel greater than 6 knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale. • Project 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). • If the cetacean or turtle shows signs of being disturbed, project vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. • Vessels will not travel greater than 8 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	**PS 3.1** Compliance with EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.05 and 8.06) Interacting with cetaceans	**MC 3.1.1** Records demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans.
	C 3.2 Cetacean and whale shark sightings will be reported. All project vessels and the MODU will be provided with sighting recording sheets which will be posted on notice boards for opportunistic reporting of cetacean and whale shark sightings. Awareness of sightings reporting will also be included in project inductions. These sightings reports will be collated and summarised on an annual basis and submitted to the Australian Antarctic Division of the Department of the Environment and Energy to	**PS 3.2** Project personnel will report opportunistic sightings of cetaceans and whale sharks during this activity (Regulation 29 notifications) and submitted to the Australian Antarctic Division of the Department of the Environment and Energy to satisfy condition 1(c)(vi) of EPBC Approval Decision 2006/2968. Inductions will include information to inform personnel of sightings reporting requirements.	**MC 3.2.1** All project vessels and the MODU will be provided with sighting recording sheets which will be posted on notice boards. Awareness of sightings reporting will also be included in project inductions. Sightings reports submitted to the Australian Antarctic Division of the Department of the Environment and Energy to satisfy condition 1(c)(vi) of EPBC

	satisfy condition 1(c)(vi) of EPBC Approval Decision 2006/2968.		Approval Decision 2006/2968.
	C 3.3 Implement adaptive management procedure prior to supply vessel commencing approach to move alongside the MODU/ installation vessel within the Operational Area, during daylight hours hours. Adaptive management procedure to include: • Implement monitoring for pygmy blue whales 30 minutes prior to supply vessel commencing approach. • Proceed with move only when no pygmy blue whales have not been sighted within the limits of visibility.	**PS 3.3a** No supply vessels to commence approach to move alongside MODU/ installation vessel if pygmy blue whales are sighted within the preceeding 30 minutes.	**MC 3.3.1** Records demonstrate when PBW presence detected, no supply vessel commenced approach to move alongside MODU/ installation vessel.
		PS 3.3b C 3.3 will be implemented by: • MFOs when the activity is occurring within the pygmy blue whale migration BIA during migration season (April to July and October to January), • Trained crew as MFOs when outside of the BIA or in the BIA outside of the migration season (August, September, February, March).	**MC 3.3.2** Pygmy blue whale sighting records demonstrate trained crew and/ or MFO on watch prior to commencing supply vessel moves alongside the MODU/ installation vessel.

6.6.4 Routine and Non-routine Discharges to the Marine Environment: MODU and Project Vessels

Context

Relevant Activities	**Existing Environment**
Project vessels – **Section 3.5**	Habitats and biological communities – **Section 4.5** Protected species – **Section 4.6**

Impacts Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***							***Evaluation***						
	Soil and Groundwater	***Marine Sediment***	***Water Quality***	***Air Quality (incl Odour)***	***Ecosystems/Habitat***	***Species***	***Socio-Economic***	***Decision Type***	***Impact***	***Likelihood***	***Current Risk Rating***	***ALARP Tools***	***Acceptability***	***Outcome***
Routine discharge of sewage, grey water and putrescible wastes to marine environment from MODU, installation vessel and support vessels			X			X	X	A	F	-	-	LCS PJ	Broadly Acceptable	EPO 4
Routine discharge of deck and bilge water to marine environment from MODU, installation vessel and support vessels			X			X	X	A	F	-	-			
Routine discharge of cooling water or brine to the marine environment from MODU, installation vessel and support vessels			X			X	X	A	F	-	-			

Description of Source of Impact

Vessel and MODU Operations

Sewage, Grey Water and Putrescible Wastes

The MODU and project vessels routinely generate/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.

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.

Brine

Reverse osmosis (RO), 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 (Woodside Energy Limited, 2014).

Models developed by the US EPA (Frick et al., 2003) for temporary brine discharges from vessels assuming no ocean current (i.e. 0 m/s) found that 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.

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.

Environmental risks relating to the unplanned disposal/discharges are addressed in **Section 6.7.6** and **6.7.7**.

Detailed Impact Assessment

Potential Impacts to Water Quality and Marine Fauna

Water Quality

Sewage, Grey Water and Putrescible Wastes

The principal environmental 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, such as oxygen depletion and phytoplankton blooms. Other contaminants of concern occurring in these discharges may include ammonia, *E. coli*, faecal coliform, volatile and semi-volatile organic compounds, phenol, hydrogen sulphide, metals, surfactants and phthalates.

Woodside conducted monitoring of sewage discharges at their Torosa-4 Appraisal Drilling campaign which demonstrated that a 10 m^3 sewage discharge reduced to about 1% of its original concentration within 50 m of the discharge location. In addition to this, monitoring at distances 50, 100 and 200 m downstream of the platform and at five different water depths confirmed that discharges were rapidly diluted and no elevations in water quality monitoring parameters (e.g. total nitrogen, total phosphorous and selected metals) were recorded above background levels at any station (Woodside Energy Limited, 2011). Mixing and dispersion would be further facilitated in deep offshore waters, consistent with the location of the Operational Area, through regional wind and large-scale current patterns resulting in the rapid mixing of surface and near surface waters where sewage discharges may occur. Studies investigating the effects of nutrient enrichment from offshore sewage discharges indicate that the influence of nutrients in open marine areas is much less significant than that experienced in enclosed areas (McIntyre and Johnston, 1975).

Given the offshore location, any routine and non-routine discharges of sewage and greywater and putrescible wastes from activities associated with the Petroleum Activities Program will result in no lasting change to water quality.

Deck and Bilge Water

Deck drainage and treated bilge may contain a range of chemicals, oil, grease and solid material. This particulate matter can cause an increase in the turbidity of the receiving waters close to the point of discharge. The addition of these substances into the marine environment will result in a change ambient water quality; however, these discharges are expected to rapidly dilute in the water column (Shell, 2009). Discharges will disperse and dilute rapidly, with concentrations significantly dropping with distance from the discharge point.

Bilge water and deck drainage discharges, which may include non-organic contaminants, will rapidly dilute. As such, no significant impacts from the planned routine discharges are anticipated, because of the minor quantities involved, the expected localised mixing zone and high level of dilution into the open water marine environment of the Operational Area.

Based on the detailed evaluation, the magnitude of potential impact of a change in water quality is an insignificant localised impact, with no lasting effects.

Brine or Cooling Water

The key physicochemical stressors of reject brine and cooling water discharge are salinity, pH, temperature and chemical toxicity. Generally, reject brine and cooling water containing chemical additives are inherently safe at the low dosages used. They are usually consumed in the inhibition process, so there is little or no residual chemical concentration remaining upon discharge.

Water quality of the surrounding environment may be altered through the addition of chemicals and an increase in salinity. Scale inhibitors and biocides are commonly used within the systems described above to prevent fouling. Scale inhibitors are typically low molecular weight phosphorous compounds that are water-soluble, and only have acute toxicity to marine organisms about two orders of magnitude higher than typically used in the water phase (Black et al., 1994). The biocides typically used in the industry are highly reactive and degrade rapidly (Black et al., 1994).

Reject brine water is typically 20 to 50% higher in salinity to the surrounding water. Based on models developed by the US EPA (Frick et al., 2003), discharges of brine water will sink through the water column where it will be rapidly mixed with receiving waters and dispersed by ocean currents, decreasing in salinity rapidly as distance from source increases.

Woodside undertook modelling of continuous wastewater discharges (including cooling water) for its Torosa South-1 drilling program in the Scott Reef complex (Woodside Energy Limited, 2014). This study predicted that discharge water temperature decreases quickly as it mixes with the receiving waters, with the discharge water temperature being < 1°C above ambient within 100 m (horizontally) of the discharge point, and 10 m vertically (Woodside Energy Limited, 2014).As such, any potential impacts to water quality are expected to be limited to 100 m of the source of the discharge where concentrations are highest.

Based on the detailed risk evaluation, the magnitude of the potential impact of a change in water quality from routine and non-routine brine and cooling water discharges is assessed as an insignificant localised impact, with no lasting effects.

Seabirds and Migratory Shorebirds, Fish, Marine Reptiles and Marine Mammals

Marine fauna transiting the localised area may come into contact with these discharges (e.g., marine turtles, humpback whales, whale sharks; **Section 4.6**) as they traverse the Operational Area. However, given the localised extent of cumulative impacts from multiple vessel discharges and limited exposure, no impacts to protected fauna are expected to occur.

Plankton

Research suggests that zooplankton composition and distribution are not affected in areas associated with sewage outfalls (McIntyre and Johnston, 1975). Plankton communities are expected to rapidly recover from any such short term, localised impact, as they are known to have naturally high levels of mortality and a rapid replacement rate.

Discharged brine sinks through the water column where it is rapidly mixed with receiving waters and dispersed by ocean currents. As such, any potential impacts are expected to be limited to the source of the discharge where concentrations are highest. Studies indicate that effects from increased salinity on planktonic communities in areas of high mixing and dispersion are generally limited to the point of discharge only (Azis et al., 2003).

No significant impacts from the planned routine discharges are expected, because of the minor quantities involved, the expected localised mixing zone and high level of dilution into the open water marine environment of the Operational Area.

Based on the impact assessment, the magnitude of the potential impacts on plankton from routine and non-routine brine and cooling water discharges is assessed as no lasting effect.

Cumulative Impacts

Routine and non-routine utility discharges from a MODU/installation vessel and supporting vessels may occur simultaneously, but will dilute rapidly and have negligible cumulative impacts. These discharges may also occur simultaneously with other discharges from the MODU, such as drill cuttings and fluids. Given the rapid dilution of these discharges in the open water environment, the potential for cumulative impacts to water quality would be restricted to within 100 m of the discharge location. Hence, cumulative impacts will have no lasting effect (i.e., Environment Impact – F).

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that routine or non-routine discharges described will be limited to localised contamination not significant to environmental receptors, with no lasting effect. (i.e., Environment Impact – F). Any localised (non-significant) impacts to marine fish is not expected to impact on any commercial fishers in the area.

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Legislation, Codes and Standards				
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.	F: Yes. CS: Minimal cost. Standard practice.	No reduction in likelihood or consequence would result.	Controls based on legislative requirements – must be adopted.	Yes **C 4.1**
Marine Order 96 – Pollution prevention – sewage (as appropriate to vessel class) which includes the following requirements: • a valid International Sewage Pollution Prevention Certificate, as required by vessel class • an AMSA approved sewage treatment plant • a sewage comminuting and disinfecting system • a sewage holding tank sized appropriately to contain all generated waste (black and grey water) • discharge of sewage which is not comminuted or disinfected will only occur at a distance of more than 12 nm from the nearest land • discharge of sewage which is comminuted or disinfected using a certified approved sewage treatment plant will only occur at a distance of more than 3 nm from the nearest land • discharge of sewage will occur at a moderate rate while support vessel is proceeding (>4 knots), to avoid discharges in environmentally sensitive areas.	F: Yes. CS: Minimal cost. Standard practice.	No reduction in likelihood or consequence would result.	Controls based on legislative requirements – must be adopted.	Yes **C 4.2**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
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.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. No change in consequence would occur.	Benefits outweigh cost/ sacrifice.	Yes **C 4.3**
Marine Order 91 – oil (as relevant to vessel class) requirements, which includes mandatory measures for the processing of oily water prior to discharge: • Machinery space bilge/oily water shall have IMO -approved oil filtering equipment (oil/water separator) with an on-line monitoring device to measure Oil in Water (OIW) content to be less than 15 ppm prior to discharge. • IMO -approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating in the event that OIW concentration exceeds 15 ppm. • 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. • There shall be a waste oil storage tank available, to restrict oil discharges. • In the event that machinery space bilge discharges cannot meet the oil content standard of <15 ppm without dilution or be	F: Yes. CS: Minimal cost. Standard practice.	No reduction in likelihood or consequence would result.	Controls based on legislative requirements – must be adopted.	Yes **C 4.4**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
treated by an IMO approved oil/water separator, they will be contained on-board and disposed of onshore. • Valid International Oil Pollution Prevention Certificate.				
Good Practice				
No additional controls identified.				
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
Storage, transport & treatment/ disposal onshore of sewage, greywater, putrescible & bilge wastes.	F: Not feasible. Would present additional safety & hygiene hazards resulting from the storage, loading & transport of the waste material. Distance of activity offshore also makes the implementation of this control not feasible. CS: Not considered, control not feasible.	Not considered, control not feasible.	Not considered, control not feasible.	No
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A, **Section 2.6.1**), Woodside considers the adopted controls appropriate to manage the impacts of planned (routine and non-routine) discharges form MODU/vessels. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that, given the adopted controls, planned discharges (routine and non-routine) from the MODU/vessels is unlikely to result in a potential impact greater than localised impacts, not significant to environmental receptors and with no lasting effect. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet legislative requirements under Marine Orders 91, 95 and 96. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of these discharges to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 4 No impact to water quality greater than a consequence level of F from discharge of sewage, greywater, putrescible wastes, bilge and deck drainage to the marine environment during the Petroleum Activities Program.	**C 4.1** 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.	**PS 4.1.1** MODU and project vessels compliant with Marine Order 95 – Pollution prevention – garbage.	**MC 4.1.1** Records demonstrate MODU and project vessels are compliant with Marine Order 95 – Pollution prevention (as appropriate to vessel class).
	C 4.2 Marine Order 96 – Pollution prevention – sewage (as appropriate to vessel class) which includes the following requirements: • a valid International Sewage Pollution Prevention Certificate, as required by vessel class • an AMSA approved sewage treatment plant • a sewage comminuting and disinfecting system • a sewage holding tank sized appropriately to contain all generated waste (black and grey water) • discharge of sewage which is not comminuted or disinfected will only occur at a distance of more than 12 nm from the nearest land • discharge of sewage which is comminuted or disinfected using a certified approved sewage treatment plant will only occur at a distance of more than 3 nm from the nearest land • discharge of sewage will occur at a moderate rate while support vessel is proceeding (>4 knots), to avoid discharges in environmentally sensitive areas.	**PS 4.2.1** MODU and project vessels compliant with Marine Order 96 – Pollution prevention – sewage (as appropriate to vessel class).	**MC 4.2.1** Records demonstrate MODU and project vessels are compliant with Marine Order 96 – Pollution prevention – sewage (as appropriate to vessel class).
	C 4.3 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 4.3.1** Contaminated drainage contained, treated and/or separated prior to discharge.	**MC 4.3.1** Records demonstrate MODU has a functioning bilge/oily water management system.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
	C 4.4 Marine Order 91 – oil (as relevant to vessel class) requirements, which includes mandatory measures for the processing of oily water prior to discharge: • Machinery space bilge/oily water shall have IMO -approved oil filtering equipment (oil/water separator) with an on-line monitoring device to measure Oil in Water (OIW) content to be less than 15 ppm prior to discharge. • IMO-approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating in the event that OIW concentration exceeds 15 ppm. • 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. • There shall be a waste oil storage tank available, to restrict oil discharges. • 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 on-board and disposed of onshore. • Valid International Oil Pollution Prevention Certificate.	**PS 4.4.1** Discharge of machinery space bilge/oily water will meet oil content standard of <15 ppm without dilution.	**MC 4.4.1** Records demonstrate discharge specification met for MODU and project vessels.

6.6.5 Routine and Non-routine Discharges to the Marine Environment: Drill Cuttings and Drilling Fluids (WBM and NWBM)

Context

Relevant Activities	Existing Environment
Drilling activities – **Section 3.8** Project fluids – **Section 3.10**	Physical environment – **Section 4.4** Habitats and biological communities – **Section 4.5** Protected species – **Section 4.6**

Impacts Evaluation Summary

Source of Impact	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Impact*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Routine discharge of WBM drill cuttings to the seabed and the marine environment		X	X		X		X	A	D	-	-	GP PJ	Broadly Acceptable	EPO 5
Contingency discharge of NWBM drill cuttings to the seabed and the marine environment		X	X		X		X	A	D	-	-			
Routine discharge of WBM drilling fluids to the seabed and the marine environment		X	X		X		X	A	E	-	-			
Non-routine discharge of wash water from mud pits and vessel tank wash fluids		X	X		X		X	A	E	-	-			
Routine discharge of well clean-out fluids		X	X		X		X	A	E	-	-			
Discharge of well annular fluids from temporarily abandoned well		X	X		X		X	A	F	-	-			

Description of Source of Impact

Drilling Program

The proposed Petroleum Activities Program includes the drilling of one new well (PLA08) and intervention and or workover any of the 12 wells tied back to the Pluto facility within Production Licence WA-34-L (including PLA08), if required.

Drilling activities are described in **Section 3.8**. The PLA08 well will be drilled as a series of sections (**Table 6-8**). The top hole section will be drilled without a riser in place (i.e., riserless drilling). Upon drilling of the top hole sections, casings will be cemented in place, a BOP installed and a riser put in place between the BOP and the MODU. The riser remains in place during drilling of the bottom hole sections and facilitates the circulation of drilling fluids and cuttings between the well bore and the MODU.

The following describes the source of impact with respect to discharge of drill cuttings, mud and clean-up fluids only (see **Section 6.6.6** for cement, cementing fluids and subsea control fluids). The base case (e.g., typical drilling operations) for the management of cuttings is to discharge into the marine environment along with WBM drilling muds which are used to transport the cuttings out of the well.

For the purposes of this impact assessment, the indicative dimensions, discharge locations and approximate cuttings volumes provided in **Table 6-8** represent the worst case for a single section, taking into account each well to be drilled during the Petroleum Activities Program.

Table 6-8: Estimated discharges of cuttings and volumes of drilling fluids used for the PLA08 well*

Section Description	Discharge Point	Drilling Fluid Type	Approx. Cuttings Discharged (m^3)	Approx. Fluid Discharged (m^3)
42" (Top)	Seabed	Sea Water + Sweeps**	65	335
26" (Top)	Seabed	Sea Water + Sweeps**	220	1425
17.5" (Bottom)	Below Sea Level	WBM	265	2070
12.25" (Bottom)	Below Sea Level	WBM	100	1275
9 7/8" (Bottom)	Below Sea Level	WBM	10	795
Total			**660**	**5900**
Contingent Activity Sidetrack				
12.25" (Bottom) (indicative)	Below Sea Level	WBM	100	1275
9 7/8" (Bottom) (indicative)	Below Sea Level	WBM	10	795

** Volumes described are approximate and may be subject to change due to well design and operational requirements.*
*** Seawater with pre-hydrated bentonite sweeps/XC Polymer sweeps (seawater volume not included in the estimated 'Drilling Fluid Volume').*

Drill Cuttings

Indicative drill cuttings generated from the PLA08 well has been estimated to comprise a total of about 660 m^3. Drilling is expected to generate drill cuttings ranging in size from very fine to very coarse (<1 cm) (**Section 3.10.3**). Cutting size is determined by TD, lithology, drill bit employed and solid control equipment specifications. Indicative volumes of drill cuttings for the well are outlined in **Table 6-8**.

Cuttings resulting from drilling the top hole section are drilled using seawater, pre-hydrated bentonite sweeps drilling fluid (WBM) system, discharging the cuttings to the seabed at the well site where they will accumulate near the wellhead.

The bottom hole sections will be drilled with a marine riser that enables cuttings and drilling fluid to be circulated back to the MODU, where the cuttings are separated from the drilling fluids by the SCE. The SCE uses shale shakers to remove coarse cuttings from the drilling fluids. After processing by the shale shakers, the recovered fluids from the cuttings may be directed to centrifuges, which are used to remove fine solids (~4.5 to 6 µm). The cuttings with residual fluids are discharged below the water line and the mud is recirculated into the fluid system (**Section 3.8.4**). Cuttings will typically drop out of suspension in the vicinity of the well site (as coarser materials), while the fluids if not flocculated with the cuttings may disperse further, temporarily elevating total suspended solids (TSS) and sediment deposition.

Completion and Well Bore Clean-Out Fluids

Prior to installing the upper completion activities, wells will generally be displaced from the drilling fluid system to brine. A chemical clean-out fluids train will be circulated between the two fluids, then seawater or brine circulated until operational cleanliness specifications are met. This will be in line with Woodside's Reservoir, Drilling and Completions Fluids Guideline. Brine is typically a filtered brine with <70 nephelometric turbidity units and/or <0.05% TSS. This results in a brine and seawater discharge after this operation.

Should there be clean-up brine contaminated with base oil or NWBM, it will be captured and stored on the MODU for discharge if oil concentration is <1% by volume or returned to shore if discharge requirements cannot be met. Initial clean-up fluids (usually returned to the rig within the first few hours of circulation) which are predominantly drilling mud (concentration of mud compared to brine is a higher percentage of mud) will be discharged as per requirements in this EP or returned to shore if requirements are not met.

Drilling Fluids

WBM will be operationally discharged to the marine environment at the location of the well being drilled during the Petroleum Activities Program under the following scenarios:

1. at the seabed when drilling the top hole (riser less) sections
2. below sea surface as fluid remaining on drill cuttings, after passing through the SCE (bottom hole sections, drilled with riser in place)
3. from the mud pits from a pipe below the sea surface, if the WBM cannot be re-circulated/ re-used through the drilling fluid system (due to deterioration/contamination), re-used on the well or on another well; or stored.

Drilling fluids are contained within the drilling fluids circulation system. Mud pits (tanks) within this system provide capacity for the storage of drilling fluids. The mud pits are cleaned out at the completion of drilling operations.

Chemicals used in WBM are assessed in accordance with the Chemical Selection and Assessment Environment Guideline (**Section 3.10.1**).

Contingent Activities

Non-water Based Muds

NWBM are not planned to be used but may be required as a contingency during drilling should the offset history, geohazards assessment and borehole stability studies indicate that NWBM is required to manage well stability to safe levels. Where NWBM is needed to drill a well section, the cuttings from the NWBM drilling fluid system will also pass through a cuttings dryer to reduce the average residual oil on cuttings (OOC) for the well (only sections using NWBM) to ALARP, prior to discharge. In the event of SCE failures, cuttings may be discharged without having passed through the dryer; however, this will only occur for a short duration while the drill string is being moved to a safe location in the well and existing cuttings are circulated out of hole. A decision will then be made on the case for drilling ahead without the failed SCE, while still meeting residual OOC discharge limits. Drilling ahead while SCE breakdown assessment and repairs occur is a contingent activity subject to additional controls; however, the standard mode of operation to ensure management of cuttings to ALARP is to treat cuttings through a dryer. An OOC discharge limit of <6.9% on wet cuttings will be averaged over well sections drilled with NWBM for the well.

Should NWBM be used, mud pit residue may be discharged to the sea where the residue contains <1% oil volume. Where the mud pit residue exceeds 1% by volume, the residue will be retained and disposed of onshore.

Base oil and chemicals used in NWBM are assessed in accordance with the Chemical Selection and Assessment Environment Guideline (**Section 3.10.1**).

Respud

It is unlikely that the PLA08 well would be required to be respud. If required, the most likely scenario is that the decision to respud is made during drilling of the top hole section; therefore, the incremental increase in cuttings and fluids discharges is associated with the repeat drilling of the same top hole sections for the respudded well with the same associated discharges. A respud once drilling of the bottom hole sections has commenced is far less likely, given the time and effort already committed to the well. However, if this was to occur, the associated discharges would also be a repeat of the discharges as per **Table 6-8** to re-drill the same sections of the respudded well.

Sidetrack

The option of a sidetrack instead of a respud may be determined if operational issues are encountered. Should a sidetrack be required, it will result in an increase in the volume of cuttings generated and a potential increase in the use of NWBM. Additional drill cuttings volumes are estimated in **Table 6-8**.

Well Annular Fluids

Following completion of drilling, some wellbore fluids will remain in the annular spaces between casing. Upon wellhead removal, small volumes (~1.5 m^3) of fluid exchange between the annular spaces and the ocean may occur. The exchange will not be instantaneous as the annular spaces are small and the fluids are typically heavier than seawater. In the unlikely event routine wellhead removal techniques are unsuccessful, this fluid exchange is expected to occur over time following sufficient corrosion of the wellhead.

Impact Assessment

Potential Impacts to Water Quality, Sediment Quality and Habitats and Communities

Routine and non-routine drilling-related discharges may result in the following impacts:

- change in water quality
- change in seabed sediment quality
- change in seabed habitat
- injury/mortality to marine fauna (benthic communities).

Some fluids are discharged at the sea surface (or just below); and some are discharged at the seabed.

Drill Cuttings and Retained Fluids

Water Quality and Planktonic Communities

Drill cuttings and retained drilling fluid discharges are expected to increase turbidity and TSS levels above ambient concentrations above the seabed (top-hole well sections) or in the upper surface layers (bottom-hole well sections with discharge below the water line from the MODU). Drill cuttings discharge will be generally intermittent and of short duration (over a total period of about 50 days for the PLA08 well) during the drilling of a well.

Top-hole well section drill cuttings and drilling fluids (WBM) will be discharged at the seabed. The coarser material (drill cuttings) will deposit on the seabed and the finer sediment material (the WBM) will cause localised elevated TSS in the water column above the seabed surrounding the well. This reduction in water quality will be temporary (limited to the operational discharges during drilling) and subject to rapid dispersion and dilution by prevailing seabed currents.

During bottom-hole well sections, when drill cuttings with retained drilling fluids are discharged below the water line (from the MODU), the larger particles, representing about 90% of the mass of the solids, form a plume that drops out of suspension in the water column rapidly and, deposits on the seabed. About 10% of the mass of the solids (the fines

predominately composed of drilling fluid) form a plume in the upper surface layer (depending on the depth of discharge from the MODU) that will be transported by prevailing currents away from the MODU and is diluted rapidly in the receiving waters (Neff, 2010, 2005). There is a large body of knowledge indicating a discharge of cuttings with adhered fluids diluting rapidly. These studies have found that within 100 m of the discharge point, a drilling cuttings and fluid plume released at the surface will have diluted by a factor of at least 10,000. Further to that, Neff (2005) states that in well-mixed oceans waters, the plume is diluted by more than 100-fold within 10 m of the discharge site.

Dispersion of the cuttings plume is influenced by a number of factors: particle sized distribution of the cuttings and fluids, operational discharge events and rates and metocean conditions such as ocean current speed. The case studies described in Neff (2005) used WBMs and surface current speeds of 0.15–0.3 m/s. As currents in the Operational Area are similar in speed at the surface, the dispersion described by Neff (2005) is considered representative for the PLA08 drilling program.

Using the dilution factor of 10,000 from Neff (2005), cuttings (and adhered fluids) are expected to reach 100 mg/L TSS within 100 m of the MODU. Using a conservative ocean current speed of 0.1 m/s (which is below typical current speeds in the Operational Area), these discharges are expected to disperse to 100 mg/L within ~16 minutes. Given the generally low concentration of TSS outside the immediate vicinity of the discharge point, due to rapid dispersion of sediment and the short period of intermittent discharge, the plume is not expected to have more than a very highly localised reduction in water quality and area of potential ecological impact. It is not expected to substantially impact productivity of the water column. Slight impacts to plankton (phytoplankton, zooplankton and meroplankton (larvae of invertebrates and fish) are therefore expected from the discharge of drill cuttings. Neff (2010) explains that the lack of toxicity and low bioaccumulation potential of the drilling muds means that the effects of the discharges are highly localised and are not expected to spread through the food web (of which planktonic species are the basis).

Injury/mortality to planktonic species may occur due to a change in water quality following discharges of drill cuttings and fluids. Impacts to these organisms can be as a product of both physical and chemical alterations of water quality, predominantly in the water column.

The combination of low toxicity and rapid dilution of unrecoverable WBM (and continency NWBM) discharged in association with drill cuttings are of little risk of direct toxicity to water-column biota (Neff et al., 2000).

Sediment Quality and Benthic Communities

Accumulation of drill cuttings on the seabed causes changes in the physical properties of the seabed sediment such as the particle size distribution (PSD), the introduction of contaminants (metals such as barium) from retained drilling fluids (WBM), introduction of forms of petroleum hydrocarbons (from retained contingency NWBM on cuttings) and associated ecological effects.

The discharge of drill cuttings and unrecoverable fluids at the seabed during riserless top hole drilling results in a localised area of sediment deposition (known as a cuttings pile) surrounding the well site. The cuttings pile distribution may reflect prevailing seabed currents and spread predominately downstream of the well site but overall extent from the well site is typically tens of metres. The dimensions of the cuttings pile depend on several factors, including volume (approximately 285 m^3 of top hole cuttings at PLA08, **Table 6-8**) and composition of cuttings, and oceanographic conditions at the discharge location. The top-hole well section drill cuttings and retained drilling fluids (WBM) to seabed have the greatest impact to sediment quality and modification of the habitat in proximity to the well, as the solids tend to clump and settle rapidly around the discharge point (Neff, 2010).

Indicative components of the WBM system outlined in **Section 3.10.2** have a low toxicity. Bentonite and chemicals from the family of XC polymers (Xanthan Gum or similar) are listed as 'E' category fluids under the OCNS and considered to 'pose little or no risk to the environment' (PLONOR). Metals such as barium from these additives will be present in the drilling fluid, primarily as insoluble mineralised salts, and consequently are not released in significant amounts to the pore water of marine sediments and have low bioavailability to those benthic fauna which may come into contact with the discharged barite (Crecelius et al., 2007; Neff, 2008). The XC polymer and bentonite sweeps have very low toxicities and are considered by OSPAR to be PLONOR.

The bottom hole sections are drilled after the riser is fitted. Cuttings, and residual fluids on cuttings, are discharged below the water line from the MODU, resulting in drill cuttings and retained drilling fluids rapidly dispersing through the water column. The larger cuttings particles will drop out of suspension and deposit in proximity to the well site (tens to hundreds of metres distance) with potential for localised spreading downstream. Finer particles will remain in suspension and will be transported further away from the well site, rapidly diluting and eventually depositing over a larger area (hundreds of metres to several kilometres) downstream of the well site. Drill cuttings from the bottom-hole sections will be larger in volume (approximately 375 m^3; **Table 6-8**) and as determined by surface discharge, depth of seabed and time to reach seabed, result in an extended area of deposition, but a much thinner cuttings pile depth (International Association of Oil and Gas Producers, 2016). The fines associated with the retained drilling fluids or mud pit bulk discharge of WBM will settle over a greater extended distance as a thin veneer on the seabed. Predicted impacts for bottom hole cuttings are generally confined to a maximum of 500 m from the discharge point (International Association of Oil and Gas Producers, 2016). However, when discharged in deeper waters (> 400 m), WBM/NWBM cuttings may be deposited over a much larger area, to a horizontal distance of 500–1000 m from the discharge site (with concentrations decreasing with increasing distance) (International Association of Oil and Gas Producers, 2016). The final deposition of drill cuttings and drilling fluids is largely determined by seabed depth and the time to drop out of suspension within the water column and deposit on the seabed. This leads to the coarser cuttings material being deposited at a location offset but closest to the well site in an area downstream and a distance up to of several

hundreds of metres, with associated ecological effects within this area and the fines (predominately drilling fluids) dispersed over a greater distance from the discharge site, typically several kilometres but with no associated ecological effects.

Base fluids for NWBM are assessed in accordance with Woodside's Chemical Selection and Assessment Environment Guideline. They are designed to be biodegradable in offshore marine sediments. Biodegradation can result in a low oxygen (anoxic) environment resulting in changes in benthic community structure. Species sensitive to anoxic environments are eliminated and replaced by tolerant and opportunistic species, resulting in decreased species diversity, but the number of individuals often increases (Neff et al., 2000). NWBMs are designed to be low in toxicity and are not readily bioavailable to benthic fauna due to their physical/chemical properties. Nedwed et al. (2006) found that depth is an important factor for concentrations of NWBM on cuttings, as cuttings deposited in relatively deep water (950 m) had significantly lower concentrations than at the discharge point. This suggests that much of the base fluid is dispersed in the water column during settlement. The study concluded that NWBM discharged in deep water posed very limited environmental impacts from analysis of difference in benthic fauna between pre- and post-drilling samples (Nedwed et al., 2006). Given the depth of the PLA08 well (approximately 820 m), it is expected that any cuttings generated using NWBM would shed a considerable portion of the residual NWBM before reaching the seabed. This discharge is expected to dilute rapidly, with a potential impact to the environment considered to be a local, temporary decrease in water quality (as discussed above).

Benthic organisms below the cuttings pile will be buried and smothered; however, the cuttings piles are expected to be recolonised over time. Ecological impacts to benthic biota are predicted when sediment deposition is equal to or greater than 6.5 mm in thickness (International Association of Oil and Gas Producers, 2016). This amount of sediment deposition from top hole and bottom hole cuttings is expected to be confined to within a few hundred metres around the well location, although this depends on the nature of the cuttings, the water depth and currents of the receiving environment (International Association of Oil and Gas Producers, 2016). A conservative radius of 500 m representing a zone of potential ecological impact has been applied to each well location for this impact assessment. Mobile benthic fauna, such as demersal fish, may be temporarily displaced from areas where cuttings discharges accumulate. Furthermore, ecological impacts are not expected for mobile benthic fauna such as crabs and shrimps or pelagic and demersal fish, given their mobility (International Association of Oil and Gas Producers, 2016). Balcom et al. (2012) concluded that impacts associated with discharging cuttings and base fluids (including NWBMs) are minor, with impacts confined to the area of the discharge deposition on the seabed. Organic enrichment can occur, leading to anoxic conditions in the surface sediments and a loss of infauna species that have a low tolerance to low oxygen concentrations, and to a lesser extent chemical toxicity near the well location. These impacts are highly localised with short-term recovery that may include changes in community composition with the replacement of infauna species that are hypoxia-tolerant (International Association of Oil and Gas Producers, 2016). Recovery of affected benthic infauna, epifauna and demersal communities is expected to occur, given the short duration of sediment deposition and the widely represented benthic and demersal community composition. The zone of potential ecological impact for the PLA08 well is conservatively estimated to be approximately 0.8 km^2.

It is acknowledged that transport of fines (associated with the drilling fluids) will disperse beyond the zone of potential ecological impact but there are no associated ecological effects expected beyond this zone (500 m distance from the well sites). Low levels of sediment deposition away from the immediate area of the well site would represent a thin layer of settled drill cuttings and drilling fluids, which will likely be naturally reworked into surface sediment layers through bioturbation (United States Environmental Protection Agency, 2000). Metals such as barium from the drilling fluid additives are used as a tracer of dispersion and are typically detected beyond the zone of ecological impact but the insoluble mineralised salts (the source of barium) have low bioavailability to benthic biota.

Impacts associated with routine and non-routine drilling discharges will be largely limited to an area surrounding the PLA08 well location in the offshore, open water environment. The low sensitivity of the benthic communities/habitats within the operational area, combined with the low toxicity of WBMs and residual NWBMs (contingency only), and the localised nature and scale of predicted physical impacts to seabed biota, affirm that any predicted impact will be of a minor environmental consequence.

KEFs

Potential impacts to the Continental Slope Demersal Fish Communities KEF, which overlaps the operational area, will be negligible. As described above, the sediment deposition from the discharge of drill cuttings and drilling fluids will be highly localised around each well location. Within the conservatively applied zone of potential ecological impact (500 m radius around PLA08), only a very small portion of the KEF (0.002%) will be affected. The fishes that constitute the KEF are mobile and are expected to move away from areas affected by drill cuttings and fluids before experiencing impacts that result in injury or mortality. The benthic habitats around the PLA08 well are widely distributed in the region, hence there are no constraints on available habitat for demersal fish displaced by the discharge of drilling fluids and cuttings. As a result, the environmental consequence of impacts to the Continental Slope Demersal Fish Communities KEF will be slight and of no lasting effect (i.e., Environment Impact – F).

Drilling Fluids (Bulk Discharge)

WBM may be bulk discharged at the end of specific well sections, as described above, where there is a requirement to change the drilling fluid system or the drilling 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 drilling activities or when changing between mud types.

Discharge of WBM will result in a buoyant plume of fine materials that will rapidly dilute and decrease in turbidity levels immediately away from the discharge point. WBM samples collected by Jones et al. (2021) from the mud pits just before discharge during the Greater Western Flank-2 drilling campaign were ~90% silt sized (<62.5 µm) with a mean diameter of 12 µm (gel-polymer) and 33 µm (KCl-polymer). Total suspended solid (TSS) levels in the gel-polymer mud and KCl-polymer mud were 257 g/L and 245 g/L respectively. 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 subsea plume can be expected to disperse over a wide area (up to several kilometres), with no discernible sediment deposition on the seabed and no physical or biological impacts, particularly given the water depth of the PLA08 well (820 m). Impacts beyond the 500 m zone of ecological impact for the well as described for drill cuttings and retained fluids discharge is not expected.

Subsea – Displacement, Completion and Well-bore Cleanout Fluids

Discharges such as displacement, completion and wellbore cleanout fluids are typically inert and of low toxicity. These fluids are mostly brine, with a small proportion of chemical additives such as surfactants, biocide, corrosion inhibitor, oxygen scavenger, monoethylene glycol and guar gum. The volume of one wellbore and subsequent discharge volume would be up to approximately 660 m^3 and 5900 m^3 respectively. Any change to water quality is expected to be localised and temporary. As this is an intermittent batch discharge, any change in water quality will be short term as discharges are discrete and of short duration. Rapid dilution due to prevailing ocean currents in the open water environment would lead to any changes in water quality such as low toxicity contaminants being temporary (only for the duration of the discharge) and reducing water quality within a short distance of the discharge location.

Cumulative Impacts

The seabed around the PLA08 is in close proximity to other wells and hence the discharge of drill cuttings and drilling fluids from the well may result in cumulative impacts. The benthic habitats and communities that may be impacted by the discharge of drill cuttings and fluids are widely represented in the region and not of high conservation value. The area within which cumulative impacts may occur is relatively small and would be substantially smaller than the 0.8 km^2 impacted directly by drill cuttings and fluids discharges. Other aspects of the Petroleum Activities Program that may impact upon benthic habitats will be localised around the PLA08 wellhead and subsea infrastructure, hence the potential area impacts by cumulative impacts from other aspects is very small. Recovery is expected to occur through natural processes. Hence cumulative impacts will be slight and of no lasting effect (i.e., Environment Impact – F).

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that the drill cuttings and drilling muds discharges described will not result in a potential impact greater than minor burial and smothering of benthic habitats and slight/short term effects to water quality (e.g., turbidity increase) (i.e., Environment Impact – E). Any localised impacts to water quality and marine fish is not expected to impact on any commercial fishers in the area.

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*	*Benefit in Impact/ Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
Drilling and completions fluids will have an environmental assessment completed prior to use.	F: Yes. CS: Minimal cost. Standard practice.	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. Planned discharges are required for the	Benefits outweigh cost/sacrifice.	Yes **C 5.1**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
		safe execution of activities and therefore no reduction in likelihood can occur.		
For project activity fluids, periodic chemical reviews are performed.	F: Yes. CS: Minimal cost. Standard practice.	Regular reviews will so that chemicals selected for drilling and completoins fluids remain ALARP.	Benefits outweigh cost/ sacrifice.	Yes **C 5.2**
Written NWBM justification process followed.	F: Yes. CS: Minimal cost. Standard practice.	The written justification considers the technical need for NWBM use, receiving environment, cost and additional controls that may be required. By performing formal assessment, the potential impacts are well understood, allowing for development of control measures to reduce the consequence of NWBM use. This provides an overall environmental benefit.	Benefits outweigh cost/sacrifice.	Yes **C 5.3**
NWBM base oils selected based on expected toxicity.	F: Yes. CS: Minimal cost.	By selecting a base oil with lower toxicity, the consequence of the release to the environment is reduced.	Benefits outweigh cost/ sacrifice.	Yes **C 5.4**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Backload bulk NWBM or maintain on rig for re-use.	F: Yes. CS: Minimal cost. Standard practice.	By restricting the volume of NWBM for 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.	Benefits outweigh cost/sacrifice.	Yes **C 5.5**
Bulk operational discharges conducted under MODU's Permit to Work (PTW) system (to operate discharge valves/pumps).	F: Yes. CS: Minimal cost. Standard practice.	The MODU's PTW may slightly reduce the likelihood of bulk discharges occurring, but it is unlikely to be significant given bulk discharges are often operationally required and cannot be eliminated.	Benefits outweigh cost/sacrifice.	Yes **C 5.6**
Displacement brine, workover or intervention fluids contaminated with hydrocarbons will be treated prior to discharge or containment. If design specification not met the fluid will be returned to shore.	F: Yes. CS: Miniaml cost. Standard practice	Ensuring <1% oil content will provide a small reduction in consequence when fluids are discharged to the environment.	Benefits outweigh cost/ sacrifice.	Yes **C 5.7**
SCE used to treat NWBM cuttings prior to discharge.	F: Yes. CS: Minimal – more frequent cuttings sampling and testing.	Achieving average oil on cuttings (sections using NWBM only) discharge limit of 6.9% or less oil on wet cuttings will have a small reduction in consequence.	Benefits outweigh cost/sacrifice.	Yes **C 5.8**
In event of SCE failure (where no redundancy is available) while drilling with NWBM, the initial action will be to cease drilling and determine whether to repair SCE or drill ahead until next practicable opportunity to trip out of the hole.	F: Yes. CS: Cost and schedule implications due to cessation of drilling.	Ceasing drilling in the event of equipment failure will allow for time to assess feasibility of drilling ahead while still meeting residual OOC discharge requirements.	Benefits outweigh cost/sacrifice.	Yes **C 5.**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
If cuttings are discharged during dryer or auger failure, measurement of OOC to occur more frequently from shakers.				
Sampling/analysis of stock barite to ensure acceptable levels of heavy metals (Cadmium and Mercury).	F: Yes. CS: Minimal cost. Standard practice.	Ensures heavy metal concentrations in stock barite are at acceptable levels to reduce the consequence of discharges to the marine environment.	Benefits outweigh cost/sacrifice.	Yes **C 5.10**
Professional Judgement – Eliminate				
None identified.				
Professional Judgement – Substitute				
None identified.				
Professional Judgement – Engineered Solution				
Mud pit wash residue will be measured for oil content prior to discharge.	F: Yes. CS: Minimal cost. Standard practice.	Ensuring <1% oil content will provide a small reduction in consequence when residue is discharged to the environment.	Benefits outweigh cost/sacrifice.	Yes **C 5.11**
WMB drill cuttings returned to the MODU will be processed using SCE equipment.	F: Yes. CS: Minimal cost. Standard practice.	Limiting the discharge of WBMs through reuse will reduce the consequence of using the WBM.	Benefits outweigh cost/ sacrifice.	Yes **C. 5.12**
Drill cuttings returned to the MODU will be discharged below the water line.	F: Yes. CS: Minimal cost. Standard practice.	Discharge of drill cuttings below the water line will reduce carriage and dispersion of cuttings thereby reducing the consequence of cuttings discharges during the Petroleum Activities Program.	Benefits outweigh cost/sacrifice.	Yes **C 5.13**
Cuttings reinjection into formation. Cuttings are to be crushed, slurrified and pumped to a desired geological structure with a suitable seal, below the seabed through an annulus or tubing.	F: No. No concurrent drilling or direct sequential drilling planned which would require cuttings to be stored prior to reinjection.	Not considered – control not feasible.	Not considered – control not feasible.	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
	CS: Not considered – control not feasible.			
Riserless mud recovery (RMR) system to return top hole cuttings/mud from the riserless section of the well to the MODU prior to treatment onboard and discharge from the MODU (below the water line).	F: No. The depth of the PLA08 well is not conducive to the use of RMR CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
RMR system to return top hole cuttings from the riserless section of the well to the MODU prior to transport to an alternative discharge location or back to shore for disposal.	F: No. The depth of the PLA08 well is not conducive to the use of RMR CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Return riser-in-place cuttings for disposal at another marine location or onshore for processing and land disposal (skip and ship) for whole well to reduce risk of benthic disturbance. OR Return riser-in-place cuttings for all sections drilled with NWBM for disposal onshore (to reduce potential residual OOC to environment).	F: Yes. CS: Primary cost/ sacrifice of this option is the additional handling required to transport cuttings to an alternative disposal location. Particularly the health and safety risks associated with high frequency of support vessel activity alongside the rig and the amount of crane lifting required if a cuttings skip/drilling waste container system were employed. Other cost/sacrifice elements which are considered include: • further treatment of cuttings onshore is required to ensure a standard suitable for landfill: Class II disposed locally (e.g., Karratha); Class III landfill requires transport to Geraldton or Perth • increased risk of unplanned vessel collision or loss of	Compared to adopted control, return riser-in-place cuttings would reduce cuttings/ mud discharged (although discharge would still occur during riserless drilling on the basis that this control is not adopted) at each well location; however, given current impact assessment and controls adopted, this would not result in a significant reduction of consequence.	Disproportionate. Given the adopted controls and low current risk rating, the high cost/ sacrifice outweighs the benefit gained over the duration of the Petroleum Activities Program. Impact assessment has determined no sensitive benthic receptors in the vicinity and a low level of impact potential from overall cuttings/mud discharge; therefore, benefit to be gained from cuttings/mud recovery is disproportionate to the risks introduced by relocating cuttings (including if an alternative system which doesn't use transport containers was implemented).	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
	cuttings during transfer activities • environmental impact (suspended sediment/ sedimentation) of discharging cuttings at new location and other regulatory approvals may also be required (e.g., sea dumping permit) • potential halt to drilling activity if transfer operations are delayed due to weather or operational issues • additional environmental impact incurred (air emissions) from vessel use and onshore trucking for transporting cuttings • disposal via landfill and/or treatment does not eliminate an environmental impact. These options have their own impacts and therefore disadvantages if implemented.			
Reduce total drill cuttings by implementing slim well design.	F: No. Slim well design is not considered feasible based on the following factors: The wells to be drilled in the Petroleum Activities Program are expected to be deep. Designs have been optimised to minimise the size of hole drilled while still being able to reach the targets and meet	Not considered, control not feasible.	Not considered, control not feasible.	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
	development objectives. CS: Not considered, control not feasible.			
Water quality and/or sediment monitoring of drill cuttings or drilling fluids to verify impact during activity.	F: Yes. CS: For in-water sampling using ROV – Time and logistics for tool change-out from operational tools to specialised scientific sampling tools. Additional personnel on board to operate ROV and coordinate sampling program. Low ROV availability due to operations can limit time to carry out environment monitoring. If additional ROV is required on the MODU, deck space and resources to run/ store/service ROV. Resources for sample processing (space/equipment/ personnel).	No environmental benefit would be gained by implementation of monitoring during the activity. Monitoring could be used to inform additional control measures in future drilling activities; however, there is a considerable body of existing scientific literature on potential impacts of drill cuttings and impacts are generally well understood. Furthermore, it is not guaranteed that additional controls would be feasible, or if they would provide any environmental benefit.	Disproportionate. Cost/sacrifice outweigh benefit to be gained in the context of existing environment (deep water, open ocean communities with no proximity to sensitive benthic communities or receptors). Although adoption of this control could be used to verify EPOs associated with drilling mud and cutting discharge, alternative controls identified achieve an appropriate outcome.	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Use SCE with secondary treatment for NWBM: Thermomechanical systems (to achieve <1% average oil on cuttings).	F: Yes – with associated infrastructure including vessels for offline storage and delivery to thermomechanical dryer. CS: The primary cost/sacrifice of this option is the monetary outlay for acquisition and implementation which is estimated at $800,000 to mobilise, install and demobilise, along with a running cost of ~$32,000/day. Other factors considered include: • It is estimated that it would take a minimum of seven months to mobilise, install and commission the system on to the MODU. • Complex and unfamiliar system to integrate with the rig systems. • Increased Health & Safety exposure due to: • crew of nine engineers and technicians required to run the plant • multiple crane lifting operations, during installation, operations and demobilisation • rotating machinery • heat illness • deck congestion due to large footprint of the plant.	A reduction in consequence would be achieved by reducing the average oil on cuttings discharged.	Disproportionate. Cost/sacrifice outweighs benefit to be gained in the context of existing environment and drilling campaign.	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Time restricted discharge of WBM and/or cuttings to align with tide/current or other oceanographic events.	F: Yes. CS: Disruption to drilling operations in having to stop drilling at a time when discharge of WBM and/or cuttings might not be permitted. Additional mud storage volume required.	Given the offshore location, oceanographic changes are unlikely to significantly affect the dispersion of cuttings and therefore no environmental benefit would be gained.	Disproportionate. The cost/sacrifice outweighs the benefit gained – No hard coral or other photo-sensitive benthic communities in the vicinity of wells to rationalise phased/ timed discharge.	No

ALARP Statement

On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A, **Section 2.6.1**), Woodside considers the adopted, standard 'good practice' controls appropriate to manage the impacts of drill cuttings and drilling fluids discharges.

A range of engineered solutions and other elimination options were considered to further reduce the impact of planned discharge of drill cuttings and drilling fluids to ALARP; however, technical and operational challenges, safety and environmental risk and additional financial costs resulted in these options being rejected on the basis that they were grossly disproportionate to the potential environmental benefit gained. As no reasonable additional/alternative controls were identified that would further reduce the impacts, which due to the low sensitivity of the environment are already low, without grossly disproportionate sacrifice, the impacts are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that, given the adopted controls, cuttings and fluid discharges may result in a potential slight, short-term impact on habitat (but not affecting ecosystem function), biological and physical attributes. Further opportunities to reduce the impacts have been investigated above.

The adopted controls are considered good oil-field practice/industry best practice to prevent the generation of significant volumes of drill cuttings. Other engineered solutions to manage drill cuttings and fluids were considered; however, these represented costly 'end of pipe' solutions rather than a preventative approach, with additional safety and environmental risks. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts, which due to the low sensitivity of the environment are low, of these discharges to a level that is broadly acceptable.

Other Requirements (includes laws, policies, standards and conventions)

The Petroleum Activities Program is consistent with laws, policies, standards and conventions, including:

- Minamata Convention on Mercury 2017

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 5 No impact to water quality or marine biota greater than a consequence level of D[19] from	**C 5.1** Drilling and completions fluids will have an environmental assessment completed prior to use.	**PS 5.1.1** All chemicals intended or likely to be discharged into the marine environment reduced to ALARP using the chemical assessment process.	**MC 5.1.1** Records demonstrate chemical selection, assessment and approval process for selected chemicals is followed.

[19] *Defined as ' Slight and short term impact on species or habitat but not affecting ecosystem function'.*

discharge of drilling cuttings or fluids during the Petroleum Activities Program.	**C 5.2** For project activity fluids, periodic chemical reviews are performed.	**PS 5.2.1** Acceptability of previously approved chemicals are re-evaluated to ensure ALARP and alternatives are considered	**MC 5.2.1** Records confirm periodic reviews have taken place, and any actions/ changes are being tracked to closure.
	C 5.3 Written NWBM justification process followed.	**PS 5.3.1** NWBMs only used where written justification process has been followed.	**MC 5.3.1** Records show NWBM justification process has been followed and NWBM only used where technically required.
	C 5.4 NWBM base oils selected based on expected toxicity.	**PS 5.4.1** Group III base oils used in NWBM.	**MC 5.4.1** Records demonstrate that only Group III base oils used in NWBM.
	C 5.5 Backload bulk NWBM or maintain on rig for re-use	**PS 5.5.1** No overboard disposal of bulk NWBM	**MC 5.5.1** Incident reports of any unplanned discharges of NWBM
	C 5.6 Bulk operational discharges conducted under MODU's Permit to Work (PTW) system (to operate discharge valves/pumps).	**PS 5.6.1** All bulk operational discharge conducted under MODU PTW system.	**MC 5.6.1** Records demonstrate that bulk discharges are conducted under the MODU PTW system.
	C 5.7 Displacement brine, workover or intervention fluids contaminated with hydrocarbons will be treated prior to discharge or containment. If design specification not met, the fluid will be returned to shore.	**PS 5.7.1** Achieve less than 1% by volume oil content before discharge.	**MC 5.7.1** Records demonstrate contaminated fluids were less than 1% by volume oil content before discharge.
	C 5.8 SCE used to treat NWBM cuttings prior to discharge.	**PS 5.8.1** Achieves average OOC for the entire well (sections using NWBM only) discharge limit of 6.9% or less oil on wet cuttings.	**MC 5.8.1** Records confirm the average OOC for the entire well (sections using NWBM only) do not exceed limit.

	C 5.9 In event of SCE failure (where no redundancy is available) while drilling with NWBM, the initial action will be to cease drilling and determine whether to repair SCE or drill ahead until the next practicable opportunity to trip out of the hole. If cuttings are discharged during dryer or auger failure, measurement of OOC to occur more frequently from shakers.	**PS 5.9.1** The decision whether to repair SCE or drill ahead will consider the estimated time for repairs and the amount of drilling until next planned trip out of hole, to ensure the OOC limit is not exceeded.	**MC 5.9.1** Records demonstrate that in the event of auger or cuttings dryer failure (where no redundancy is available), active drilling is initially stopped as soon as safe to do so. Evidence of the decision to drill ahead with failed SCE can be produced. Records confirm the average OOC for the entire well (sections using NWBM only) do not exceed limit.
	C 5.10 Sampling/analysis of stock barite to ensure acceptable levels of heavy metals (Cadmium and Mercury).	**PS 5.10.1** Sampling/analysis of stock barite to ensure that heavy metals of concern (cadmium and mercury) are within limits prescribed by API standards: • Mercury (Hg): max 1 mg/kg (<1ppm) dry weight in stock barite • Cadmium (cd): max 3 mg/kg (<3ppm) dry weight in stock barite	**MC 5.10.1** Records demonstrate that concentrations of heavy metals within stock barite used during the activity did not exceed: • Mercury (Hg): max 1 mg/kg (<1ppm) dry weight in stock barite • Cadmium (cd): max 3 mg/kg (<3ppm) dry weight in stock barite
	C 5.11 Mud pit wash residue will be measured for oil content before discharge.	**PS 5.11.1** Achieves less than 1% by volume oil content before discharge.	**MC 5.11.1** Records after pit clean-out (for pits potentially contaminated with base oil) demonstrate mud pit wash residue was less than 1% by volume oil content before discharge.
	C 5.12 WBM drill cuttings returned to the MODU will be processed using SCE equipment.	**PS 5.12.1** WBM drill cuttings that are returned to the MODU processed using SCE equipment allowing reuse of mud prior to discharge.	**MC 5.12.1** Records demonstrate that operational SCE is in use.
	C 5.13.1. Drill cuttings returned to the MODU will be discharged below the water line.	**PS 5.13.1** Drill cuttings discharged below the water line.	**MC 5.13.1** Records confirm cuttings discharge chute/line is below the water line.

6.6.6 Routine and Non-routine Discharges to the Marine Environment: Cement, Cementing Fluids, Grout, Subsea Well Fluids and Unused Bulk Products

Context

Relevant Activities	Existing Environment
Cement unit test – **Section 3.8.1** BOP and marine riser installation – **Section 3.8.3** Span/scouring rectification and stabilisation – **Section 3.9.8** Well abandonment – **Section 3.11.8**	Physical environment – **Section 4.4** Habitats and biological communities – **Section 4.5**

Impacts Evaluation Summary

Source of Impact	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Impact*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Routine and non-routine discharge of cement, cement cuttings, cementing fluids, grout, subsea fluids (e.g., BOP control fluids and well suspension fluids) and other down-well products to the seabed and the marine environment		X	X		X			A	E	-	-	GP PJ	Broadly Acceptable	EPO 6

Description of Source of Impact

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 (~20 m^3); however, may sometimes contain stabilisers or chemical additives.

When cementing the conductor and surface casings after top hole sections of the well have been drilled, cement must be circulated to the seabed to ensure structural integrity of the well. Excess cement is pumped to ensure structural integrity is achieved.

If the hole is completely in-gauge and there are no downhole losses while pumping the cement, a maximum volume of 160 m^3 is estimated to be circulated to the seafloor at the PLA08 well location, which forms a thin concrete film on the seabed in close proximity to the well.

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 at about 40 m^3 (based on up to four cement jobs with 10 m^3 discharged per job). In the unlikely event a respud event is required it would result in additional cement jobs. In the rare event that the cement products become contaminated, the entire volume (approximately 180 m^3) may need to be discharged to sea.

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.

Excess cement (dry bulk, after well operations are completed) will either be: used for subsequent wells; provided to the next operator at the end of the drilling program (as it remains on the rig); or if these options aren't practicable,

discharged to the marine environment as dry bulk or as a slurry. The process that will be followed to determine discharge is the last option is presented in **Figure 6-1**. 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 at about 5 m^3 of discharge per job.

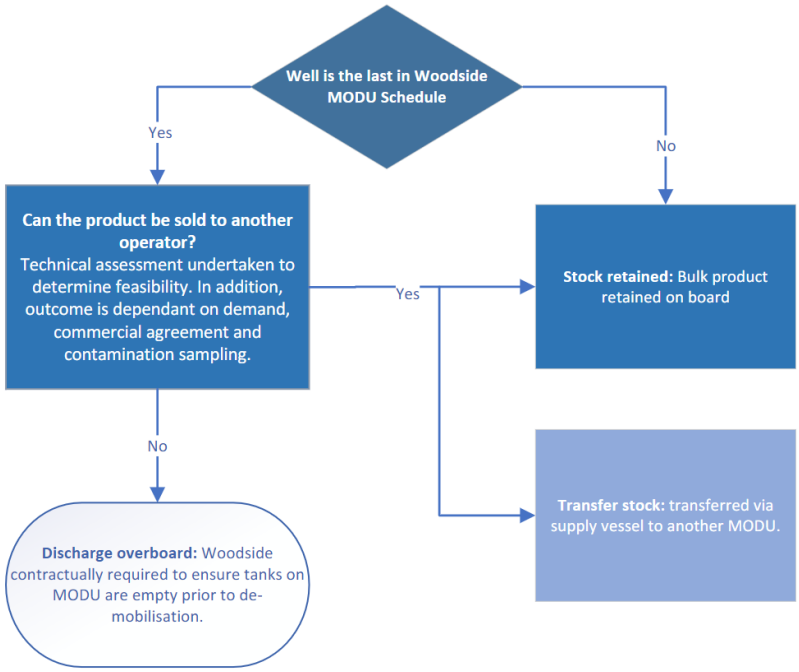

Figure 6-1 Management process for excess bulk product

Subsea Fluids (BOP and Well Construction Activity Control Fluids)

Subsea fluids likely to be released during drilling, completions and xmas tree installation, including BOP controls fluids. The BOP is required to be regularly function tested when subsea, 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.

Each time a pressure and function test is undertaken approximately 3620 L of water-based fluid is released to the marine environment, of this approximately 4% is control fluid additive. BOP operation includes function and pressure testing approximately every 21 days, and a function test (approx. 2665 L) approximately every seven days, excluding the week a pressure test is conducted.

Functioning and testing of the subsea xmas trees and subsea landing strings will result in the discharge of small volumes of water and glycol-based control fluid.

Subsea Fluids – Well Intervention and Workover Fluids

A workover or intervention may be performed on any of the wells in the Petroleum Activities Program, if required. If the well has been flowed previously, or if down-hole hydrocarbons remain in the well (e.g., reservoir fluid or if base oil has been left in the well), there is potential the intervention/workover fluids will be contaminated with hydrocarbons. If hydrocarbon contamination of the intervention/workover fluids has occurred, treatment of the fluid will occur on the MODU, to ensure hydrocarbon content prior to discharge is 1% by volume or less or returned to shore if discharge requirements cannot be met.

It may be necessary to remove marine growth from subsea infrastructure using acid (typically sulphamic acid) to aid visual inspection and operation of valves and other mechanisms.

Produced Water

The preferred well unloading method for the PLA08 well is to direct all fluids to the Pluto facility. This activity would be undertaken under the Pluto Facility Operations EP. However, if directing fluids to the Pluto facility during well unloading was not practicable, wells may be unloaded by directing fluids to the MODU. During well flowback, completion fluids and produced water will be discharged to the marine environment via the well test water filtration treatment package. The well test water filtration treatment package will be used to treat produced water that cannot be flared before discharge. Prior to discharge, the fluids are cycled through a water filtration system consistent with solids and polishing.

Subsea Fluids – Displacement, Completion and Well Bore Clean-Out Fluids

As required throughout activities with the riser connected, wells will be displaced from one drilling fluid system to another, or from the drilling fluid system to completion brine. A chemical clean-out pill or fluids train will be circulated

between the two fluids. Clean-out fluids and completion brine will be captured and stored on the MODU and discharged if oil concentration is <1% by volume or returned to shore if discharge requirements cannot be met.

Fluids produced during well unloading are planned to be directed to the Pluto facility. However, Woodside may unload the PLA08 well using the MODU. During well unloading, base oil will be sent to the flare. Refer to **Section 6.6.8** for an assessment of risk associated with planned flaring during well unloading.

Other Down-Well Products

Additional products such as barite and bentonite may be discharged in bulk during or at the end of the activity if they cannot be reused or taken back to shore. Use and discharge of all chemicals will be done in line with Woodside's internal guidelines (**Section 3.10.1**). Discharge may be in the form of dry bulk or as a slurry; however, discharges will not be contaminated with hydrocarbons.

Impact Assessment

Potential Impacts to Water Quality, Sediment Quality and Other Habitats and Communities

Pelagic and benthic habitats in the Operational Area are considered to be of low sensitivity (no known significant benthic habitat or infauna habitat). Although the Continental Slope Demersal Fish Communities KEF overlaps with the Operational Area, the values and sensitivities of this KEF occur on a broad scale outside of the Operational Area. Coupled with the low toxicity of the fluids to be used for the Petroleum Activities Program, the likelihood of any significant impact to marine biota is considered to be low.

Cement and Grout

Impacts of cement on the marine environment are predominantly associated with localised burial of benthic biota in the direct physical footprint of deposition. Cement operations during drilling involve routine and non-routine discharges that can result in turbidity in the water column. Reduction in water quality will be temporary (limited to the cement operational discharges during drilling) and subject to rapid dispersion and dilution by prevailing currents. Modelling of cement discharges for another offshore project (BP Azerbajan, 2013) was used because it provides an appropriate, but conservative, comparison of the potential extent of exposure from this activity. In this study, two hours after the start of discharge, plume concentrations were determined to be between 5 and 50 ppm with the horizontal and vertical extents of the plume ~150 m and 10 m, respectively (BP Azerbajan, 2013). Five hours after ceasing the discharge, modelling indicates that the plume will have dispersed to concentrations <5 ppm.

Cement is the most common material currently used in artificial reefs around the world and is inert. The potential for toxicity is associated with chemical additives that may be added to cement mixtures. Therefore, the toxicity associated with the discharge of cement is limited to the subsurface release of cement (not discharge of slurrified or dry cement).

Once the cement has hardened, chemical additives are locked into the cement (Terrens et al., 1998) and not expected to pose any toxicological risk to benthic biota from leaching or direct contact. Most cement discharges that will occur during the drilling activities will be at the seabed during cementing of the casing of the PLA08 well. Once overspill from cementing activities hardens, the physical sediment properties of the area directly adjacent to the well (10–50 m) will be permanently altered (Terrens et al., 1998). The potential disturbance area is an estimated 0.007 km^2. Cement discharges at the seabed will overlap with the highest deposition of drill cuttings and drilling fluids. The highly localised physical footprint at the well site is not expected to affect the overall diversity or ecosystem function of the benthic communities of the area.

The potential impacts to benthic communities caused by smothering from a surface release of cement are expected to be significantly less, due to small volumes, intermittent nature of these discharges, and high potential for dispersal by ocean currents. This impact on soft sediment communities is not expected to affect the diversity or ecosystem function in this area and is only considered a localised impact.

Subsea Control Fluids

Subsea control fluids are water-based hydraulic fluids containing ~4% active ingredients. Modelling undertaken for another offshore drilling project indicates that a release of subsea control fluids during function testing is expected to reach a dilution of 3000 times within a maximum displacement of the plume within 98 m distance from the release site (BP Azerbajan, 2013). Based on this information, concentrations of subsea control fluid are expected to be ~10 ppm within 100 m of the well BOP. Using a conservative ocean current speed of 0.1 m/s, fluids would be expected to travel 100 m (and thus reach concentrations of 10 ppm) in ~16 minutes. Changes in water quality, would comprise the presence of low toxicity contaminants for a short duration and extent in the water column above the seabed. The benthic and demersal communities within the plume are widely represented and not of high conservation value.

Given the small volumes associated with this discharge and limited exposure times due to rapid dilution, any potential impact to this aspect is expected to be localised and short term.

Produced Water

In the event that well unloading to the MODU was required, approximately 60-120 bbls (9.5 to 19 m^3) of produced water may be yielded, which would be discharged via the well test water treatment package. Discharge will be of short duration at the sea surface and will be rapidly dispersed and diluted with negligible impact to water quality.

Subsea – Well Intervention Fluids

Well intervention fluids are typically inert and of low toxicity. These fluids may include subsea control fluid, completions fluids and well annular fluids. Any change to water quality is expected to be localised and temporary as discharges would be discrete and of short duration. Rapid dilution due to prevailing ocean currents in the open water environment would lead to any changes in water quality such as low toxicity contaminants being temporary (only for the duration of the discharge) and reducing water quality within a short distance of the discharge location.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that the routine discharge of cement, cementing fluid, grout, subsea fluids and other down-well products described will not result in a potential impact greater than slight and short-term impacts to infauna and benthic communities, water quality and marine sediment (but not affecting ecosystems function) (i.e., Environment Impact – E).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
Drilling, completions, cementing, flowline cold commissioning and subsea control fluids and additives will have an environmental assessment completed prior to use.	F: Yes. CS: Minimal cost. Standard practice.	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. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes **C 5.1**
For drilling and completion fluids, chemical reviews are performed	F: Yes. CS: Minimal cost. Standard practice.	Regular reviews will ensure chemicals selected for drilling and completions fluids remain ALARP.	Benefits outweigh cost/ sacrifice.	Yes **C 5.2**
Bulk operational discharges conducted under MODU's Permit to Work (PTW) system (to operate discharge valves/ pumps).	F: Yes. CS: Minimal cost. Standard practice.	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.	Benefits outweigh cost/sacrifice.	Yes **C 5.4**
Displacement, brine, workover or intervention fluids contaminated with hydrocarbons will be treated prior to discharge or contained.	F: Yes. CS: Minimal cost. Standard practice.	Ensuring <1% oil content will provide a small reduction in consequence when fluids are discharged to the environment.	Benefits outweigh cost/sacrifice.	Yes **C 6.1**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
If discharge specification not met, the fluid will be returned to shore.				
During well unloading and completions activities, if produced water is not flared, it will be processed through the well test water treatment package prior to discharge to the environment.	F: Yes. CS: Minimal cost. Standard practice.	Reduced toxicity to the marine environment when discharged.	Benefits outweigh cost/ sacrifice	Yes **C 6.2**
Professional Judgement – Eliminate				
Do not use BOP control fluids.	F: No. BOP control fluids are critical to the operation of the BOP. CS: Not considered, control not feasible.	Not considered, control not feasible.	Not considered, control not feasible.	No
Return cement and other down-well products onshore for treatment/disposal.	F: No. The technical requirements to be able to undertake this safely are unresolved due to: • significant risks with tank high pressure differentials to transfer material onshore • high risk with the vessel to waste truck transfer due to tank corrosion concerns and pressure relief valve issues. CS: Not considered. Control not feasible.	Not considered, control not feasible.	Not considered, control not feasible.	No
Options for use of excess bulk cement, bentonite and barite will be managed as per **Figure 6-1** and only discharged to the marine environment as a last option.	F: Yes. However, the cement may not meet the required technical specifications, and hence not be usable. CS: Minor.	Using excess bulk cement for subsequent wells would eliminate the bulk discharge of cement to the marine environment and eliminate the likelihood and consequence of impacts from such activities.	Benefits outweigh cost/ sacrifice.	Yes **C 6.3**
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***

ALARP Statement

On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A, **Section 2.6.1**), Woodside considers the adopted controls appropriate to manage the impacts of cement, cementing fluids, grout and subsea fluids (BOP control fluids). As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that, given the adopted controls, routine cement, cementing fluids, grout and subsea fluids (BOP control fluids) may result in localised, slight and short-term impacts to infauna and benthic communities, water quality and marine sediment (but not affecting ecosystems function). Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of these discharges to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 6 No impact to water quality or marine biota greater than a consequence level of E[20] from discharge of cement, cementing fluids, subsea well fluids and unused bulk products during the Petroleum Activities Program.	**C 5.1** See **Section 6.6.5**	**PS 5.1.1** See **Section 6.6.5**	**MC 5.1.1** See **Section 6.6.5**
	C 5.2 **See Section 6.6.5**	**PS 5.1.1** **See Section 6.6.5**	**MC 5.1.1** See **Section 6.6.5**
	C 5.4 See **Section 6.6.5**	**PS 5.4.1** See **Section 6.6.5**	**MC 5.4.1** See **Section 6.6.5**
	C 6.1 Displacement, brine, workover or intervention fluids contaminated with hydrocarbons will be treated prior to discharge or contained. If discharge specification not met, the fluid will be returned to shore.	**PS 6.1.1** Achieve oil concentration <1% by volume prior to discharge.	**MC 6.1.1** Records demonstrate that discharge criteria was met prior to discharge or contained.
	C 6.2 During well unloading and completions activities, if produced water is not flared, it will be processed	**PS 6.2.1** Produced water discharged to the marine environment achieves discharge specification of <30 ppm.	**MC 6.2.1** Records demonstrate that formation water met discharge specification.

[20] *Defined as ' Slight and short term impact on species or habitat but not affecting ecosystem function' as in* ***Figure 2-6/Section 2.6.3****.*

	through the well test water treatment package prior to discharge to the environment.		

6.6.7 Routine and Non-routine Discharges to the Marine Environment: Flowline and Subsea Installation Fluids

Context

Relevant Activities	Existing Environment	Consultation
Subsea Installation and Pre-commissioning – **Section 3.9** Project fluids – **Section 3.10**	Physical environment – **Section 4.4** Habitats and biological communities – **Section 4.5**	Consultation – **Section 5**

Impacts Evaluation Summary

Source of Impact	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Impact*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Discharge of flowline and subsea installation fluids to the marine environment		X	X		X			A	F	-	-	GP PJ	Broadly Acceptable	EPO 7

Description of Source of Impact

The following activities will result in the discharge of small quantities of flowline and subsea installation preservation and pre-commissioning fluids:

- hydrotesting subsea infrastructure (**Section 3.9.9.2**)
- tie-in of flowlines and MEG jumper (**Section 3.9.7)**

Flowline Fluids

The PLA08 and Xena 2 flexible flowlines and jumpers will be installed filled with chemically treated 90 wt% MEG/water. The MEG concentration will be Fibre-grade (99.9 wt%) prior to mixing with water. All production flexible flowlines will not require further flooding post installation. Production flexible flowlines and jumpers will not be dewatered and inerted following installation.

All subsea chemicals will be selected, assessed and approved in accordance with a defined framework and set of tools to ensure the potential impacts are acceptable, ALARP and meet Woodside's expectation for environmental performance (**Section 3.10.1**). This procedure is used to demonstrate that the potential impacts of the chemicals selected are acceptable and ALARP (subject to technical and economic constraints).

Tie-in of the flowlines may result in small quantities of fluids within the flowlines being released to the environment. These volumes are expected to be small (1 m^3) as the pressure within the flowlines is equal to the hydrostatic pressure and the flowlines are uncapped for a short duration during tie-in. Depressurisation of hydraulic flying lead MEG line connections are also expected to result in small quantities (<100 L) of MEG and (<10 L) of hydraulic fluid being released to the environment.

Tie-in to the continuous MEG system and the production system may result in small quantities (29 m^3) of inhibited MEG (from the continous MEG system) being released to the environment.

Small leak tests result in discharges of MEG and hydrotest fluid in very small quantities. The total leak test discharge volume for the Petroleum Activities Program is expected to be about 1.6 m^3, discharged at the locality of the subsea infrastructure.

Gas and Condensate

Testing of manifold isolations may be undertaken to verify that suitable isolations are available for safe tie-in to the Pluto and Xena manifolds. The testing at each manifold may release residual gas and condensate (up to 200 L of liquid) over a 48 hour period. This testing is required to verify that suitable isolations are available for safe tie-in and cannot reasonably be eliminated. The estimated mass of hydrocarbons is considered to be a worst-case, with the actual release volume expected to be smaller.

The gas consists primarily of methane, with minor amounts of longer-chain hydrocarbons, carbon dioxide and sulphur dioxide. The condensate consists primarily of volatile short-chain hydrocarbons with approximately 2.4% soluble

aromatic hydrocarbons. The condensate is low in asphaltenes (< 0.5%) and hence is not expected to form water-in-oil emulsions. Pluto condensate is described in **Sections 6.7.1.1** and **6.7.2**.

Impact Assessment

Potential Impacts to the Physical Environment, Habitats and Biological Communities

Subsea Installation Fluids

Subsea leak testing and tie in of the MEG and hydrocarbons lines may result in discharge of relatively small amounts of MEG. Impacts from routine and non-routine discharges of these fluids will be localised to the immediate vicinity of the release location with short-lasting impacts. This is based on:

- the low potential for toxicity and bioaccumulation (MEG is considered PLONAR)
- MEG being biodegradeable and water soluble
- the relatively small volumes/rates of discharges
- the rapid dilution of the release
- the low sensitivity of the receiving environment.

MEG is expected to dilute rapidly in the marine environment to low concentrations. For small releases it is unlikely there would be any measurable effects on marine species resident in the vicinity of the release, given MEG's low toxicity. These small MEG discharges are expected to mix rapidly with the local receiving environment with temporary environmental impact. As such, potential impacts to benthic communities, fish or pelagic invertebrates would be limited to within the low-sensitivity Operational Area around subsea installation. Furthermore, it is expected that motile fish and other marine fauna adapt their behaviour and move away from the discharge, if exposed. Given the low volume of MEG and hydrotest fluids likely to be discharged during testing, any impact on the marine environment is expected to be highly localised and negligible.

Gas and Condensate Gas released from manifolds during verification testing will become dispersed as bubbles in the water column, which will rise to the surface. Methane is the principal component of the gas and is relatively insoluble in water. As such, methane is expected to rise until it reaches the sea surface, where it will be readily dispersed in the atmosphere. The concentration of methane will not be sufficient to form an explosive atmosphere or result in asphyxiation. Water-soluble components of the gas, such as carbon dioxide and sulphur dioxide will dissolve in the seawater as the gas bubbles rise in the water column. These soluble gasses occur naturally and are present in relatively low amounts. No measurable impacts to water quality are expected to occur as a result of the gas release.

The insoluble condensate release during verification testing will be buoyant and rise in the water column. The condensate will be released with gas which will act to disperse the condensate within the water column as it rises to the sea surface. The resulting condensate droplets will rise slowly in the water column and may be transported away from the release location by currents. Upon reaching the sea surface, the condensate will almost entirely evaporate, with a relatively small portion remaining entrained in the water column (**Figure 6-2**). Condensate droplets are not expected to reach the surface in sufficient quantities to result in surface slicks above thicknesses that result in biological impacts, although a sheen may be visible. Any condensate reaching the surface will spread and weather rapidly, as described in **Sections 6.7.1.1** and **6.7.2**.

The soluble fraction of the condensate is approximately 2.35% by mass, hence a relatively small volume (approximately 5 L) of soluble hydrocarbons may be released over 48 hrs during each verification test. Soluble hydrocarbons will be distributed in the water column through natural water movement and the buoyancy of the condensate droplets and are expected to drop below concentrations recognised as causing biological impacts within tens to hundreds of metres of the release location.

Receptors that may be impacted by the condensate release during verification testing are in-water receptors within the vicinity of the release location. These receptors include plankton, pelagic fishes and potentially cetaceans. A detailed assessment of the impacts to these receptors is provided in **Section 6.7.2**, and include:

- acute toxic effects to planktonic organisms near the release location from soluble hydrocarbons. Only a very small portion of the planktonic community at a bioregional scale would credibly be impacted. Planktonic communities have high turnover rates, and recovery from any impacts would occur rapidly. Given the small volume of soluble hydrocarbons, the planktonic community in the upper part of the water column will not be impacted.
- temporary displacement of pelagic fishes. Large-scale oil spills in open water typically do not result in fish kills, and it is assumed that fishes in open water will actively avoid harmful concentrations of hydrocarbons. Given the relatively small volume of hydrocarbons released and the resulting localised impact, it is unlikely that displacement of pelagic fishes will occur.

Cumulative Impacts

Given that only localised and negligible impacts are predicted to water quality and marine biota, cumulative impacts will be localised and have no lasting effect.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that the routine discharge of subsea installation fluids described will not result in a potential impact greater than a localised impact with no lasting effect to water quality (i.e., Environment Impact – F).

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[21]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
Drilling, completions, cementing, flowline pre- commissioning and subsea control fluids and additives will have an environmental assessment completed prior to use.	F: Yes. CS: Minimal cost. Standard practice.	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. Planned discharges are required for the safe execution of activities and therefore no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes **C 5.1**
ROV inspection during hydrotest test.	F: Yes. CS: Minimal cost. Standard practice.	A procedure for hydrotesting work that includes inspection (including by ROV) during testing to identify leakage and trigger activity to stop will reduce the likelihood of impacts.	Benefits outweigh cost/sacrifice.	Yes **C 7.1**
Test manifold isolation valves prior to tie-in	F: Yes. CS: Minimal cost. Standard practice.	Testing of the isolation valves will provide a valve pass rate to be used to asses isolation requirements and determine the isolations required to conform to the relevant internal Woodside standards.	Benefits outweigh cost/sacrifice.	Yes 7.2
Subsea isolations conform to the relevant internal Woodside standards which include: • Using a double block isolation • If it is not practicable to establish a double block isolation, then – one effective, proven and monitored barrier	F: Yes. CS: Minimal cost. Standard practice.	Pass rate (≤ 0.12kg/s) across valve with proven single block isolation. Conditions for single block isolation reduce the likelihood and consequence of an uncontrolled release.	If valve testing confirms proven barrier (≤ 0.12kg/s pass rate), slight environmental impact associated with hydrocarbon release is disproportionate to requirement to shut in the 7 Pluto wells to achieve double isolation. Benefit for additional conditions for single	Yes 7.3

[21] *Qualitative measure.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[21]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
(single block isolation) shall be in place, with the following conditions – It must be possible to isolate the reservoir by remote operation of tree isolation valves – The residual risks must be shown to be ALARP by a documented isolation risk assessment. – Procedures and response plans for the activity must be developed and implemented and address all applicable hazards appropriately, including provision for closing tree isolation valves.			isolation outweigh cost. Benefit outweighs cost.	
Professional Judgement – Eliminate				
Reduce volume or not use preservation and pre-commissioning chemicals.	F: No. Preservation and pre-commissioning fluids are required to verify the structural integrity of the subsea infrastructure. The volumes selected are required to achieve verification. CS: Potential loss of production due to loss of integrity possibly leading to a larger environmental incident.	Not considered, control not feasible.	Disproportionate. The cost/ sacrifice outweighs the benefit gained.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the impacts of subsea installation fluid discharges. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that, given the adopted controls, subsea installation fluid discharges represent a low current risk rating that may result in localised, slight and short-term impacts to water quality. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of these discharges to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 7 No impact to water quality or marine biota greater than a consequence level of E[22] from discharges of flowline and subsea installation fluids or hydrocarbons during the Petroleum Activities Program.	**C 5.1** See **Section 6.6.5**	**PS 5.2** See **Section 6.6.5**	**MC 5.1.1** See **Section 6.6.5**
	C 7.1 ROV inspection during hydrotest test.	**PS 7.1** ROV inspection during hydrotest to identify leakage and trigger activity to stop.	**MC 7.2.1** Records demonstrate ROV inspection during hydrotest and record any instances of activity required to stop due to identified leak(s).
	C 7.2 Test manifold isolation valves prior to tie-in**.**	**PS 7.2** Valve testing undertaken prior to flowline tie-in.	**MC 7.2.1.** Records demonstrate testing of isolation valves is completed.
	C 7.3 Conform to the relevant internal Woodside standards which include: • Using a double block isolation • If it is not practicable to establish a double block isolation, then – one effective, proven and monitored barrier (single block isolation) shall be in place, with the following conditions – It must be possible to isolate the reservoir by	**PS 7.3** Subsea Isolations implemented conform with the relevant internal Woodside standards and any single isolation will have a proven barrier (pass rate of ≤ 0.12 kg/s).	**MC 7.3.1** Records demonstrate isolations are implemented and compliant with the relevant internal Woodside standards.

[22] *Defined as ' Slight and short term impact on species or habitat but not affecting ecosystem function'.*

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
	remote operation of tree isolation valves – The residual risks must be shown to be ALARP by a documented isolation risk assessment. – Procedures and response plans for the activity must be developed and implemented and address all applicable hazards appropriately, including provision for closing tree isolation valves		**MC 7.3.2** Where a single isolation was used records demonstrate that during testing of valves the pass rate was ≤ 0.12 kg/s.

6.6.8 Routine Atmospheric and Greenhouse Gas Emissions: Fuel Combustion, Flaring, Incineration and Venting

Context

Relevant Activities	**Existing Environment**
Project vessels – **Section 3.5**	Physical environment – **Section 4.4**

Impacts Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Impact*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Internal combustion engines and incinerators on MODU, installation vessel and support vessels				X				A	F	-	-	LCS GP PJ	Broadly Acceptable	EPO 8
Flaring during well unloading				X				A	F	-	-			EPO 9
Contingent venting of gas (in the event of well kick or well intervention)				X				A	F	-	-			EPO 10

Description of Source of Impact

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 (NO_x), 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 gasses 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 (SF_6).

MODU, Vessel and Helicopter Operations

Atmospheric emissions will be generated by the project vessels from internal combustion engines (including all equipment and generators) and incineration activities (including onboard incinerators) during the Petroleum Activities Program. Emissions will include SO_2, NO_x, ozone depleting substances, CO_2, particulates and volatile organic compounds (VOCs).

NO_2 emissions from routine MODU power generation for an offshore project were modelled previously by another operator (BP Azerbajan, 2013). NO_2 was the focus of the modelling, on account of the larger predicted emission volumes compared to the other atmospheric emissions, and the potential for NO_2 to impact on human health (as a proxy for environmental receptors). The model demonstrated that atmospheric emissions generated by MODU operations may increase ambient NO_2 concentrations by 1 µg/m^3 (0.001 ppm) within 10 km of the source and 0.1 µg/m^3 (0.0001 ppm) within 40 km of the source. This represents an increase of 2% over typical background concentrations within 40 km, with air quality remaining well below the WHO air quality guideline for NO_2 of 40 µg/m^3 annual mean. As NO_2 is the main emission that poses a threat to receptor health, it is considered conservative to use the above studies to justify potential impacts to receptors. As such, studies into the attenuation of other gasses emitted are not evaluated.

Based on fuel consumption information from the DPS-1 MODU on previous Woodside drilling campaigns and the expected activity duration, it is estimated that a Dynamically Positioned MODU will consume approximately 2611 m^3 of

diesel fuel over the course of the estimated 50 day MODU activities to drill the PLA08 well. Applying the appropriate diesel emission factor from the National Greenhouse and Energy Reporting Scheme (NGERS), it is estimated that this fuel combustion would generate approximately 5950 tCO2e of greenhouse gas emissions over the course of the activity due to fuel consumption onboard the MODU.

Vessels emissions will be substantially less than that of the MODU. Using an estimated fuel use of 5 t/d for support vessels (Energy Institute, 2000) and diesel emission factor from NGERS. However, over the course of the activity there may be multiple vessels providing support, allowing for two vessels in this time frame, fuel consumption is approximately 1363 tCO2e of greenhouse gas will be emitted by vessels during the Petroleum Activities Program.

The estimates above are based on the drilling and subsea installation activities associated with the PLA08 well. Contingency activities, such as subsea installation for the Xena 2 well or well interventions and workovers, have not been considered.

Using an estimated fuel use of 600 L/hr (Energy Institute, 2000), and applying aviation fuel emissions factor from NGER, approximately 140 tCO2e will be generated by helicopters over the course of the activity.

Mud Degassing

Methane emissions may be released during the period of intersection with the reservoir. Small amounts of gases such as methane may dissolve in drilling fluids and be released to the atmosphere as fluids are degassed and recirculated. These emissions have been estimated using American Petroleum Institute factors and are negligible over the activity.

Well Flowback (Flaring) and Contingency Activities (Venting)

The preferred well unloading method for the PLA08 well is to direct all fluids to the Pluto facility. This activity would be undertaken under the Pluto Facility Operations EP. However, if directing fluids to the Pluto facility during well unloading was not practicable, wells may be unloaded by directing fluids to the MODU. During well unloading it is expected that gas condensate, diesel or base oil and methanol in the wellbore will be flared. The volumes of hydrocarbons flared are unknown and subject to operational requirements. To inform the impact assessment, Woodside has estimated that well unloading may require intermittent flaring for up to 2 days, approximately 130 million standard cubic feet of hydrocarbon gas, 200 – 450 bbl (up to 1800 bbl) condensate and 534 bb (85 m3) base oil flared from the PLA08 well. These estimates are based on Woodside's operational experience and are considered applicable for the Petroleum Activities Program.

During drilling of the well, a kick may occur. A kick is an undesirable influx of formation fluid into the wellbore. The resultant effect would be a release of a small volume of greenhouse gases via the degasser to the atmosphere during well control operations, known as 'venting'. Venting is required to ensure well integrity is maintained in the event of a kick, thereby avoiding an emergency condition.

Cold venting of residual gas

During well intervention activities there are several scenarios that may cause small amounts of gas to be vented directly to atmosphere in an intrinsically safe manner via the choke manifold onboard the WIV. Due to the small quantities of gas, it is not viable to flare this gas. These sources of direct gas emissions include:

Riser disconnect – Riser will be disconnected at the end well intervention activities. Pressurised gas will be vented to the Atmosphere.

Wireline tool string & tool change – During the well intervention activities it is estimated that there will be 3 to 5 tool changes per well requiring intervention. Tool changes will cause a small quantity of venting to the atmosphere via the wireline lubricator.

Surface returns - Small volumes of hydrocarbon gas from annular spaces will be cold vented via a choke manifold in a controlled and safe manner from the WIV.

Small volume gas releases subsea

Removal of a tree cap – A Tree cap may be in place if the well was previously shut-in. An EDS may be implemented if the WIV is required to rapidly disengage from the well. EDS aims to leave the wellhead and Lower Riser Package of the WOCS/WORS in a secure condition but will result in the loss of the fluids/gases in the riser following disconnection.

Table 6-9 - GHG Emissions sources and quantities

Source	GHG Emissions released (CO2-e t)[23]
Planned Activities	
MODU Operations	5950
2 x Support vessel Operations	1363
Helicopter operations	140
Contingent Activities - Well Intervention (per well)	
Flaring - Unload to host (50mmscf Gas | 534bbl oil)	534
Intervention vessel Operations (70 days | DP vessel)	8336
Cold venting – Riser disconnect (~1800PSI)	176
Cold venting - Tool change (5 changes)	<1
Cold venting – Surface returns	<1
Cold venting – Removal of tree cap	<1
Total GHG Emissions	**16,499**

Impact Assessment

Potential Impacts to Air Quality

Fuel combustion, flaring and incineration have the potential to result in localised, temporary reduction in air quality. Potential impacts include a localised reduction in air quality, generation of dark smoke and contribution to greenhouse gas emissions. Given the short duration and exposed location of the MODU, installation vessels and support vessels (which will lead to the rapid dispersion of the low volumes of atmospheric emissions), the potential impacts are expected to have no lasting effect, with no cumulative impacts when considered in the context of existing or future oil and gas operations in the region.

Venting may result in localised and temporary reduction in air quality as the gas vents to the atmosphere, and localised and temporary contribution to greenhouse gas emissions. There is potential for human health effects for workers in the immediate vicinity of atmospheric emissions. However, the closest sensitive residential receptor is on Barrow Island, about 127 km south-south-east of the Operational Area; therefore, any risks associated with off-site human health effects are negligible beyond the immediate zone of release and dispersion. Given the short duration and isolated location of the Petroleum Activities Program (which will lead to the rapid dispersion of the low volumes of atmospheric emissions), the potential impacts are expected to be minor.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that fuel combustion, flaring, incineration and venting emissions will not result in a potential impact greater than a temporary decrease in local air quality and/or water quality standards with no lasting effect and no significant impact to environmental receptors (i.e., Environment Impact – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/ Sacrifice (CS)[24]*	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
Marine Order 97 (Marine pollution prevention – air pollution).	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed may slightly reduce	Control based on legislative requirements – must be adopted.	Yes **C 8.1**

[23] *Diesel – 0.836t/m³ | Conversion factor (t Diesel fuel) to (t CO_2e) = 2.725 | GHG factor (CH_4) = 84t CO_2e | Source: NGERS 2021*

[24] *Qualitative measure.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[24]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
		the likelihood of air pollution.		
OPGGS (Resource Management and Administration) Regulations 2011: accepted WOMP which describes the well integrity outcomes, control measures and performance criteria used to demonstrate how the risk of loss of well integrity is managed to ALARP including the well design and barriers to be used to prevent a loss of well integrity, which aligns with industry guidance and good practice.	F: Yes. CS: Minimal cost. Standard practice.	The accepted WOMP will manage the risk of well kicks, reducing the likelihood of occurrence. No reduction in consequence will occur.	Benefits outweigh cost/sacrifice.	Yes **C 10.1**
As-built checks that shall be completed during well operations to establish a minimum acceptable standard of well integrity is achieved.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of occurrence. No reduction in consequence will occur.	Benefits outweigh cost/sacrifice.	Yes **C 10.2**
Reporting of GHG emissions as required by regulatory requirements.	F: Yes. CS: Minimal cost. Standard practice for Woodside activities.	Tracking and reporting of emissions gives visibility to performance and enables improvement opportunities to be identified. Reporting increases transparency and accountability which can also drive performance improvements.	Control based on legislative requirements – must be adopted	Yes **C 10.3**
Good Practice				
Burning and flaring during well unloading activities will be conducted using Woodside and Vendor approved TPS (Well Test) Package.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of atmospheric emissions impacting air quality. Consequence remains unchanged.	Benefits outweigh cost/sacrifice.	Yes **C 9.1**
Oil burner, if used, will have an independent certified emissions testing certificate.	F: Yes. CS: Minimal cost. Standard practice.	This control results in a reduction on likelihood of atmospheric emissions impacting air	Benefits outweigh cost/sacrifice.	Yes **C 9.2**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[24]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
		quality, consequence remains unchanged.		
Subsea BOP installed and function tested during drilling operations.	F: Yes. CS: Standard practice. Required by Woodside standards.	BOP testing reduces the volume of gas vented in the event of a well kick.	Benefits outweigh cost/sacrifice.	Yes **C 10.3**
Process conducted to calculate, update and monitor kick tolerance for use in well design and while drilling.	F: Yes. CS: Minimal cost. Standard practice for Woodside activities.	Processes will reduce the volume of gas vented in the event of a well kick.	Benefits outweigh cost/sacrifice.	Yes **C 10.4**
Well control bridging document for alignment of Woodside and the MODU contractor in order to manage the equipment and procedures for preventing and handling a well kick.	F: Yes. CS: Minimal cost. Standard practice for Woodside activities.	Implementing equipment and procedures in the well control bridging document will reduce the volume of gas vented in the event of a well kick.	Benefits outweigh cost/sacrifice.	Yes **C 10.5**
Professional Judgement – Eliminate				
Do not combust fuel.	F: No. There are no MODUs or vessels that do not use internal combustion engines. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Do not vent during well kick or well intervention.	F: No. Venting is a critical safety activity required in the event of a kick/intervention to reduce pressure build up. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement				

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[24]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e. Decision Type A, **Section 2.6.1**), Woodside considers the adopted controls are considered good oil-field practice/industry best practice, and appropriate to manage the impacts of fuel combustion, flaring, incineration and venting. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement: The impact assessment has determined that, given the adopted controls, fuel combustion, flaring, incineration and venting may result in a temporary decrease in local air quality standards, with no lasting effect. Further opportunities to reduce the impacts have been investigated above. The controls adopted are considered good oil-field practice/industry best practice and meet the legislative requirements within Marine Order 97. The potential impacts are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts of the described emissions to a level that is broadly acceptable**.**

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 8 Fuel combustion emissions during the Petroleum Activities Program are restricted to those necessary to perform the activity.	**C 8.1** Marine Order 97 (Marine pollution prevention – air pollution) which details requirements for: • International Air Pollution Prevention Certificate, required by vessel class • use of low sulphur fuel when available • Ship Energy Efficiency Management Plan, where required by vessel class • onboard incinerator complies with Marine Order 97.	**PS 8.1** MODU and project vessels compliant with Marine Order 97 (Marine pollution prevention – air pollution) to restrict emissions to those necessary to perform the activity. Vessel marine assurance process conducted prior to contracting vessels, to ensure suitability and compliance with vessel combustion certification/ Marine Order requirements.	**MC 8.1.1** Marine Assurance inspection records demonstrate compliance with Marine Order 97.
EPO 9 Maximise efficiency of combustion during flaring and oil-burning.	**C 9.1** Burning and flaring during well unloading activities will be conducted using Woodside and Vendor approved TPS (Well Test) Package.	**PS 9.1** Maintain gas flare a to maximise efficiency of combustion and minimise venting.	**MC 9.1.1** Records demonstrate that a Woodside approved Well Test package is in use during well unloading/testing.
	C 9.2 Oil burner will operate efficiently to maximise combustion.	**PS 9.2** Oil burner will have combustion efficiency greater than 99%.	**MC 9.2.1** Records demonstrate that oil burner is greater than 99% efficient.
EPO 10 Emissions to air as a result of venting from well kick are restricted to those necessary to maintain well integrity.	**C 10.1** OPGGS (Resource Management and Administration) Regulations 2011: accepted WOMP which describes the well integrity outcomes, control measures and performance criteria used to demonstrate how the risk of loss of well integrity is managed to	**PS 10.1** Wells drilled in compliance with the accepted WOMP, including implementation of barriers to prevent a loss of well integrity.	**MC 10.1.1** Acceptance letter from NOPSEMA demonstrates the WOMP and application to drill were accepted by NOPSEMA prior to the drilling activity commencing.
			MC 10.1.2

	ALARP including the well design and barriers to be used to prevent a loss of well integrity, specifically • all permeable zones penetrated by the well bore, containing hydrocarbons or over-pressured water, shall be isolated from the surface environment by a minimum of two barriers (primary and secondary) (a single fluid barrier may be implemented during the initial stages of well construction if appropriateness is confirmed by a shallow hazard study) • discrete hydrocarbon zones shall be isolated from each other (to prevent cross flow) by a minimum of one barrier where deemed required • all normally pressured permeable water-bearing formations shall be isolated from the surface by a minimum of one barrier. The barriers shall: • be effective over the lifetime of well construction. • Fluid barriers shall remain monitored and provide sufficient pressure to counter pore pressure during well construction. • Cementing barriers (including conductor, casing and liners) shall conform to the relevant minimum standards set out in the Woodside Engineering Standard – Well Cementation. Verification: • Effectiveness of primary and secondary barriers shall be verified (physical evidence of the correct placement and performance) during the drilling of the well.		Records demonstrate minimum of two verified barriers (a single fluid barrier may be implemented during the initial stages of well construction if appropriateness is confirmed by a shallow hazard study) were in place for all permeable zones penetrated by the wellbore.
			MC 10.1.3 Records demonstrate composition and weight of drilling fluids were applicable to down hole conditions.
	C 10.2 As-built checks that shall be completed during well operations to establish a minimum acceptable standard of well integrity is achieved.	**PS 10.2** Achieve a minimum acceptable standard of well integrity.	**MC 10.2.1** Records show Well Acceptance Criteria are developed for each well.
			MC 10.2.2 Records demonstrate Well Acceptance Criteria have been met.

	C 10.3 Subsea BOP installed and function tested during drilling operations. The BOP shall include: • one annular preventer • two pipe rams (excluding the test rams) • a minimum of two sets of shear rams, one of which must be capable of sealing • deadman functionality • the capability of ROV intervention • independent power systems.	**PS 10.3** Subsea BOP specification, installation and function testing compliant with internal Woodside Standards and international requirements (API Standard 53 4th Edition) as agreed by Woodside and MODU contractor.	**MC 10.3.1** Records demonstrate that BOP and BOP control system specifications and function testing were in accordance with minimum standards for the expected drilling conditions as agreed by Woodside and MODU contractor.
	C 10.4 Process conducted to calculate, update and monitor kick tolerance for use in well design and while drilling, including: • Closing the BOP upon detecting a positive well influx. • The shut in procedure shall be according to the rig contractor procedures or as the well conditions dictate. • Kick tolerance calculations will be made for drilling all hole sections after the first pressure containing string has been set, based on the weakest known point in the well. Kick detection techniques will be adjusted based on the level of kick tolerance through management of change (MOC). • The manual also includes requirements for kick tolerance management in the event of down-hole losses.	**PS 10.4** Kick tolerance is calculated, managed, monitored and updated while drilling.	**MC 10.4.1** Records demonstrates well kick tolerance is calculated, managed, monitored and updated while drilling. **MC 10.4.2** Records demonstrate shut-in procedures followed in the event of a potential well kick.
	C 10.5 Well Control Bridging Document (WCBD) for alignment of Woodside and the MODU contractor in order to manage the equipment and procedures for preventing and handling a well kick.	**PS 10.5** Well is drilled in accordance with the contractor WCBD to ensure no unplanned emissions to air from a well kick, drilling operations.	**MC 10.5.1** Records demonstrate well drilled in accordance with WCBD.

6.6.9 Routine Light Emissions: External Lighting on MODU and Project Vessels

Context

Relevant Activities	Existing Environment
Project vessels – Section 3.5	Habitats and biological communities – **Section 4.5** Protected species – **Section 4.6**

Impacts Evaluation Summary

Source of Impact	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Impact*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*[25]
External light emissions on-board MODU, installation vessels and other project vessels						X		A	E	-	-	GP PJ	Broadly Acceptable	EPO 11

Description of Source of Impact

Vessel and MODU Operations

Vessels and the MODU will have external lighting to support safe navigation and safe operations at night. This lighting typically consists of bright white (i.e., metal halide, halogen, fluorescent) lights, and is not dissimilar to lighting used for other offshore activities, including fishing and shipping.

Lighting is required for the safe operation of the MODU and vessels and cannot reasonably be eliminated.

The extent of this potential impact for the Petroleum Activities Program is restricted to the line of sight for each activity emitting light (**Table 6-10**), which based on previous work undertaken by Woodside is about 30 km from the MODU during drilling activities and 30 km from vessels (Woodside Energy Limited, 2014). For well flowback, specifically flaring, the distance at which the flare will be visible is expected to be less than 50 km from the source, and potentially around a further 10 km during emergency flaring (Woodside Energy Limited, 2014, 2011).

Table 6-10: Extent of potential impact from light sources associated with the PAP

Activity	Estimated visual line of sight	Reference
Vessel operations	30 km	Woodside, 2014
MODU operations	30 km	Woodside, 2014
Well flowback (flaring)	50 km (+ 10 km during emergency flaring)	Woodside, 2011

While the line of sight may extend tens of kilometres from the source, the light density (measured in Lux – which represents the intensity of light that arrives at or leaves a surface, as perceived by the human eye) rapidly decreases as distance increases from the source of the light. Monitoring undertaken as a part of Woodside's 2014 study indicated that light density (from navigational lighting) attenuated to below 1.00 Lux and 0.03 Lux at distances of 300 m and 1.4 km, respectively, from the source (a MODU). Light densities of 1.00 and 0.03 Lux are comparable to natural light densities experienced during deep twilight and during a quarter moon. Navigational lighting from vessels is less than lighting on a MODU. Therefore, light emissions from the MODU and vessels are expected to be below 1.00 Lux within 300 m from the source.

Note that flaring, which is a relatively bright light source, may occur during well unloading as a contingency.

[25] *There are no specific controls and EPOs identified for external lighting on MODU and project vessels. However, minimum lighting aboard the MODU and project vessels will be maintained to facilitate safe operations and navigation.*

Impact Assessment

Potential Impacts to Protected Species

Receptors that have important habitat within a 20 km buffer of the Operational Area were considered for the impact assessment, based on recommendations of the National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds (NLPG) (Commonwealth of Australia, 2020). The 20 km threshold provides a precautionary limit based on observed effects of sky glow on marine turtle hatchlings demonstrated to occur at 15–18 km and fledgling seabirds grounded in response to artificial light 15 km away (Commonwealth of Australia, 2020).

Light emissions can affect fauna in two main ways:

1. Behaviour: Many species are adapted to natural levels of lighting and the natural changes associated with the day and night cycle, as well as the night-time phase of the moon. However, artificial lighting has the potential to create a constant level of light at night that can override these natural levels and cycles.
2. Orientation: Species such as marine turtles and birds may also use lighting from natural sources to orient themselves in a certain direction at night. If an artificial light source is brighter than a natural source, the artificial light may act to override natural cues leading to disorientation.

The fauna within the Operational Area is predominantly pelagic fish and zooplankton, with a low abundance of transient species such as marine turtles, whale sharks, whales and migratory seabirds. There is no known critical habitat within the Operational Area for EPBC listed species, nor does the Operational Area overlap Habitat Critical for the survival of the species for marine turtles, although there is overlap with several BIAs (**Section 4.6**):

- flatback turtle interesting buffer
- pygmy blue whale migration
- whale shark foraging
- wedge-tailed shearwater breeding

Given the low abundance of fauna expected to occur within the Operational Area, impacts from light emissions are considered to be highly unlikely.

As described in **Table 4-8**, internesting buffer Habitat Critical for the survival of the species for flatback, green, hawksbill and loggerhead turtles are located ~10 km, ~49 km, ~49 km and ~207 km, respectively, from the Operational Area. However, as outlined below, internesting adult female turtles are not impacted by artificial light emissions, and it is more relevant to consider separation distances between light sources and nesting habitat critical for turtles (i.e., the nesting locations as identified in Table 6 of the *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017).

At the closest point, the Operational Area is located approximately:

- 50 km from the nearest nesting locations for green turtles on Montebello Island
- 198 km from the nearest nesting locations for loggerhead turtles on Muiron Islands
- 50 km from the nearest nesting locations for hawksbill turtles on Montebello Island
- 50 km from the nearest nesting locations for flatback turtles on Montebello Island.

Seabirds

Artificial lighting can attract and disorient seabird species resulting in species behavioural changes (e.g. circling light sources or disrupted foraging), injury or mortality near the light source (Gaston et al., 2014; Longcore and Rich, 2004). As the Operational Area is offshore and away from islands or other emergent features, any presence of seabirds or shorebirds is considered likely to be of a transient nature only, such as migrating or foraging.

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, 2020). Shearwater fledglings are predominantly impacted by onshore lighting sources, which can override sea finding cues and attract fledglings further inland, preventing them from reaching the sea (Mitkus et al., 2018). The Operational Area overlaps a foraging and breeding BIA for the wedge-tailed shearwater, and is approximately 50 km from the Montebello Islands, which are an important breeding site for this species.

Adult shearwaters are vulnerable to artificial lighting during the breeding cycle, when returning to and leaving the nesting colony to maintain nesting sites or forage. Foraging adult wedge-tailed shearwaters may be attracted to sources of light emissions to feed on fish drawn to the light, or may be attracted to vessel light during periods of low visibility (Catry et al., 2009; Whittow, 2020), however the species feeds primarily during the day. Artificial light can also impact behaviour and adult nest attendance, or confuse shearwater species, resulting in injury or mortality as a result of birds colliding with structures (Cianchetti-Benedetti et al., 2018; Rodríguez et al., 2017). Tagging studies of wedge-tailed shearwaters in the region by Cannell et al. (2019) showed that bi-modal foraging strategy with chick-rearing foraging activity around nesting islands and, longer ranging foraging south of Indonesia in the Indian Ocean (often in association with seamounts).

Behavioural disturbance to birds from light is expected to be localised to within the vicinity of the MODU and vessels within the Operational Area. The light source from the MODU and vessels within the Operational Area will be temporary and only when operations are occurring. Interactions with seabirds are therefore expected to be unlikely. Any impacts are predicted to be at an individual level and not a population level. The temporary behavioural disturbance of birds will be localised around the light sources, and not result in a substantial adverse effect on a population of species or its lifecycle. Additionally, light emissions will not seriously disrupt the lifecycle of an ecologically significant proportion of any migratory species population.

Migratory shorebirds may be present in or fly through the region between July and December, and again between March and April as they complete migrations between Australia and offshore locations (Commonwealth of Australia, 2015b). The risk associated with collision from seabirds and shorebirds attracted to the light is considered to be low, based on the intermittent and localised nature of the activities in the Operational Area, as well as the distance offshore. Impacts are expected to be limited to temporary behavioural disturbance to isolated individuals, that is not expected to disrupt important migration patterns of migratory seabirds.

Based on the detailed evaluation, the magnitude of impacts to birds from light emissions during activities associated with the Petroleum Activities Program is expected to have no lasting effect.

Marine Turtles – Hatchlings

Turtle hatchlings emerge from the nest and orient towards the sea. After entering the water, hatchlings use a combination of cues (wave direction and currents) to orient and travel into offshore waters. Impacts to the sea-finding behaviour of hatchlings are more common for light sources behind a beach, as lighting offshore will orient emerging hatchlings towards the sea. Artificial light at close distances can also impact hatchling dispersal once they are in the water. Light spill may 'entrap' hatchling swimming behaviour, reducing the success of their seaward dispersion and potentially increasing their exposure to predators via silhouetting (Salmon et al., 1992).

As described above, the nearest turtle nesting locations to the Operational Area are on Montebello Island (~50 km) and the risk of significant numbers of dispersing hatchlings becoming attracted to direct light or sky glow from project vessels is not considered credible. This is supported by the findings of a desktop lighting impact assessment for the Scarborough Project, conducted by Pendoley Environmental (2020). At a range of ~50 km, the density of dispersing hatchlings is expected to be low and very few individuals will be at risk of attraction. For any isolated individuals potentially attracted to light spill from project vessels/MODU, following sunrise, any effect of these light sources on hatchlings will be eliminated allowing dispersal behaviour to resume.

Any impacts to hatchling turtles from artificial light will be limited to possible short-term behavioural impacts to isolated individual hatchlings offshore, with no lasting effect to the species.

Marine Turtles – Adults

Although individuals undertaking behaviours such as internesting, migration, mating (adults) or foraging (adults and pelagic juveniles) may occur within Operational Area, marine turtles do not use light cues to guide these behaviours. Furthermore, there is no evidence, published or anecdotal, to suggest that internesting, mating, foraging or migrating turtles are impacted by light from offshore vessels. As such, light emissions from the project vessels are unlikely to result in displacement of, or behavioural changes to individuals in these life stages (Pendoley Environmental, 2020).

Artificial lighting may affect where nesting adult turtles emerge onto the beach, the success of nest construction, whether nesting is abandoned, and the seaward return of adults (Salmon et al., 1995a, 1995b; Salmon and Witherington, 1995). Such lighting is typically from residential and industrial development at the coastline, rather than offshore from nesting beaches. As described above, the beaches on Montebello Island (~50 km from the Operational Area) are the nearest known turtle nesting locations, however, direct light from the project vessels will not be visible to nesting adult turtles. Furthermore, nesting females are not considered highly vulnerable to disorientation due to artificial light (Pendoley Environmental, 2020) and it is highly unlikely that the Petroleum Activities Program could cause disruption to sea-finding behaviour post nesting, particularly as the light source is located directly offshore in the same direction that females would be heading in anyway during normal sea-finding behaviour. As such, vessel light sources will not discourage females from nesting, or affect nest site selection, and therefore will not displace females from nesting habitat.

The Operational Area overlaps internesting BIA for flatback turtles. Internesting flatback turtles favour depths of <25 m (Whittock et al., 2016b), and foraging flatback turtles have been found to occur in waters shallower than 140 m (Whittock et al., 2016a). Therefore, it is considered unlikely that the deep, offshore waters at the outer extent of the BIA that overlap the Operational Area (water depths of 170 m to 990 m) represent important internesting or foraging habitat. Although individual turtles migrating, mating or foraging may occur within or adjacent to the Operational Area, marine turtles do not use light cues to guide these behaviours. As such, light emissions from the project vessels are unlikely to result in more than localised behavioural disturbance to isolated transient individuals, with no lasting effect to the species.

Summary of Potential Impacts to Environmental Value(s)

Light emissions from the MODU, installation vessel and support vessels will not result in an impact greater than slight and short-term disturbance to specific fauna, particularly, nocturnal seabirds, in the vicinity of the Operational Area, with no lasting effect (i.e., Environment Impact – E).

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
Lighting will be limited to the minimum required for navigational and safety requirements, with the exception of emergency events.	F: Yes. Lighting is typically appropriate for navigation and safety. CS: Minor	Given the potential impacts to turtles during this activity is insignificant, implementation of this control would not result in a reduction in consequence.	While the control does not result in significant reduction of impacts, it is good practice and not at significant cost.	Yes **C 11.1**
Implement a Seabird Management Plan that includes: • Standardisation and maintenance of record keeping and reporting of seabird interactions • Procedures on seabird intervention, care and management • Regulatory reporting requirements for seabirds (unintentional death of or injury to seabirds that constitute MNES) • A scalable adaptive management process should negative light impacts to nocturnal seabirds be detected	F: Yes. The management plan is an internal Woodside process developed to manage the impacts of artificial light emissions. CS: Minimal cost/sacrifice.	Implementing a Seabird Management Plan will enable standardised data collection to better understand seabird interactions with project vessels, provide guidance on seabird management to enable the best outcomes for grounded birds and facilitate escalation and adoption of management actions within 24 hrs, preferably before next nightfall, should triggers be met.	While the control does not result in significant reduction of impacts, it is good practice and not at significant cost.	Yes **C 11.2**
Well unloading acceptance criteria that define the well objectives will be established.	F: Yes CS: Standard practice	Eliminates unnecessary flared volumes and corresponding emissions (light and GHG)	Benefits outweigh cost/sacrifice	Yes **C 11.3**
Professional Judgement – Eliminate				

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Substitute external lighting with 'turtle friendly' light sources (reduced emissions in turtle visible spectrum).	F: Yes. Replacement of external lighting with turtle friendly lighting is technically feasible, although is not considered to be practicable. CS: Significant cost sacrifice. The retrofitting of all external lighting on the MODU, etc., would result in considerable cost and time expenditure. Considerable logistical effort to source sufficient inventory of the range of light types onboard the MODU.	Given the potential impacts to turtles during this activity is insignificant, implementation of this control would not result in a reduction in consequence.	Grossly disproportionate. Implementation of the control requires considerable cost sacrifice for minimal environmental benefit. The cost/sacrifice outweigh the benefit gained.	No
Variation of the timing of the Petroleum Activities Program to avoid peak turtle internesting periods (December to January).	F: No. The Operational Area has a minor overlap with the flatback turtle internesting BIA in an area not known to provide foraging habitat. Given the low potential for internesting turtles to be present within the Operational Area, the risk of potential impacts from vessel light emissions on adult turtles is considered to be low. CS: Significant cost and schedule impacts due to delays in securing vessels/ MODU for specific timeframes.	Not considered, control not feasible.	Not considered, control not feasible.	No
Do not flare	F: No Flaring is the only feasible way to manage the reservoir fluids and achieve well objectives. CS: Not considered – control not feasible	Not considered – control not feasible	Not considered – control not feasible	No
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement On the basis of the environmental impact assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A, **Section 2.6.1**), Woodside considers the potential impacts from routine light emissions from the MODU, installation vessels and support vessels to be ALARP in its current risk state. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that, in its current state, routine light emissions from the MODU, installation vessels and support vessels may result in localised behavioural disturbance to fauna within the Operational Area, with no lasting effect. Further opportunities to reduce the impacts have been investigated above. The potential impacts are consistent with good oil-field practice/industry best practice and are considered to be broadly acceptable in its current

state. Therefore, Woodside considers standard operations appropriate to manage the impacts of routine light emissions to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 11 No impact to protected fauna greater than a consequence level of E from artificial light emissions during the Petroleum Activities Program.	**C 11.1** Lighting will be limited to the minimum required for navigational and safety requirements, with the exception of emergency events.	**PS 11.1** Lighting will be limited to that required for safe work/navigation.	**MC 11.1.1** Inspection verifies no excessive light being used beyond that required for safe work/ navigation.
	C 11.2 Implement an Offshore seabird management plan that includes: • Standardisation and maintenance of record keeping and reporting of seabird interactions • Procedures on seabird intervention, care and management • Regulatory reporting requirements for seabirds (unintentional death of or injury to seabirds that constitute MNES) • A scalable adaptive management process should negative light impacts to nocturnal seabirds be detected	**PS 11.2** Implementation of the Woodside Offshore Seabird Management Plan by MODU and key PAP vessels to minimise potential impact should nocturnal seabird groundings occur.	**MC 11.2.1** Records demonstrate the WoodsideOffshore Seabird Management Plan is implemented.
	C 11.3 Well unloading acceptance criteria that define the well objectives will be established.	**PS 11.3** Flaring restricted to a duration necessary to achieve the well objectives.	**MC 11.3.1** Records demonstrate flaring was restricted to a duration necessary to achieve well objectives.

6.7 Unplanned Activities (Accidents, Incidents, Emergency Situations)

6.7.1 Quantitative Spill Risk Assessment Methodology

Quantitative hydrocarbon spill modelling was performed by RPS, on behalf of Woodside, using a three-dimensional hydrocarbon spill trajectory and weathering model, SIMAP (Spill Impact Mapping and Analysis Program). The model is designed to simulate the transport, spreading and weathering of specific hydrocarbon types under the influence of changing meteorological and oceanographic forces. Near-field subsurface discharge modelling was performed using OILMAP, which predicts the droplet sizes that are generated by the turbulence of the discharge as well as the centreline velocity, buoyancy, width and trapping depth (if any) of the rising gas and oil plumes. The OILMAP output parameters were used as input into SIMAP.

The algorithms in the SIMAP model are based on the best available scientific knowledge and are updated when necessary, in response to significant advances in knowledge. Recent improvements have been implemented to the entrainment algorithm, which have been adjusted to implement the findings of published data based on field research performed during the Macondo spill event in the Gulf of Mexico (French-McCay et al., 2018; Li et al., 2017; Spaulding, 2017).

Stochastic modelling was performed for this study, which compiled data from 100 hypothetical spills under different environmental conditions to determine the widest extent of possible oil dispersion. The environmental conditions for each hypothetical spill were selected randomly from an historic time-series of wind and current data representative of the study area. Results of the replicate simulations were then statistically analysed and mapped to define contours of percentage probability of contact at identified thresholds around the hydrocarbon release point.

The model simulates surface releases and uses the unique physical and chemical properties of a representative hydrocarbon type to calculate rates of evaporation and viscosity change, including the tendency to form oil-in-water emulsions. Moreover, the unique transport and dispersion of surface slicks and in-water components (entrained and dissolved) are modelled separately. Thus, the model can be used to understand the wider potential consequences of a spill, including direct contact of hydrocarbons due to surface slicks (floating hydrocarbon) and exposure of organisms to entrained and dissolved aromatic hydrocarbons in the water column. The model also calculates the accumulation of hydrocarbon mass that arrives on each section of shoreline over time, taking into account any mass that is lost to evaporation and/or subsequent removal by current and wind forces.

All hydrocarbons spill modelling assessments performed by RPS undergo initial sensitivity modelling to determine appropriate time to add to the simulation after the spill ceases. The amount of time following the spill is based on the time required for the modelled concentrations to practically drop below threshold concentrations anywhere in the model domain in the test cases.

In addition to the stochastic modelling, single-trajectory modelling (deterministic) was performed to assess potential worst-case trajectories based on the stochastic modelling runs. The deterministic simulations are therefore representative of single spill events under certain wind and current conditions. The deterministic simulations were performed to represent the fastest time to shoreline contact and the largest volume ashore from a single model run.

6.7.1.1 Hydrocarbon Characteristics

As part of the risk identification process, Woodside identified the range of credible hydrocarbon spill scenarios that may occur from the Petroleum Activities Program. These scenarios are considered in the risk assessments of accidental hydrocarbon spill scenarios (**Sections 6.7.2** to **6.7.4**). They include:

- a loss of well integrity scenario resulting in 75,928 m^3 of Pluto condensate. This is considered the worst-case scenario from a loss of well integrity. A loss of well integrity from other wells, including during workover activities, would be of equal or lower extent.
- a vessel collision scenario resulting in ~1000 m^3 of diesel instantaneously released
- a bunkering incident scenario resulting in ~8 m^3 of diesel instantaneously released

The characteristics of the hydrocarbons, used as the basis for the modelling studies used to inform the assessment, are summarised in **Table 6-11**.

Table 6-11: Summary of hydrocarbon characteristics

Hydrocarbon Type	Initial Density (g/m^3)	Viscosity	Component BP (°C)	Volatiles <180 °C	Semi-volatiles 180-264 °C	Low volatility 264-380 °C	Residual >380 °C	Aromatic (%) of whole oil <380 °C BP
				Non-persistent			Persistent	
Pluto condensate	0.668 @ 25 °C	0.433 @ 25 °C	% of total	72.73	20.87	5.79	0.62	2.35
			% of aromatics	1.7	0.5	0.14	-	-
Marine diesel	0.829 @ 25 °C	0.829 @ 25 °C	% of total	6.0	34.6	54.4	5.0	3.0
			% of aromatics	1.8	1.0	0.2	-	-

6.7.1.2 Environment That May Be Affected and Hydrocarbon Contact Thresholds

The outputs of the quantitative hydrocarbon spill modelling are used to assess the environmental risk, if a credible hydrocarbon spill scenario occurred, by delineating which areas of the marine environment could be exposed to hydrocarbon levels exceeding hydrocarbon threshold concentrations. The summary of all the locations where hydrocarbon thresholds could be exceeded by any of the simulations modelled is defined as the Environment that May Be Affected (EMBA). The EMBA covers a larger area than the area that is likely to be affected during any one single spill event, as the model was run for a variety of weather and metocean conditions (300 simulations in total), and the EMBA represents the total extent of all locations where hydrocarbon thresholds could be exceeded, as determined from all modelling runs. Furthermore, 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.

The spill modelling outputs are presented as threshold concentrations for surface, entrained and dissolved hydrocarbons for the modelled scenarios. Surface spill 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, adopting accepted contact thresholds that are documented as impacting the marine environment, are used to define the EMBA. These hydrocarbon thresholds are presented in Table 6-12 and described in the following subsections.

Table 6-12: Summary of environmental impact thresholds applied to the quantitative hydrocarbon spill risk modelling results

EMBA thresholds					
Surface hydrocarbon (g/m²)	**Entrained hydrocarbon (ppb)**	**Dissolved aromatic hydrocarbon (ppb)**	**Accumulated hydrocarbon (g/m²)**	**Socio-cultural Surface Hydrocarbon (g/m²)**	**Socio-cultural accumulated hydrocarbon (g/m²)**
10	100	50	100	1	10

Surface Hydrocarbon Threshold Concentrations

The spill modelling outputs defined the EMBA for surface hydrocarbons resulting from a spill using a threshold of ≥10 g/m^2. This threshold is used to define an area within which ecological impacts to the marine environment may occur from surface hydrocarbons. It represents the minimum oil thickness (0.01 mm) at which ecological impacts (e.g., to birds and marine mammals) are expected to occur.

Thresholds for registering biological impacts resulting from contact by surface slicks have been estimated by different researchers at about 10–25 g/m² (French et al., 1999; Koops et al., 2004; National Oceanic and Atmospheric Administration, 1996). Potential impacts of surface slick concentrations in this range for floating hydrocarbons may include harm to seabirds through ingestion from preening of contaminated feathers, or the loss of the thermal protection of their feathers. The 10 g/m^2 threshold is the reported level of oiling to instigate impacts to seabirds and is also applied to other wildlife, though it is recognised that 'unfurred' animals where hydrocarbon adherence is less may be less vulnerable. 'Oiling' at this threshold is taken to be of a magnitude that can cause a response to the most vulnerable wildlife such as seabirds. Due to weathering processes, surface hydrocarbons will have a lower toxicity due to changes in their composition over time. Potential impacts to shoreline sensitive receptors may be markedly reduced in instances where there is extended duration until contact.

A surface threshold of 10 g/m^2 represents a 'dull metallic colour' (Bonn Agreement, 2015) (Table 6-13). A lower concentration of 1 g/m^2 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 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'.

Table 6-13: The Bonn Agreement oil appearance code

Appearance (following Bonn visibility descriptors)	Mass per area (g/m²)	Thickness (µm)	Volume per area (L/km²)
Discontinuous true oil colours	50 to 200	50 to 200	50,000 to 200,000
Dull metallic colours	5 to 50	5 to 50	5,000 to 50,000
Rainbow sheen	0.30 to 5.00	0.30 to 5.00	300 to 5000
Silver sheen	0.04 to 0.30	0.04 to 0.30	40 to 300

Dissolved Aromatic Hydrocarbon Threshold Concentrations

Dissolved hydrocarbons present a narcotic effect resulting from uptake into the tissues of marine organisms. This effect is additive, increasing with exposure concentration or with time of exposure (French McCay et al., 2002; National Research Council, 2005). The dissolved aromatic threshold of 50 ppb has been selected as a medium level threshold to approximate the potential toxic effects, particularly sublethal effects to sensitive species, as consistent with the *Oil Spill Modelling* (NOPSEMA, 2019) bulletin.

Entrained Hydrocarbon Threshold Concentrations

This threshold is used to define an area within which ecological impacts to the marine environment may occur from entrained hydrocarbons. Therefore, it may also be associated with socio-cultural impacts.

Entrained hydrocarbons present a number of possible mechanisms for toxic exposure to marine organisms. The entrained hydrocarbon droplets may contain soluble compounds, hence have the potential for generating elevated concentrations of dissolved aromatic hydrocarbons (e.g., if mixed by breaking waves against a shoreline). Physical and chemical effects of the entrained hydrocarbon droplets have also been demonstrated through direct contact with organisms; for example, through physical coating of gills and body surfaces, and accidental ingestion (National Research Council, 2005).

The entrained threshold has been selected to be consistent with the *Oil Spill Modelling* (NOPSEMA, 2019) bulletin. An entrained threshold of 100 ppb is considered to be appropriate given the oil characteristics for informing potential impacts to receptors.

Accumulated Hydrocarbon Threshold Concentrations

Owens and Sergy (1994) define accumulated hydrocarbon <100 g/m² to have an appearance of a stain on shorelines. French-McCay (2009) defines accumulated hydrocarbons ≥100 g/m² to be the threshold that could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat. A threshold of ≥100 g/m^2 has been adopted as the threshold for shoreline accumulation and has been included in the EMBA. Further, any ecological impacts at the shoreline accumulation threshold may also result in socio-cultural impacts.

6.7.1.3 Scientific Monitoring

A planning area for scientific monitoring is also described in Section 5.6 of the Oil Spill Preparedness and Response Mitigation Assessment (**Appendix D**). This planning area has been set with reference to the low exposure entrained value of 10 ppb detailed in *Oil Spill Modelling* (NOPSEMA, 2019).

A scientific monitoring program 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 worst-case credible spill scenario(s) or other identified unplanned hydrocarbon releases associated with the operational activities.

6.7.2 Accidental Hydrocarbon Release: Loss of Well Integrity

Context

Relevant Activities	Existing Environment	Consultation
Drilling activities – Section 3.8 Project vessels – Section 3.5	Physical environment – **Section 4.4** Habitats and biological communities – **Section 4.5** Protected species – **Section 4.6** Socio-economic – **Section 4.8**	Consultation – **Section 5**

Risk Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Consequence*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Loss of hydrocarbons (condensate) to marine environment due to loss of well integrity		X	X	X	X	X	X	C	B	1	**H**	LCS GP PJ RBA CS SV	Acceptable if ALARP	EPO 12

Description of Source of Risk

Woodside has identified a well blowout during drilling of the PLA08 well as the scenario with the worst-case credible environmental outcome as a result of loss of well containment. Well intervention and workover activities may also result in a loss of well containment.

A loss of well containment is an uncontrolled release of reservoir hydrocarbons or other well fluids to the environment. A blowout is an incident where formation fluid flows out of the well or between formation layers after all the predefined technical well barriers (e.g., the BOP) or activation of the same has failed.

Industry Experience

A risk assessment by AMSA of oil spills in Australian ports and waters (Det Norske Veritas, 2011) concluded that:

- Overall national exceedance frequency for oil spills from offshore drilling in Australia is 0.033 for spills > 1 tonne/year decreasing to 0.008 for spills > 100 tonnes/year
- The probability of a blowout from a well intervention is 1 x 10^4 (0.0001, or 0.01%), considerably lower than during drilling activities (International Association of Oil and Gas Producers, 2010)

Woodside has a good history of implementing industry standard practice in well design and construction. In the company's 60 year history, it has not experienced any well containment events that have resulted in significant releases or significant environmental impacts.

Therefore, in accordance with the Woodside Risk Matrix, a loss of well containment and resulting blowout event corresponds to a 'highly unlikely' event as it has occurred once or twice in the industry, but not in the Company.

Credible Scenario – Loss of PLA08 Well Containment during Drilling

A blow out during drilling of the PLA08 well is the worst-case credible scenario resulting from a loss of well containment. Woodside identified this scenario comprising a 60 day uncontrolled surface and subsea release of 75,928 m^3 of Pluto condensate. The initial release would be at the sea surface for five days, after which it was assumed the MODU would have either moved to safety or sunk and hence no longer provide a conduit to the sea surface. Following the 5 day surface release, the blowout would continue to release hydrocarbons near the seabed for another 55 days. This timeframe, 60 days in total, was determined by Woodside as the approximate time required to successfully drill an intervention well and perform a well kill to control the blowout as identified in **Table 6-14** below.

Table 6-14: Timeframe for completion of relief well

Phase	Description	Time for Completion (days)
Mobilisation of relief MODU	Sourcing a MODU through Australian Petroleum Production and Exploration Association (APPEA) Memorandum of Understanding (MoU) and mobilisation. Preparation and mooring spread installation	21
Mooring and relief well drill time	Mooring activities and relief well construction operations	25.1
Intersect and kill	Relief well intersects uncontrolled well, kills well, ceasing release of hydrocarbons.	14.0
	Total days	**60.1**

The characteristics of this worst-case scenario are summarised in **Table 6-15**. These characteristics, along with the description of Pluto condensate, were used by RPS to undertake stochastic and deterministic computer modelling of this worst-case scenario. The result of this modelling study were used to inform the assessment of environmental risks of a well blowout during drilling of PLA08.

The worst-case PLA08 well blowout during drilling scenario will release a greater volume of hydrocarbons than the loss of well containment during interventions or workovers scenario (described below). Hence, the worst-case PLA08 well blowout during drilling scenario has been used as the basis for the assessment of environmental impacts and risks.

Table 6-15: Summary of worst-case PLA08 blowout scenario

Release Attributes	Values
Total Discharge at Sea Surface	1,832 m^3 over 5 days
Total Discharge at Seabed	74,095 m^3 over 55 days
Water Depth	820 m
Hydrocarbon	Pluto condensate

Hydrocarbon Characteristics

Pluto condensate is a mixture of volatile and persistent hydrocarbons with high proportions of volatile and semi-volatile components. In favourable evaporation conditions, about 73% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); up to a further 21% could evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 6% should evaporate over several days (265 °C < BP < 380 °C) (**Figure 6-2**). Approximately 0.6% of the oil is shown to be persistent.

The whole oil has a low asphaltene content (< 0.5%), indicating a low propensity for the mixture to take up water to form water-in-oil emulsion over the weathering cycle.

Soluble, aromatic hydrocarbons contribute approximately 2.4% by mass of the whole oil. Around 1.7% by mass is highly soluble and highly volatile. A further 0.5% by mass has semi-to-low volatility. These compounds dissolve more slowly but tend to persist in soluble form for longer. Discharge onto the water surface will favour the process of evaporation over dissolution under calm sea conditions, but increased entrainment of oil and dissolution of soluble compounds can be expected under breaking wave conditions.

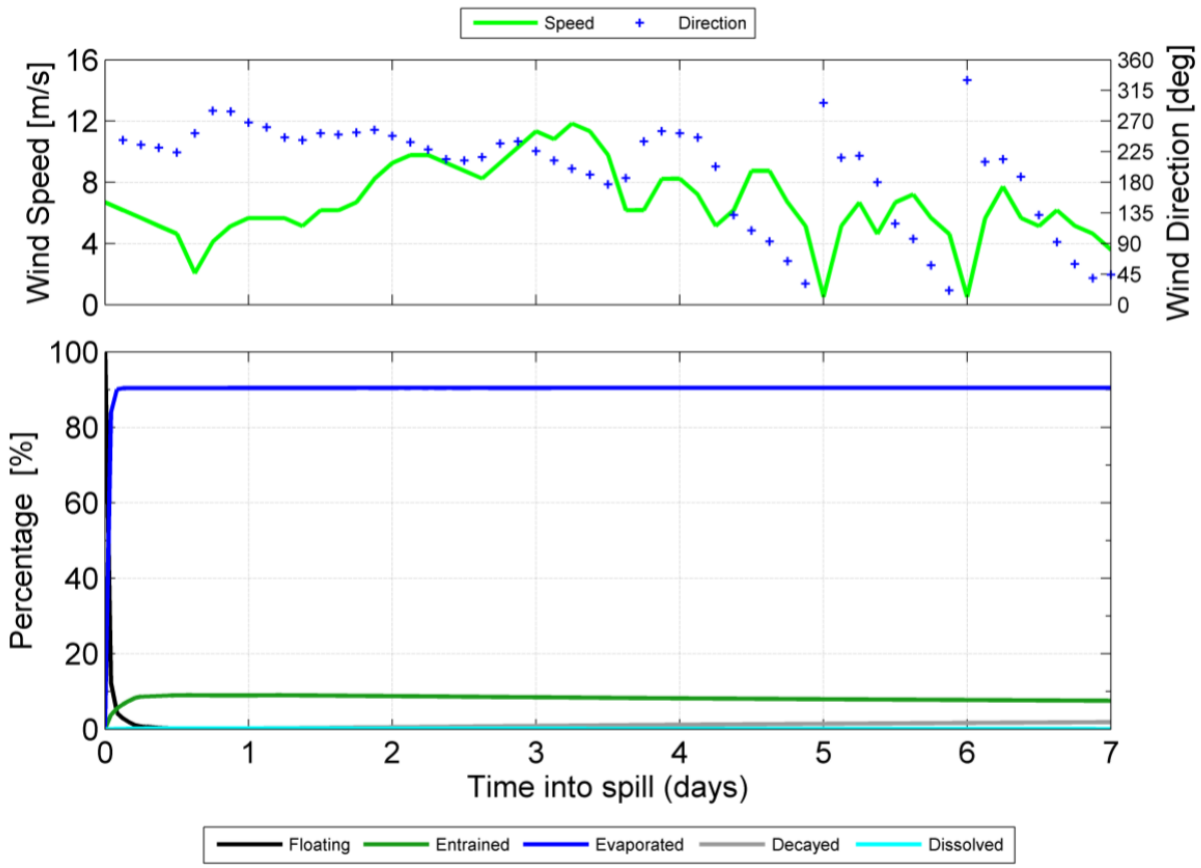

Figure 6-2: Proportional mass balance plot representing the weathering of Pluto condensate spilled onto the water surface as a one-off release (50 m^3) and subject to variable wind at 27 °C water temperature and 25 °C air temperature (from RPS, 2022)

Subsea Plume Dynamics

The OILMAP input parameters and the resulting output parameters that were used as input to SIMAP are presented in **Table 6-16**. The model input also included temperature and salinity profiles representative of the release location.

The results of the OILMAP simulation predict that the discharge will initially generate a cone of rising gas that will entrain the oil droplets and ambient sea water to the sea surface. The mixed plume was initially forecast to jet towards the water surface with a vertical velocity of around 4.1 m/s, gradually slowing and increasing in plume diameter as more ambient water is entrained. The terminal velocity of rising water and oil at the point of surfacing was predicted to be approximately 0.1 m/s with a cone diameter of approximately 191 m.

Given the discharge velocity and turbulence generated by the expanding gas plume, the release is predicted to generate droplet sizes ranging from approximately 220 µm to 795 µm. These droplets will be subject to mixing due to turbulence generated by the lateral displacement of the rising plume. The plume mixture is expected to reach the surface after approximately 1 hour.

The ongoing nature of the release combined with the potential for the plume to breach the water surface may present other hazards, including conditions that may lead to high local concentrations of atmospheric volatiles. The results suggest that beyond the immediate vicinity of the blowout most of the released hydrocarbons will be present in the upper layers of the ocean, with the potential for oil to form floating slicks under sufficiently calm local wind conditions.

Table 6-16: Near-field subsurface discharge model parameters for the PLA08 well blowout scenario (from RPS, 2022)

Parameter Type	Parameter	Value
Inputs	Release depth (m below sea level)	820
	Oil density (g/cm^3 at 5 °C)	0.668
	Oil viscosity (cP at 5 °C)	0.433
	Oil temperature (°C)	12.22

	Hole diameter (m) [in]	0.31 [12.347]
	Oil flow rate (m^3/hr)	56 [353.4]
	Gas:oil ratio (m^3/m^3) [scf/bbl]	14,846 (average) [83,353]
	Reservoir pressure (psi)	3,250
Outputs	Plume diameter (m)	191
	Plume height (m above seabed)	455
	Plume initial rise velocity (m/s)	4.1
	Plume terminal rise velocity (m/s)	0.1
Predicted Oil Droplet Size Distribution	20% droplets of size (µm)	220.8
	20% droplets of size (µm)	322.4
	20% droplets of size (µm)	419.0
	20% droplets of size (µm)	544.7
	20% droplets of size (µm)	795.3

Credible Scenario – Loss of Well Containment during Well Intervention or Workover

A loss of well containment may credibly occur during well interventions and workovers. Industry experience shows that well blowouts during interventions and workover are less likely to occur than during drilling (International Association of Oil and Gas Producers, 2010), and are typically over smaller release volumes.

The credible volume of hydrocarbons that may be released during interventions and workovers is lower than during drilling of PLA08. This is due to the equipment installed in and on the well constraining the flow of hydrocarbons from the reservoir to the environment. The Pluto condensate is a representative hydrocarbon for all the credible loss of well containment during well workover or intervention.

Given the PLA08 well blowout during drilling scenario has the potential to release greater volumes of hydrocarbons, the environmental risks from a loss of well containment during interventions and workovers is covered by the environmental risk assessment for the PLA08 blowout scenario.

Impact Assessment

Potential Consequence Overview

EMBA

Quantitative hydrocarbon spill modelling results are shown in **Table 6-17** and have been used to define the EMBA (**Sections 4.1** and **6.7.1**).

Surface Hydrocarbons

Modelling of surface hydrocarbons indicates that concentrations above the 10 g/m^2 impact threshold could occur as slicks up to approximately 2 km from the release location.

Entrained Hydrocarbons

Entrained hydrocarbons above the 100 ppb impact threshold may extend up to 214 km from the release location, with modelling indicating the greatest probabilities of contact by entrained oil concentrations equal or greater than the 100 ppb thresholds are predicted at the Montebello Australian Marine Park.

Dissolved Hydrocarbons

Dissolved hydrocarbons were predicted to occur above the 50 ppb impact threshold up to approximately 23 km from the release location.

Accummulated Hydrocarbons

Modelling indicated shoreline accumulation of hydrocarbons above the 100 g/m^2 impact threshold may occur up to 690 km from the release location, with stochastic modelling indicating shoreline accumulation may occur from the Kimberley to the Gascoyne coastline, with the highest probability of shoreline contact occurring at islands along the Pilbara coastline.

Summary of Potential Impacts

Table 6-17 presents the full extent of the EMBA, i.e., the sensitive receptors and their locations that may be exposed to condensate (surface, entrained, dissolved and accumulated) at or above the set threshold concentrations in the unlikely event of a major hydrocarbon release from a loss of well integrity during the Petroleum Activities Program.

Details of these receptors are outlined in **Section 4**. The potential biological and ecological impacts of an unplanned condensate release as a result of a loss of well integrity during the Petroleum Activities Program are presented in the following sections.

Table 6-17: Environment that May Be Affected – Key receptor locations and sensitivities with the summary hydrocarbon spill contact for a worst-case blowout during drilling on the PLA08 well

c	Location/name	Environmental, Social, Cultural, Heritage and Economic aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure (WM0000PG10055394))																											Hydrocarbon contact and fate (>1% probability) (Condensate)					
		Physical		Biological																			Socio-economic and Cultural					Socio-cultural EMBA		EMBA			
		Water	Sediment	Marine Primary Producers			Other Communities/Habitats							Protected Species									Other Species													
		Open water – pristine	Marine sediment – pristine	Coral reef	Seagrass beds/macroalgae	Mangroves	Spawning/nursery areas	Open water – productivity/upwelling	Non biogenic coral reefs	Offshore filter feeders and/or deepwater benthic communities	Nearshore filter feeders	Sandy shores	Estuaries/tributaries/creeks/lagoons (including mudflats)	Rocky shores	Cetaceans – migratory whales	Cetaceans – dolphins and porpoises	Dugongs	Pinnipeds (sea lions and fur seals)	Marine turtles (including foraging and internesting areas and significant nesting beaches)	Seasnakes	Whale sharks	Sharks and rays	Sea birds and/or migratory shorebirds	Pelagic fish populations	Resident/demersal fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas/Heritage – European and Indigenous/Shipwrecks	Offshore Oil & Gas Infrastructure (topside and subsea)	Surface hydrocarbon (1-10 g/m²)	Accumulated hydrocarbons (10-100 g/m²)	Surface hydrocarbon (≥10 g/m²)	Entrained hydrocarbon (≥100 ppb)	Dissolved aromatic hydrocarbon (≥50 ppb)	Accumulated hydrocarbons (>100 g/m²)
Offshore[1]	Argo-Rowley Terrace MP	✓	✓					✓							✓	✓			✓				✓	✓	✓	✓			✓		2	-	-	-	-	-
	Eighty Mile Beach MP*	✓	✓	✓			✓	✓		✓					✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		1	-	-	-	-	-
	Gascoyne MP	✓	✓												✓	✓			✓		✓	✓	✓	✓	✓	✓			✓		3	-	-	-	-	-
	Lalang-garram/ Camden Sound MP	✓	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			1	-	-	-	-
	Montebello MP	✓	✓	✓			✓	✓							✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		19	-	-	13	-	-
	Ningaloo MP	✓	✓				✓	✓		✓					✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		1	-	-	-	-	-
Submerged Features	Glomar Shoal*	✓	✓	✓			✓			✓												✓		✓	✓	✓					2	-	-	-	-	-
	Rankin Bank*	✓	✓	✓			✓	✓		✓						✓				✓		✓		✓	✓	✓	✓			✓		9	-	-	-	-	-
Coastlines & Islands	Barrow Island (including Barrow, Middle and Boodie Islands, State Nature Reserves, State Marine Park and Marine Management Area)	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	4	10	-	-	-	4
	Bonaparte Archipelago	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1	-	-	-	-
	Christmas Island	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				1	-	-	-	-
	Broome Coast (including Yawuru Indigenous Protected Area)	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				3	-	-	-	1
	Carnarvon				✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓			✓	✓		✓			✓	✓				2	-	-	-	-
	Dampier Archipelago (including Cape Bruguieres and Murujuga)	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	2	3	-	-	-	3
	Eighty Mile Beach – Broome (including Karajarri	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		-	3	-	-	-	1

[1] *Note: hydrocarbons cannot accumulate on open ocean, submerged receptors, or receptors not fully emergent.*

c	Location/name	Environmental, Social, Cultural, Heritage and Economic aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure (WM0000PG10055394))																										Hydrocarbon contact and fate (>1% probability) (Condensate)					
		Physical		*Biological*																			*Socio-economic and Cultural*					Socio-cultural EMBA		EMBA			
		Water	*Sediment*	*Marine Primary Producers*			*Other Communities/Habitats*							*Protected Species*									*Other Species*											
		Open water – pristine	*Marine sediment – pristine*	*Coral reef*	*Seagrass beds/macroalgae*	*Mangroves*	*Spawning/nursery areas*	*Open water – productivity/upwelling*	*Non biogenic coral reefs*	*Offshore filter feeders and/or deepwater benthic communities*	*Nearshore filter feeders*	*Sandy shores*	*Estuaries/tributaries/creeks/lagoons (including mudflats)*	*Rocky shores*	*Cetaceans – migratory whales*	*Cetaceans – dolphins and porpoises*	*Dugongs*	*Pinnipeds (sea lions and fur seals)*	*Marine turtles (including foraging and internesting areas and significant nesting beaches)*	*Seasnakes*	*Whale sharks*	*Sharks and rays*	*Sea birds and/or migratory shorebirds*	*Pelagic fish populations*	*Resident/demersal fish*	*Fisheries – commercial*	*Fisheries – traditional*	*Tourism and Recreation*	*Protected Areas/Heritage – European and Indigenous/Shipwrecks*	*Offshore Oil & Gas Infrastructure (topside and subsea)*	*Surface hydrocarbon (1-10 g/m²)*	*Accumulated hydrocarbons (10-100 g/m²)*	*Surface hydrocarbon (≥10 g/m²)*	*Entrained hydrocarbon (≥100 ppb)*	*Dissolved aromatic hydrocarbon (≥50 ppb)*	*Accumulated hydrocarbons (>100 g/m²)*
	Indigenous Protected Area and Jinmarnkur Kulja Nature Reserve)																																	
	Ningaloo Coast (including Exmouth, Ningaloo WHA and State Marine Park)	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		2	5	-	-	-	3
	Exmouth Gulf South East	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓			1	-	-	-	
	Indonesia	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			1	-	-	-	
	Karratha – Port Headland islands and shoreline (including Port Headland)	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		5	-	-		1
	Kimberly Southern	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		1	4	-	-	-	3
	Middle Pilbara – Islands and Shoreline	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	4	4	-	-	-	4
	Montebello Islands and Shoals (Montebello State Marine Park)	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		6	20	-	-	-	12
	Muiron Islands (including WHA, State Marine Park)	✓	✓	✓	✓		✓	✓		✓		✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓		1	4	-	1	-	1
	North Broome Coast	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			2	-	-	-	-
	North Pilbara Islands and Shoreline (including Karratha)	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	4	4	-	-	-	4
	Port Hedland – Eighty Mile Beach (including Jarrkurnpang Nature Reserve and Eighty Mile Beach)	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			3	-	-	-	1
	Southern Pilbara – Shoreline, Islands and Reefs (including Ashburton and Thevernard Island)	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	2	4	-	-	-	3

Summary of Potential Impacts to Environmental Value(s)	
The following summary of potential impacts considers the impacts of surface, entrained and dissolved hydrocarbon phases of condensate on receptors identified in **Table 6-17**.	
Summary of Potential Impacts to Protected Species	
Setting	***Receptor Group***
Offshore	***Cetaceans*** A range of cetaceans were identified as potentially occurring within the Operational Area and wider EMBA (**Section 4.6.3**). In the event of a loss of well containment, surface, entrained, and dissolved hydrocarbons exceeding environmental impact threshold concentrations may drift across habitat for cetacean species. Migratory routes and BIAs of cetaceans considered to be MNES may be affected, including humpback whales and pygmy blue whales (northbound and southbound migrations). Cetaceans that have direct physical contact with surface, entrained, or dissolved aromatic hydrocarbons may suffer surface fouling, ingestion of hydrocarbons (from prey, water and sediments), aspiration of oily water or droplets, and inhalation of toxic vapours (Deepwater Horizon Natural Resource Damage Assessment Trustees, 2016). This may result in the irritation of sensitive membranes such as the eyes, mouth, digestive and respiratory tracts, and organs. Other potential impacts include impairment of the immune system, neurological damage (Helm et al., 2015), reproductive failure, other adverse health effects (e.g. lung disease, poor body condition), and mortality (Deepwater Horizon Natural Resource Damage Assessment Trustees, 2016). Physical contact with hydrocarbons is likely to have biological consequences for these species. Given cetaceans maintain thick skin and blubber, external exposure to hydrocarbons may result in irritation to skin and eyes. Hydrocarbons may also be ingested, particularly by baleen whales (e.g., pygmy blue whales and humpback whales), which feed by filtering large volumes of water. Geraci (1988) has identified behavioural disturbance through avoidance of spilled hydrocarbons in several species of cetacean, suggesting that cetaceans have the ability to detect surface slicks. However, observations during spills have recorded larger whales (both mysticetes and odontocetes) and smaller delphinids travelling through and feeding in oil slicks. During the Deepwater Horizon spill, cetaceans were routinely seen swimming in surface slicks offshore and nearshore (Aichinger Dias et al., 2017). In a review of the impacts of large scale hydrocarbon spills on cetaceans, it was found that exposure to oil from the Deepwater Horizon resulted in increased mortality to cetaceans in the Gulf of Mexico (Deepwater Horizon Natural Resource Damage Assessment Trustees, 2016), and long-term population level impacts to killer whales were linked to the Exxon Valdez tanker spill (Matkin et al., 2008). Cetacean populations that are resident within the EMBA may be susceptible to impacts from spilled hydrocarbons if they interact with an area affected by a spill. Such species are more likely to occupy coastal waters (refer to the Mainland and Islands section below for additional information). Suitable habitat for oceanic toothed whales (e.g., sperm whales) and dolphins is broadly distributed throughout the region and as such, impacts are unlikely to affect an entire population. Other species identified in **Section 4.6.3** may also have possible transient interactions with the EMBA (refer to **Table 6-17** for the list of receptor locations for cetaceans). Pygmy blue whales and humpback whales are known to migrate seasonally through the wider EMBA. A major spill in May to November would coincide with humpback whale migration through the waters off the Pilbara and North West Cape (**Section 4.6.3**). A major spill in April–August or October would coincide with pygmy blue whale migration (**Figure 4-7**). Both pygmy blue and humpback whales are baleen whales, so are most likely to be significantly impacted by toxic effects when feeding. However, feeding during migrations is low level and opportunistic, with most feeding for both species occurring in the Southern Ocean. Fresh hydrocarbons (i.e., typically in the vicinity of the release location) may have a higher potential to cause toxic effects when ingested, while weathered hydrocarbons are considered to be less likely to result in toxic effects. As such, the risk of ingestion of hydrocarbons is low. Pygmy blue whale and humpback whale migrations are protracted through time and space (i.e., the whole population will not be within the EMBA), and as such, a spill from the loss of well integrity is unlikely to affect an entire population. The humpback whale calving BIA in Camden Sound is not predicted to be contacted by hydrocarbons above threshold concentrations. Entrained hydrocarbons above threshold levels are not predicted to extend into Exmouth Gulf, which is a resting BIA for humpback whales during their southern migration. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to offshore cetacean species, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions. Potential

	impacts to inshore cetaceans and other marine mammals are discussed in the Mainland and Islands (nearshore) impacts discussion below.
	Marine Turtles Adult sea turtles exhibit no avoidance behaviour when they encounter hydrocarbon spills (National Oceanic and Atmospheric Administration, 2010). Therefore, contact with surface slicks or entrained hydrocarbon can result in hydrocarbons adhering to body surfaces (Gagnon and Rawson, 2010) causing irritation of mucous membranes in the nose, throat and eyes, leading to inflammation and infection (National Oceanic and Atmospheric Administration, 2010). Oiling can also irritate and injure skin, which is most evident on pliable areas such as the neck and flippers (Lutcavage et al., 1995). A stress response associated with this exposure includes an increase in the production of white blood cells, and even a short exposure to hydrocarbons may affect the functioning of the salt gland (Lutcavage et al., 1995). Hydrocarbons in surface waters may also impact turtles when they surface to breathe as they may inhale toxic vapours. Their breathing pattern, involving large 'tidal' volumes and rapid inhalation before diving, results in direct exposure to petroleum vapours, which are the most toxic component of the hydrocarbon spill (Milton and Lutz, 2003). This can lead to lung damage and congestion, interstitial emphysema, inhalant pneumonia, and neurological impairment (National Oceanic and Atmospheric Administration, 2010). Contact with entrained hydrocarbons can result in hydrocarbons adhering to body surfaces, causing irritation of mucous membranes in the nose, throat and eyes and leading to inflammation and infection (Gagnon and Rawson, 2010). An internesting BIA and habitat critical to the survival of flatback turtles overlaps the Operational Area. However, the Operational Area is unlikely to represent an important habitat for marine turtles as there is an absence of potential nesting or foraging habitat (i.e., no emergent islands, reef habitat or shallow shoals) and the water is deep. There are significant nesting and foraging sites along the mainland coast and islands of the region, including Dampier Archipelago and the Montebello Islands, and a number of BIAs and critical habitats overlap the EMBA (**Table 4-8**). In particular the internesting BIAs and habitat critical to the survival of a species for green, loggerhead and hawksbill turtles extend for ~20 km from known nesting locations, and for ~60 km for flatback turtles. Oil from an ongoing loss of containment could be present during nesting season depending on the timing of a spill. In summary, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to offshore foraging marine turtles, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions. Potential impacts to nesting marine turtles are discussed in the Mainland and Islands (nearshore) impacts discussion below.
	Sea Snakes Impacts to sea snakes from direct contact with hydrocarbons are likely to result in similar physical effects to those recorded for marine turtles. They may include potential damage to the dermis and irritation to mucus membranes of the eyes, nose and throat (International Tanker Owners Pollution Federation, 2011a). They may also be impacted when they return to the surface to breathe and inhale the toxic vapours associated with the hydrocarbons, resulting in damage to their respiratory system. In general, sea snakes frequent the waters of the continental shelf area around offshore islands and potentially submerged shoals (water depths <100 m; see Submerged Shoals below). It is acknowledged that sea snakes are present in the wider EMBA. Their abundance is not expected to be high in the deepwater and offshore environment. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to offshore sea snakes, with consequence severity dependent on the duration and extent of a spill in relation to the distribution of sea snakes. Potential impacts to inshore and offshore reef associated sea snakes are discussed in the Submerged Shoals and Banks and Mainland and Islands (nearshore) impacts discussion below.
	Sharks, Sawfish and Rays Hydrocarbon contact may affect whale sharks through ingestion of entrained or dissolved hydrocarbons, particularly if feeding. Whale sharks may transit offshore open waters when migrating to and from Ningaloo Reef, where they aggregate for feeding from March to July (see Mainland and Islands (nearshore waters) below). Whale sharks may carry out opportunistic feeding in EMBA. The EMBA overlaps the whale shark foraging BIA identified in **Section 4.6.1**, within which whale sharks are seasonally present between April and October (**Section 4.6.5**). Impacts to sharks and rays may occur through direct contact with hydrocarbons, or through contamination of the tissues and internal organs, either through direct contact or through consumption of prey. As gill breathing organisms, sharks and rays may be

	vulnerable to toxic effects of dissolved hydrocarbons entering the body via the gills, and entrained hydrocarbons via coating of the gills inhibiting gas exchange. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to offshore shark, sawfish and ray species, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions. Potential impacts to inshore and offshore reef associated sharks, sawfish and rays are discussed in the Submerged Shoals and Banks and Mainland and Islands (nearshore) impacts discussion below.
	Seabirds and Migratory Shorebirds Offshore waters are potential foraging grounds for seabirds associated with the coastal roosting and nesting habitat (e.g., Ningaloo, Muiron Islands and the Barrow/Montebello/Lowendal Island Group). There are confirmed foraging grounds off Ningaloo and the Barrow/Montebello/Lowendal Island Group. Foraging and breeding BIAs for a number of seabirds and migratory shorebirds overlap with the EMBA (**Section 4.6.4**): • the wedge-tailed shearwater (peak use August–April) • the fairy tern Seabirds and migratory birds are particularly vulnerable to contact with floating hydrocarbons, which may mat feathers. This may lead to hypothermia from loss of insulation, and to ingestion of hydrocarbons when preening to remove hydrocarbons; both impacts may result in mortality (Hassan and Javed, 2011). Seabirds generally do not exhibit avoidance behaviour to floating hydrocarbons. Physical contact of seabirds with surface slicks is by several exposure pathways—primarily immersion, ingestion, and inhalation. Such contact with hydrocarbons may result in (Australian Maritime Safety Authority, 2015; International Petroleum Industry Environmental Conservation Association, 2004): • plumage fouling and hypothermia (loss of thermoregulation) • decreased buoyancy and consequent increased potential to drown • inability to fly or feed • anaemia • pneumonia • and irritation of eyes, skin, nasal cavities and mouths. Longer-term exposures may potentially impact seabird populations through loss of reproductive success, malformation of eggs or chicks (Australian Maritime Safety Authority, 2015), or mortality of individuals from oiling of feathers or the ingestion of hydrocarbons. A hydrocarbon spill may result in surface slicks disrupting a significant portion of the foraging habitat for seabirds, including foraging BIAs, which are generally associated with breeding habitats. Seabird distributions are typically concentrated around islands, so hydrocarbons near nesting/roosting areas may result in increased numbers of seabirds being impacted, with many species of seabirds, such as the wedge-tailed shearwater and the various species of tern, foraging relatively close to breeding islands/colonies. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to offshore seabirds and migratory shorebirds, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions. Potential impacts to coastal and offshore island associated birds are discussed in the Mainland and Islands (nearshore) impacts discussion below.
Submerged Shoals and Banks	***Marine Turtles*** There is the potential for marine turtles to be present at submerged shoals such as Rankin Bank, which has potential to be contacted by entrained hydrocarbons above the threshold concentration. Rankin Bank may, at times, be foraging habitat for marine turtles, given the coral and filter feeding biota associated with this area. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to foraging marine turtles, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions. Potential impacts to nesting and internesting marine turtles are discussed in the Mainland and Islands (nearshore) impacts discussion below.
	Sea Snakes There is the potential for sea snakes to be present at submerged shoals such as Rankin Bank. The potential impacts of exposure are as discussed previously in Offshore – Sea snakes. Sea snake species in Australia generally show strong habitat preferences (Heatwole and Cogger, 1993); species

	that have preferred habitats associated with submerged shoals may be disproportionately affected by a hydrocarbon spill affecting such habitat. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to offshore reef associated sea snakes, with consequence severity dependent on the duration and extent of a spill in relation to the distribution of sea snakes. Potential impacts to inshore sea snakes are discussed in the Mainland and Islands (nearshore) impacts discussion below.
	Sharks, Sawfish and Rays There is the potential for resident shark and ray populations to be impacted directly from hydrocarbon contact, or indirectly through contaminated prey or loss of habitat. Spill model results indicate Rankin Bank is predicted to be contacted by entrained hydrocarbons above threshold concentrations). Shark and ray species that have associations with submerged shoals may be more susceptible to a reduction in habitat quality resulting from a hydrocarbon spill. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to offshore reef associated shark, sawfish and ray species, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions. Potential impacts to inshore associated sharks, sawfish and rays are discussed in the Mainland and Islands (nearshore) impacts discussion below.
Mainland and Islands (Nearshore Waters)	***All Species*** The information provided on protected species in this section is in addition to that provided in the preceding Offshore and Submerged Banks and Shoals sections. Refer to these preceding sections for additional discussion of protected species.
	Cetaceans and Dugongs In addition to a number of whale species that may occur in nearshore waters (refer to **Section 4.6.3** for the full list of EPBC listed cetacean species identified by the PMST with potential to occur within the EMBA), coastal populations of small cetaceans and dugongs are known to reside or frequent nearshore waters, including the Ningaloo Coast, Muiron Islands, Montebello/Barrow/ Lowendal Islands Group, and Pilbara Island Groups (see **Table 6-17**) which may be potentially impacted by entrained hydrocarbons exceeding threshold concentrations in the event of a loss of well containment. The Exmouth Gulf is a known humpback whale aggregation area on the annual southern migration (September to December); therefore, humpbacks moving into the Gulf may be exposed to entrained hydrocarbons above thresholds levels. However, entrained hydrocarbons concentrations above the threshold are not expected within Exmouth Gulf itself. No hydrocarbon contact at or above ecological threshold concentrations is expected for Camden Sound, an important calving area for humpback whales. The potential impacts of exposure are as discussed previously in Offshore – Cetaceans. However, nearshore populations of cetaceans and dugongs are known to exhibit site fidelity and are often resident populations. Therefore, avoidance behaviour may have greater impacts to population functioning. Nearshore dolphin species (e.g. spotted bottlenose dolphins) may exhibit higher site fidelity than oceanic species, although Geraci (1988) observed relatively little impacts beyond behavioural disturbance. Additional potential environment impacts may also include the potential for dugongs to ingest hydrocarbons when feeding on oiled seagrass stands, or indirect impacts to dugongs due to loss of this food source due to dieback in worst-affected areas. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to inshore cetacean species and dugongs, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions.
	Marine Turtles Several marine turtle species use nearshore waters and shorelines for foraging and breeding (including internesting), with significant nesting beaches along the mainland coast and islands in potentially impacted locations such as the Dampier Archipelago, Montebello/Barrow/Lowendal Islands Group, Pilbara Islands and Ningaloo Reef. A number of BIAs have been identified for marine turtles, including nesting, internesting and foraging areas as discussed previously in Offshore – Marine Turtles. There are distinct breeding seasons, as detailed in **Section 4.6.5**. The nearshore waters of these turtle habitat areas may be exposed to entrained hydrocarbons exceeding the threshold concentration. Accumulated hydrocarbons above the threshold concentration of 100 g/m^2 were predicted to occur at several shoreline locations along the Ningaloo and Pilbara shorelines and coastal islands (**Table 6-17**). The potential impacts of exposure are as discussed previously in Offshore – Marine Turtles. In the nearshore environment, turtles can ingest hydrocarbons when feeding (e.g. on oiled seagrass stands/macroalgae) or can be indirectly affected by loss of food source (e.g. seagrass due to dieback

	from hydrocarbon exposure) (Gagnon and Rawson, 2010). In addition, hydrocarbon exposure can impact turtles during the breeding season in nearshore waters. A worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to foraging marine turtles, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions.
	Sea Snakes Impacts to sea snakes for the mainland and island nearshore waters from direct contact with hydrocarbons may occur and may include potential damage to the dermis and irritation to mucous membranes of the eyes, nose and throat (International Tanker Owners Pollution Federation, 2011a). Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to sea snakes, with consequence severity dependent on the duration and extent of a spill in relation to the distribution of sea snakes.
	Sharks, Sawfish and Rays Whale sharks and manta rays are known to frequent the Ningaloo Reef system and the Muiron Islands (forming feeding aggregations in late summer/autumn). Whale sharks and manta rays generally transit along the nearshore coastline and are vulnerable to surface, entrained and dissolved aromatic hydrocarbon spill impacts, with both taxa having similar modes of feeding. Whale sharks are versatile feeders, filtering large amounts of water over their gills, catching planktonic and nektonic organisms (Jarman and Wilson, 2004). Whale sharks at Ningaloo Reef have been observed using two different feeding strategies, including passive subsurface ram-feeding and active surface feeding (Taylor, 2007). Passive feeding involves swimming slowly at the surface with the mouth wide open. During active feeding, sharks swim high in the water with the upper part of the body above the surface with the mouth partially open (Taylor, 2007). Individuals that are present in worst affected spill areas would have the potential to ingest toxic amounts of entrained or dissolved aromatic hydrocarbons into their body. Large amounts of ingested hydrocarbons may affect endocrine and immune systems in the longer term. The presence of hydrocarbons may displace whale sharks from the area where they normally feed and rest, and potentially disrupt migration and aggregations to these areas in subsequent seasons. Whale sharks may also be affected indirectly by surface, entrained or dissolved aromatic hydrocarbons through the contamination of their prey. The preferred food of whale sharks are fish eggs and phytoplankton, which are abundant in the coastal waters of Ningaloo Reef in late summer/autumn, driving the annual arrival and aggregation of whale sharks in this area. If the spill event occurred during the spawning season, this important food supply (in worst spill-affected areas of the reef) may be diminished or contaminated. The contamination of their food supply and the subsequent ingestion of this prey by the whale shark may also result in long-term impacts as a result of bioaccumulation. There is the potential for other resident shark and ray (e.g., sawfish species identified in **Section 4.6.1**) populations to be impacted directly from hydrocarbon contact or indirectly through contaminated prey or loss of habitat. **Table 6-17** indicates the receptor locations predicted to be contacted by entrained hydrocarbons above the threshold concentration where impacts to the benthic communities of nearshore and subtidal communities could occur, potentially resulting in habitat loss. Therefore, the consequences to resident shark and ray populations (if present) from loss of habitat, may result in a disruption to a significant portion of the population; however, it is not expected to impact the overall viability of the population. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to inshore associated shark, sawfish and ray species, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions
	Seabirds and Migratory Shorebirds In the event of a major spill, there is the potential for seabirds, and resident, non-breeding overwintering shorebirds that use the nearshore waters for foraging and resting, to be exposed to entrained, dissolved, and accumulated hydrocarbons. This could result in lethal or sublethal effects. Although breeding oceanic seabird species can travel long distances to forage in offshore waters, most breeding seabirds tend to forage in waters near their breeding colony. This results in relatively higher seabird densities in these areas during the breeding season, making these areas particularly sensitive in the event of a spill. Pathways of biological exposure that can result in impact may occur through ingesting contaminated fish (nearshore waters) or invertebrates (intertidal foraging grounds such as beaches, mudflats and reefs). Ingestion can also lead to internal injury to sensitive membranes and organs (International

	Petroleum Industry Environmental Conservation Association, 2004). Whether the toxicity of ingested hydrocarbons is lethal or sublethal will depend on the weathering stage and its inherent toxicity. Exposure to hydrocarbons may have longer-term effects, with impacts to population numbers due to decline in reproductive performance and malformed eggs and chicks affecting survivorship, and loss of adult birds. Important areas for foraging seabirds and migratory shorebirds are identified in **Section 4.6.4**. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to nearshore associated seabirds and migratory shorebirds, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements, breeding seasons and distributions

Summary of Potential Impacts to Other Species	
Setting	***Receptor Group***
All Settings	***Pelagic Fish Populations*** Fish mortalities are rarely observed to occur as a result of hydrocarbon spills (International Tanker Owners Pollution Federation, 2011b). This has generally been attributed to the possibility that pelagic fish are able to detect and avoid surface waters underneath hydrocarbon spills by swimming into deeper water or away from the affected areas. Fish that have been exposed to dissolved aromatic hydrocarbons are capable of eliminating the toxicants once placed in clean water, so individuals exposed to a spill are likely to recover (King et al., 1996). Where fish mortalities have been recorded, the spills (resulting from the groundings of the tankers Amoco Cadiz in 1978 and the Florida in 1969) have occurred in sheltered bays. Laboratory studies have shown that adult fish are able to detect hydrocarbons in water at very low concentrations, and large numbers of dead fish have rarely been reported after hydrocarbon spills (Hjermann et al., 2007). This suggests that juvenile and adult fish are capable of avoiding water contaminated with high concentrations of hydrocarbons. However, sublethal impacts to adult and juvenile fish may be possible, given long-term exposure (days to weeks) to polycyclic aromatic hydrocarbon (PAH) concentrations (Hjermann et al., 2007), which are typically the most toxic components of hydrocarbons. Light molecular weight aromatic hydrocarbons (i.e., one- and two-ring molecules) are generally soluble in water, which increases bioavailability to gill-breathing organisms such as fish. The effects of exposure to oil on the metabolism of fish appears to vary according to the organs involved, exposure concentrations and route of exposure (waterborne or food intake). Oil reduces the aerobic capacity of fish exposed to aromatics in the water and, to a lesser extent, affects fish consuming contaminated food (Cohen et al., 2005). The liver, a major detoxification organ, appears to be the organ where anaerobic activity is most impacted, probably increasing anaerobic activity to help eliminate ingested oil from the fish (Cohen et al., 2005). Fish are perhaps most susceptible to the effects of spilled oil in their early life stages, particularly during egg and planktonic larval stages, which can become entrained in spilled oil. Contact with oil droplets can damage feeding and breathing apparatus of embryos and larvae (Fodrie and Heck, 2011). The toxic hydrocarbons in water can result in genetic damage, physical deformities and altered developmental timing for larvae and eggs exposed to even low concentrations over prolonged timeframes (days to weeks) (Fodrie and Heck, 2011). More subtle, chronic effects on the life history of fish as a result of exposure in early life stages to hydrocarbons include disruption to complex behaviours such as predator avoidance, reproductive and social behaviour (Hjermann et al., 2007). Prolonged exposure of eggs and larvae to weathered concentrations of hydrocarbons in water has also been shown to cause immunosuppression and allows expression of viral diseases (Hjermann et al., 2007). PAHs have also been linked to increased mortality and stunted growth rates of early life history (pre-settlement) of reef fishes, as well as behavioural impacts that may increase predation of post-settlement larvae (Johansen et al., 2017). However, the effect of a hydrocarbon spill on a population of fish in an area with fish larvae and/or eggs, and the extent to which any of the adverse impacts may occur, depends greatly on prevailing oceanographic and ecological conditions at the time of the spill and its contact with fish eggs or larvae. Demersal species are associated with the Ancient Coastline KEF, which overlaps the Operational Area. Additional KEFs that may host relatively diverse or abundant fish assemblages compared to relatively featureless continental shelf habitats occur within the wider EMBA (Department of Sustainability, Environment, Water, Population and Communities, 2012a): • Continental Slope Demersal Fish Communities KEF (overlaps the Operational Area), which has a highly diverse fish assemblage with a high degree of endemism

	• Ancient coastline at 125 m depth contour (1 km south-east), which may provide hard substrate and associated biodiversity • Exmouth Plateau KEF (81 km west), which is an important area of biodiversity • Glomar Shoals (143 km east), which may host relatively diverse demersal fish assemblages targeted by fishers • Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF (168 km south-west), which has been shown to host demersal fish (BMT Oceanica, 2016) • Commonwealth Waters adjacent to Ningaloo Reef KEF (210 km south-west), which has high biological productivity and hosts a yearly aggregation of whale shark. Mortality and sublethal effects may impact populations located close to a well blowout and within the EMBA for entrained/dissolved aromatic hydrocarbons. Additionally, if prey (infauna and epifauna) surrounding the well location and within the EMBA is contaminated, this can result in the absorption of toxic components of the hydrocarbons (PAHs), potentially impacting fish populations that feed on these. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to pelagic fish species, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to species' migratory movements and distributions.

Summary of Potential Impacts to Marine Primary Producers	
Setting	***Receptor Group***
Submerged Shoals	The waters overlying the Glomar Shoals and Rankin Bank fall within the EMBA and have the potential to be reached by surface hydrocarbons at 2 g/m2 and 9 g/m2, respectively. These values sit within the socio-cultural EMBA thresholds for surface hydrocarbons (1 – 10 g/m^2), and below the ecological thresholds (>10 g/m^2). Therefore other marine users visiting these area could experience a visual sheen but there is not expected to be any ecological impacts.
Mainland and Islands (nearshore waters)	***Coral Reef*** The quantitative spill risk assessment indicates there would be potential for coral reef habitat to be exposed to entrained hydrocarbons at locations including the Montebello Islands, Barrow Island, Lowendal Islands, discrete locations within the Pilbara Island Groups, Muiron Islands and Ningaloo Coast (**Table 6-17**). Exposure to entrained hydrocarbons (≥ 100 ppb) has the potential to result in lethal or sublethal toxic effects to corals and other sensitive sessile benthos within the upper water column (top 20 m), including upper reef slopes (subtidal corals), reef flat (intertidal corals) and lagoonal (back reef) coral communities. Mortality in a number of coral species is possible, and this could result in the reduction of coral cover and change in the composition of coral communities. Sublethal effects to corals may include polyp retraction, changes in feeding, bleaching (loss of zooxanthellae), increased mucous production resulting in reduced growth rates, and impaired reproduction (Negri and Heyward, 2000). This could result in impacts to the shallow water fringing coral communities/reefs of the offshore islands (e.g., Barrow/Montebello/Lowendal Islands, Pilbara Southern Island Groups) and the mainland coast (i.e., Ningaloo Coast). With reference to Ningaloo Reef, wave-induced water circulation flushes the lagoon and may promote removal of entrained hydrocarbons from this particular reef habitat. Under typical conditions, breaking waves on the reef crest induce a rise in water level in the lagoon, creating a pressure gradient that drives water in a strong outward flow through channels. These channels are across as much as 15% of the length of Ningaloo Reef (Taylor and Pearce, 1999). If a spill occurs at the time of coral spawning at potentially affected coral locations, or in the general peak period of biological productivity, there is the potential for a significant reduction in successful fertilisation and coral larval survival, due to the sensitivity of coral early life stages to hydrocarbons (Negri and Heyward, 2000). Such impacts are likely to result in the failure of recruitment and settlement of new population cohorts. In addition, some non-coral species may be affected via direct contact with entrained hydrocarbons, resulting in sublethal impacts and in some cases mortality - particularly early life-stages of coral reef animals (reef-attached fishes and reef invertebrates), which can be relatively sensitive to hydrocarbon exposure. Coral reef fish are site-attached, have small home ranges, and as reef residents they are at higher risk from hydrocarbon exposure than non-resident, more wide-ranging fish species. The exact impact on resident coral communities (which may include fringing reefs of the offshore islands and/or the Ningaloo Reef system) will depend on actual hydrocarbon concentration, duration of exposure and water depth of the affected communities. Over the worst-affected sections of reef habitat, coral community live cover, structure and composition may reduce, manifested by loss of corals and associated sessile biota. Recovery of these impacted reef areas typically relies on coral larvae from neighbouring coral communities that have either not

	been affected or only partially impacted. For example, there is evidence that Ningaloo Reef corals and fish are partly self-seeding, with the supply of larvae from locations within Ningaloo Reef of critical importance to the healthy maintenance of the coral communities (Underwood, 2009). Recovery at other coral reef areas may not be aided by a large supply of larvae from other reefs, with levels of recruits after a disturbance event only returning to previous levels after the numbers of reproductive corals had also recovered (Gilmour et al., 2013). Therefore, a worst-case hydrocarbon spill scenario has the potential to result in large scale impacts to coral populations within the EMBA, with long-term effects (recovery > 10 years) likely. The consequence severity is predicted to be greatest at reefs closest to the potential release location (e.g., Montebello Islands).
	Seagrass Beds/Magroalgae Spill modelling has predicted that entrained hydrocarbons above threshold concentrations have the potential to contact nearshore locations that support biologically diverse, shallow subtidal and intertidal communities. The variety of habitat and community types, from the upper subtidal to the intertidal zones support a high diversity of marine life and are used as important foraging and nursery grounds by a range of invertebrate and vertebrate species. Depending on the trajectory of the entrained plume, macroalgal/seagrass communities including the Montebello and Muiron Islands, have the potential to be exposed (see **Table 6-17** for a full list of receptors within the EMBA). Exposure to entrained hydrocarbons may result in mortality, depending on actual entrained exposure concentrations received and duration of exposure. Physical contact with entrained hydrocarbon droplets could cause sublethal stress, causing reduced growth rates and reduced tolerance to other stress factors (Zieman et al., 1984). Toxicity effects can also occur due to absorption of soluble fractions of hydrocarbons into tissues (Runcie et al., 2010). However, the potential for toxicity effects of entrained hydrocarbons may be reduced by weathering processes that should lower the content of soluble aromatic components before contact occurs. Mangrove habitat at Montebello Marine Park and Muiron Islands may be contacted by entrained hydrocarbons within the EMBA (see **Table 6-17**). Entrained hydrocarbons may adhere to the sediment particles and in low-energy environments such as in mangroves, deposited sediment-bound hydrocarbons are unlikely to be removed naturally by wave action and may be deposited in layers by successive tides (National Oceanic and Atmospheric Administration, 2014). Hydrocarbons may persist in the sediment, potentially causing chronic sublethal toxicity impacts beyond immediate physical and acute effects, which may delay recovery in an affected area. Recovery of mangroves from any impacts could be long-term (> 10 years). Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to seagrass beds and macroalgae communities within the EMBA, with consequence severity predicted to be greatest at receptors closest to the potential release location (e.g., Montebello Islands).

Summary of Potential Impacts to Other Habitats and Communities	
Setting	***Receptor Group***
Offshore	***Benthic Fauna Communities*** In the event of a major release at the seabed, the stochastic spill model predicted hydrocarbons droplets would be entrained, rapidly transporting them to the sea surface. As a result, the low sensitivity benthic communities associated with the unconsolidated, soft sediment habitat and any epifauna (filter feeders) associated with KEFs within the wider EMBA are not expected to have widespread exposure to released hydrocarbons. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to seabed and associated epifauna and infauna within the EMBA, with impacts predicted to be greatest for habitats closest to the potential release location.
	Open Water – Productivity/Upwelling Primary production by plankton (triggered by sporadic upwelling events in the offshore waters) is an important component of the primary marine food web. Planktonic communities are generally mixed, including phytoplankton (cyanobacteria and other microalgae), secondary consuming zooplankton (e.g., copepods), and the eggs and larvae of fish and invertebrates (meroplankton). Exposure to hydrocarbons in the water column can result in changes in species composition, with declines or increases in one or more species or taxonomic groups (Batten et al., 1998). Phytoplankton may also experience decreased rates of photosynthesis (Tomajka, 1985). For zooplankton, direct effects of contamination may include suffocation, changes in behaviour, or environmental changes that make them more susceptible to predation. Impacts on plankton communities are likely to occur in areas

	where surface, entrained or dissolved aromatic hydrocarbon threshold concentrations are exceeded, but communities are expected to recover relatively quickly (within weeks or months). This is due to high population turnover, with copious production within short generation times that also buffers the potential for long-term (i.e. years) population declines (International Tanker Owners Pollution Federation, 2011a). Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to plankton populations within the EMBA, with impacts predicted to be greatest for habitats closest to the potential release location.
	Filter Feeders Entrained hydrocarbons above the 100 ppb ecological thresholds will be limited to the top 20 m of the water column beyond the immediate source. Entrained hydrocarbons are therefore not expected to impact filter feeder habitats in deep offshore waters including filter feed communities associated with the Continental Slope Demersal Fish Communities KEF, Canyons KEF, Exmouth Plateau KEF and Commonwealth Waters adjacent to Ningaloo Reef KEF. Refer to 'mainland and islands (nearshore waters) for a description of potential impacts to filter feeders in shallower waters.
Mainland and Islands (Nearshore Waters)	***Open Water – Productivity/Upwelling*** Nearshore waters and adjacent offshore waters surrounding the offshore islands (e.g., Montebello/ Barrow/Lowendal Islands Group) and to the west of the Ningaloo Reef system are known locations of seasonal upwelling events and productivity. The seasonal productivity events are critical to krill production, which supports megafauna aggregations such as whale sharks and manta rays in the region. This has the potential to result in lethal and sublethal impacts to a certain portion of plankton in affected areas, depending on concentration and duration of exposure and the inherent toxicity of the hydrocarbon. However, recovery would occur (see Offshore description above). Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to plankton populations within the EMBA.
	Spawning/Nursery Areas Fish (and other commercially targeted taxa) in their early life stages (eggs, larvae and juveniles) are at their most vulnerable to lethal and sublethal impacts from exposure to hydrocarbons, particularly if a spill coincides with spawning seasons or reaches nursery areas close to the shore (e.g. seagrass and mangroves) (International Tanker Owners Pollution Federation, 2011b, 2011a). Fish spawning (including for commercially targeted species such as snapper and mackerel) occurs in nearshore waters at certain times of the year, and nearshore waters are also inhabited by higher numbers of juvenile fishes than offshore waters. Modelling indicated that, in the event of a major spill, there is potential for entrained hydrocarbons to occur in the surface water layers above threshold concentrations in nearshore waters, including the Montebello and Muiron Islands. This has the potential to result in lethal and sublethal impacts to a portion of fish larvae in areas contaminated above impact thresholds, depending on concentration and duration of exposure and the inherent toxicity of the hydrocarbon. Although there is the potential for spawning/nursery habitat to be impacted (e.g., mangroves and seagrass beds, discussed above), losses of fish larvae in worst-affected areas are unlikely to be of major consequence to fish stocks compared with significantly larger losses through natural predation, and the likelihood that most nearshore areas would be exposed is low (i.e., not all areas in the region would be affected). This is supported by a study in the Gulf of Mexico, which used juvenile abundance data from shallow-water seagrass meadows as indices of the acute, population-level responses of young fishes to the Deepwater Horizon spill. Results indicated that there was no change to the juvenile cohorts following the Deepwater Horizon spill. Additionally, there were no significant post-spill shifts in community composition and structure, nor were there changes in biodiversity measures (Fodrie and Heck, 2011). Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to spawning fish and/or nursery areas within the EMBA, with consequence severity dependent on the actual timing, duration and extent of a spill in relation to key spawning periods and locations.
	Non-biogenic Reefs The reef communities fringing the Pilbara region (e.g., Pilbara islands) may be exposed to entrained hydrocarbons (at or above the threshold concentration), and consequently exhibit lethal or sublethal impacts resulting in partial or total mortality of keystone sessile benthos, particularly hard corals; thus, potential community structural changes to these shallow, nearshore benthic communities may occur. If these reefs are exposed to entrained hydrocarbons, impacts are expected to result in localised long-term effects. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to non-biogenic reefs within the EMBA.

	Filter Feeders Hydrocarbon exposure to shallow nearshore filter feeding communities (<20 m) may occur. Exposure to entrained aromatic hydrocarbons has the potential to result in lethal or sublethal toxic effects. Sublethal impacts, including mucus production and polyp retraction, have been recorded for gorgonians exposed to hydrocarbon (White et al., 2012). Any impacts may result in localised long-term effects to community structure and habitat. Nearshore filter feeders that are present in shallower water <20 m may potentially be impacted by entrained hydrocarbon through lethal/sublethal effects, although given the distance from source hydrocarbons are expected to be less toxic due to the weathering process. Such impacts may result in localised, long-term effects to community structure and habitat. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to filter feeders within the EMBA.
Key Ecological Features	***Key Ecological Features*** KEFs potentially impacted by the hydrocarbon spill from a loss of well containment event are detailed in **Section 4.6.6**. Although these KEFs are primarily defined by seabed geomorphological features, they can indicate a potential for increased biological productivity and, therefore, ecological significance. The consequences of a hydrocarbon spill from a loss of well containment event are predicted to result in minor impacts to values of the KEFs affected (for the values of each KEF, see **Section 4.6.6**). Impacts to benthic habitats are not predicted given the maximum depth of entrained hydrocarbons above 100 ppb is predicted to be 20 m beyond the immediate source. Potential impacts to associated pelagic communities may occur as described above and below. The KEFs within the EMBA have relatively broad-scale distributions and are unlikely to be significantly impacted. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to the ecological values of KEFs within the EMBA, with impacts predicted to be greatest for habitats closest to the potential release location.

Summary of Potential Impacts to Water Quality	
Setting	***Aspect***
All Settings	***Open Water – 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.

Summary of Potential Impacts to Marine Sediment Quality	
Setting	***Receptor Group***
Offshore	***Marine Sediment Quality*** Studies of hydrocarbon concentrations in deep-sea sediments in the vicinity of a catastrophic well blowout indicated hydrocarbon from the blowouts can be incorporated into sediments (Romero et al., 2015). 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. 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.

Mainland and Islands (Nearshore waters)	***Marine Sediment Quality*** Entrained hydrocarbons (at or above the defined threshold) are predicted to potentially contact shallow, nearshore waters of identified islands and mainland coastlines. Such hydrocarbon contact may lead to reduced marine sediment quality through adherence to sediment. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to sediment quality within the EMBA, with impacts predicted to be greatest for areas closest to the potential release location.

Summary of Potential Impacts to Air Quality
A hydrocarbon release during a loss of well containment has the potential to result in short-term reduction in air quality. There is potential for human health effects on workers in the immediate vicinity of atmospheric emissions. The ambient concentrations of VOCs released from diffuse sources is difficult to accurately quantify, although their behaviour and fate is predictable in open offshore environments, as VOC emissions disperse rapidly by meteorological factors such as wind and temperature. VOC emissions from a hydrocarbon release in such environments are rapidly degraded in the atmosphere by reaction with photochemically produced hydroxyl radicals. Given the remote likelihood of occurrence of a loss of well containment, the temporary nature of any VOC emissions (from either gas surfacing or weathering of liquid hydrocarbons from a loss of well containment), the predicted behaviour and fate of VOCs in open offshore environments, and the significant distance from the Operational Area to the nearest sensitive airshed, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to air quality within the EMBA, with impacts predicted to be greatest for areas closest to the potential release location.

Summary of Potential Impacts to Protected Areas
The quantitative spill risk assessment results indicate that the open-water environment protected within a number of Commonwealth AMPs (refer to **Table 6-17**) may be affected by released hydrocarbons in the event of a loss of well containment. Entrained hydrocarbons may contact the identified key receptor locations of islands and mainland coastlines and shoreline accumulation may occur above the sociocultural threshold (but below the ecological threshold) at limited locations, resulting in the actual or perceived contamination of protected areas as identified for the EMBA. Impact on the protected areas is discussed in the sections above for ecological values and sensitivities, and below for socioeconomic values. Additionally, such hydrocarbon contact may alter stakeholder understanding and/or perception of the protected marine environment, given these represent areas are largely unaffected by anthropogenic influences and contain biologically diverse environments.

Summary of Potential Impacts to Socio-economic Values	
Setting	***Receptor Group***
Offshore	***Fisheries – Commercial*** A hydrocarbon release during a loss of well containment event has the potential to result in direct impacts to target species of Commonwealth and State fisheries within the defined EMBA (refer **Section 4.8.2**). Lethal and sublethal effects may impact localised populations of targeted species within the EMBA for entrained/dissolved hydrocarbons. However, entrained hydrocarbons are likely to be confined in the upper water column; therefore, demersal species are less likely to be exposed to hydrocarbons than pelagic species. A major loss of hydrocarbons from the Petroleum Activities Program may also lead to an exclusion of fishing from the spill-affected area for an extended period. Fish exposure to hydrocarbon can result in 'tainting' of their tissues. Even very low levels of hydrocarbons can impart a taint or 'off' flavour or smell in seafood. Tainting is reversible through the process of depuration, which removes hydrocarbons from tissues by metabolic processes, although its efficacy depends on the magnitude of the hydrocarbon contamination. Fish have a high capacity to metabolise these hydrocarbons, while crustaceans (such as prawns) have a reduced ability (Yender et al., 2002). Seafood safety is a major concern associated with spill incidents. Therefore, actual or potential seafood contamination can affect commercial and recreational fishing and can impact seafood markets long after any actual risk to seafood from a spill has subsided (Yender et al., 2002). A major spill would result in the establishment of an exclusion zone around the spill-affected area. There would be a temporary prohibition on fishing activities for a period of time, and subsequent potential for minor economic impacts to affected commercial fishing operators. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major, long-term impacts to commercial fisheries within the EMBA, particularly for pelagic fisheries and fisheries with

	most of their effort focused within the EMBA (e.g., Pilbara Demersal Scalefish Managed Fishery and Mackerel Managed Fishery). Potential impacts to inshore fisheries are discussed in the Mainland and Islands (nearshore) impacts discussion below, and the impact assessment relating to spawning is discussed above.
	Tourism including Recreational Activities Recreational fishers predominantly target large tropical species, such as emperor, snapper, grouper, mackerel, trevally and other game fish. Recreational angling activities include shore-based fishing, private boat and charter boat fishing, with peak activity between April and October (Smallwood et al., 2011) for the Exmouth region. Limited recreational fishing takes place in the offshore waters of the Operational Area. Impacts on species that are recreationally fished are described above under Summary of Potential Impacts to Other Species. A major loss of hydrocarbons from the Petroleum Activities Program may lead to exclusion of marine nature-based tourist activities, resulting in a loss of revenue for operators. Tourism is a major industry for the region and visitor numbers would likely reduce if a hydrocarbon spill were to occur, based on the perception of hydrocarbon spills and associated impacts. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in moderate, medium-term impacts to tourism and recreation within the EMBA.
	Offshore Oil and Gas Infrastructure A hydrocarbon release during a loss of well containment event has the potential to result in disruptions to production at existing petroleum facilities (platforms and FPSOs), as well as activities such as drilling and seismic exploration. For example, facility water intakes for cooling and fire hydrants could be shut off if contacted by floating hydrocarbons, which could in turn lead to the temporary cessation of production activities. Spill exclusion zones established to manage the spill could also prohibit access for activity support vessels as well as offtake tankers approaching facilities off the North West Cape. The impact on ongoing operations of regional production facilities would be determined by the nature and scale of the spill and metocean conditions. Furthermore, decisions on the operation of production facilities in the event of a spill would be based primarily on health and safety considerations. The closest production facilities are: • Pluto platform (operated by Woodside): 12 km from the Operational Area • Wheatstone platform (operated by Chevron): 14 km from the Operational Area • John Brookes (operated by Santos): 50 km from the Operational Area. Operation of these facilities is likely to be affected in the event of a well blowout spill. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in slight, short-term impacts to oil and gas industry within the EMBA.
Submerged Shoals	***Tourism and Recreation*** A hydrocarbon release during a loss of well containment event has the potential to result in a temporary prohibition on charter boat recreational fishing/diving and any other marine nature-based tourism trips to Rankin Bank. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to tourism and recreational activities within the EMBA.
Mainland and Islands (Nearshore Waters)	***Fisheries – Commercial*** *Nearshore Fisheries* In the event of a loss of well containment, there is the possibility that target species in some areas used by a number of state fisheries could be affected (refer to **Section 4.8.2** for fisheries within the wider EMBA). Targeted fish, prawn, mollusc and lobster species could experience sublethal stress, or in some instances mortality, depending on the concentration and duration of hydrocarbon exposure and its inherent toxicity. *Prawn Managed Fisheries* In the event of a major spill, the modelling indicated the entrained and dissolved EMBA may extend to nearshore waters, including the actively fished areas of the designated Onslow prawn fishery. Prawn habitat usage differs between species in the post-larval, juvenile and adult stages (Dall et al., 1990) and direct impacts to benthic habitat due to a major spill have the potential to impact prawn stocks. For example, juvenile banana prawns are found almost exclusively in mangrove-lined creeks (Rönnbäck et al., 2002), whereas juvenile tiger prawns are most abundant in areas of seagrass (Masel and Smallwood, 2000). Adult prawns also inhabit coastline areas but tend to move to deeper waters to spawn. In the event of a major spill, a range of subtidal habitats that support juvenile prawns may be exposed to hydrocarbons above impact thresholds, including: • Montebello Islands

	• Muiron Islands Localised loss of juvenile prawns in the worst spill-affected areas is possible. Whether lethal or sublethal effects occur will depend on duration of exposure, hydrocarbon concentration and weathering stage of the hydrocarbon, and its inherent toxicity. Furthermore, seafood consumption safety concerns and a temporary prohibition on fishing activities may lead to subsequent potential for economic impacts to affected commercial fishing operators. Therefore, a worst-case hydrocarbon spill scenario has the potential to result in major, long-term impacts to commercial fisheries within the EMBA.
	Tourism and Recreation In the event of a major spill, the nearshore waters of offshore islands and reefs as well as the Ningaloo coast could be reached by entrained and dissolved hydrocarbons depending on prevailing wind and current conditions. There is also a low probability of shoreline accumulation above the socio-cultural threshold (but not the ecological threshold) at limited locations. As these locations offer a number of amenities such as fishing, swimming and using beaches and surrounds, they have a recreational value for local residents and visitors. If a well blowout event resulted in hydrocarbon contact, there could be restricted access to beaches for a period of days to weeks, until natural weathering, tides, currents or oil spill response (e.g., shoreline clean-up if safe to do so) removes the hydrocarbons. In the event of a well blowout, tourists and recreational users may also avoid areas due to perceived impacts, including after the oil spill has dispersed. There is the potential for stakeholder perception that this environment will be contaminated over a large area and for the longer term, resulting in a prolonged period of tourism decline. Oxford Economics (2010) assessed the duration of hydrocarbon spill-related tourism impacts and found that, on average, it took 12 to 28 months to return to baseline visitor spending. There is likely to be significant impacts to the tourism industry, wider service industry (hotels, restaurants and their supply chain) and local communities in terms of economic loss as a result of spill impacts to tourism. Recovery and return of tourism to pre-spill levels will depend on the size of the spill, effectiveness of the spill clean-up, and change in any public perceptions regarding the spill (Oxford Economics, 2010). Therefore, a worst-case hydrocarbon spill scenario has the potential to result in moderate, medium-term impacts to tourism and recreational activities within the EMBA.
	Cultural Heritage It is acknowledged that the Dampier Archipelago (and other areas of the WA coastline) contain Indigenous sites of cultural importance (as described in **Section 4.8.1**). There is a low probability of surface contact at the socio-cultural threshold with WA coastlines. It is determined that a spill is unlikely to result in significant impacts based on the nature of the spilled hydrocarbons. The marine ecosystem holds both cultural and environmental value (See **Section 4.8.1**), with these types of values (cultural and environmental) intrinsically linked any cultural values linked to environment receptors, have been assessed above. A number of Underwater Cultural Heritage sites (including historic shipwrecks) have been identified in the vicinity of the Operational Area. The spill modelling results do not predict surface slicks will contact any identified wrecks. However, shipwrecks occurring in the subtidal zone will be exposed to entrained/dissolved hydrocarbons, and marine life that shelter and take refuge in and around these wrecks may be affected by in-water toxicity of dispersed hydrocarbons. The consequences of such hydrocarbon exposure may include large fish species moving away, and/or resident fish species and sessile benthos such as hard corals exhibiting sublethal and lethal impacts (which may range from physiological issues to mortality). Entrained hydrocarbons above the threshold concentration are predicted at the Muiron Islands and Montebello Marine Park. There is also a low probability of shoreline accumulation above the ecological and socio-cultural threshold along islands and the mainland coastline. However, artefacts, scatter and rock shelters are on land above the high-water mark on Muiron and Montebello islands; therefore, no contact is predicted for these areas. Within the wider EMBA are several designated heritage places (**Section 4.8.1**). These places are also covered by other designations such as World Heritage Area. Potential impacts are discussed in the sections above.

Summary of Potential Impacts to Environmental Value(s)

In the highly unlikely event of a major hydrocarbon spill due to a loss of well integrity, the EMBA includes the areas listed in **Table 6-17**, including the sensitive offshore marine environments and associated receptors of the Montebello AMP, Gascoyne AMP, Ningaloo AMP and Rankin Bank. In summary, long-term impacts may occur at sensitive nearshore and shoreline habitats, particularly areas of the Barrow and Montebello Islands, as a result of a major spill of hydrocarbon from permanent plugging activities within the Operational Area.

The overall environmental consequence is defined as 'B – Major, long-term impact (ten to 50 years) on highly valued ecosystem, species, habitat, physical or biological attributes'.

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)*** [26]	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Legislation, Codes and Standards				
OPGGS (Resource Management and Administration) Regulations 2011: accepted WOMP which describes the well integrity outcomes, control measures and performance criteria used to demonstrate how the risk of loss of well integrity is managed to ALARP including the well design and barriers to be used to prevent a loss of well integrity, which aligns with industry guidance and good practice.	F: Yes. CS: Minimal cost. Standard practice.	Compliance with an accepted WOMP will ensure a number of barriers are in place and verified, reducing the likelihood of loss of well integrity event occurring. Although the consequence of a blowout would not be reduced, the reduction in likelihood reduces the overall risk.	Benefits outweigh cost/sacrifice.	Yes **C 10.1**
In the event of requirement to abandon well, implement requirements for permanent well abandonment: • well barrier as per the internal Woodside Standard and Procedure • placement, length, material and verification of a permanent barrier.	F: Yes. CS: Minimal cost. Standard practice.	This procedure will reduce the likelihood of a spill occurring from a suspended well. Although changes in consequence would occur, the reduction in likelihood results in a reduction in overall risk.	Benefits outweigh cost/sacrifice.	Yes **C 12.1**
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.	F: Yes. CS: Minimal cost. Standard practice.	The SCERP will describe the responses to a loss of well control including ROV intervention on BOP, use of capping stack to contain well, and the relief well. All of these responses are aimed at reducing the duration of the gas release, resulting in a reduction in consequence and overall risk.	Benefits outweigh cost/sacrifice.	Yes **C 12.2**
In the event of a spill, emergency response activities implemented in accordance with the OPEP (per **Table 7-5**)	F: Yes, CS: Costs associated with implementing response strategies,vary dependant on nature and scale of spill event. Standard practice.	This control would not reduce the likelihood, but response activities may reduce the consequence.	Benefits outweigh cost/ sacrifice.	Yes **C 12.3**

[26] *Qualitative measure.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)*** [26]	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Arrangements supporting the activities in the OPEP (per **Table 7-5**) will be tested to ensure the OPEP can be implemented as planned.	F: Yes. CS: Moderate costs associated with exercises. Standard practice.	Testing the OPEP activities would not reduce the likelihood, but response activities may reduce the consequence.	Benefits outweigh cost/ sacrifice.	Yes **C 12.4**
As-built checks that shall be completed during well operations to establish a minimum acceptable standard of well integrity.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of occurrence. No reduction in consequence will occur.	Benefits outweigh cost/sacrifice.	**Yes** **C X.X**
Good Practice				
Subsea BOP installed and function tested during drilling operations. The BOP shall include: • one annular preventer • two pipe rams (excluding the test rams) • a minimum of two sets of shear rams, one of which must be capable of sealing • deadman functionality • the capability of ROV intervention • independent power systems.	F: Yes. CS: Standard practice. Required by Woodside standards.	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.	Benefits outweigh cost/sacrifice.	Yes **C 10.3**
Professional Judgement – Eliminate				
Do not drill well.	F: No. CS: Inability to produce hydrocarbons. Loss of the project.	All risk would be eliminated.	Disproportionate. Given the extremely low likelihood of a loss of well integrity due to the systematic implementation of Woodside's policies, standards, procedures and processes relating to drilling activities, the cost/sacrifice outweighs the benefit gained.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
Risk Based Analysis				
A quantitative spill risk assessment was undertaken (refer **Section 6.7.1**).				

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)*** [26]	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***

Company Values

Corporate values require all personnel at Woodside to comply with appropriate policies, standards, procedures and processes while being accountable for their actions and holding others to account in line with the Woodside Compass. As detailed above, the Petroleum Activities Program will be undertaken in line with these policies, standards and procedures that include suitable controls to prevent loss of well control, and response should a loss of well control occur.

This EP has been internally reviewed and approved in line with the Woodside Manual of Authorities.

Societal Values

Due to the Petroleum Activities Program's potential extent of the wider EMBA, the loss of well control current risk rating presents a Decision Type C, in accordance with the decision support framework.

Extensive consultation was undertaken for this program to identify the views and concerns of relevant persons and/ or organisations, as described in **Section 5**. This consultation conducted has been reviewed. Woodside sent an Activity Factsheet to all identified relevant persons and/ or organisations regarding the Petroleum Activities Program (**Section 5** and **Appendix G**). Woodside has consulted with AMSA and WA DoT on spill response strategies. In accordance with the Memorandum of Understanding between Woodside and AMSA, a copy of the Oil Pollution First Strike Plan was provided to AMSA and WA DoT.

ALARP Statement

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type C), Woodside considers the adopted controls appropriate to manage the risks and consequences of a highly unlikely unplanned hydrocarbon release as a result of a loss of well integrity. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

While unlikely, loss of containment has been evaluated as having a high level of current risk rating due to potential environmental consequence. Woodside considers high current risk ratings as acceptable if ALARP is demonstrated using good industry practice, consideration of company and societal values and risk-based analysis, if legislative requirements are met and societal concerns are accounted for, and the alternative control measures are grossly disproportionate to the benefit gained.

Acceptability is demonstrated with regard to the following considerations:

Principles of Ecological Sustainable Development

Woodside is a proud Australian company that is here for the long term. Woodside has a strong history of exploration and development of oil and gas reserves in the North West of Western Australia with an excellent environmental record, while providing revenue to State and Commonwealth Governments, returns to shareholders, jobs and support to local communities. Titles for oil and gas exploration are released based on commitments to explore with the aim of uncovering and developing resources. It is under the lease agreement that Woodside has determined the potential to explore the hydrocarbon fields for which acceptance of this EP is sought under the Environment Regulations.

Woodside has established a number of research projects in order to understand the marine environments in which they operate, notably in the Exmouth Region, Dampier Archipelago and the Kimberley Region, including Rankin Bank and Scott Reef. Where scientific data does not exist, Woodside assumes that a pristine natural environment exists and therefore implements all practicable steps to prevent damage. Woodside's corporate values (**Appendix A**) require that we consider the environment and communities in which we operate when making decisions.

Woodside looks after the communities and environments in which it operates. Risks are inherent in petroleum activities; however, through sound management, systematic application of policies, standards, procedures and processes, Woodside considers that despite this risk, the extremely low likelihood of loss of well control is acceptable.

Internal Context

The Petroleum Activities Program is consistent with Woodside corporate policies, standards, procedures, processes and training requirements as outlined in the Demonstration of ALARP and Environmental Performance Outcomes, including:

- Health, Safety, Environment and Quality Policy (**Appendix A**)

- Risk Management Policy (**Appendix A**)
- Engineering Standards – Well Barriers
- Well Acceptance Criteria Procedure
- Drilling and Completions – Well Control Manual
- Woodside Engineering Standard – Rig Equipment.

Oil spill preparedness and response strategies are considered applicable to the nature and scale of the risk and associated impacts of the response are reduced to ALARP (**Appendix D**).

Woodside corporate values include working sustainably, with respect to the environment and communities in which we operate, listening to internal and external stakeholders and considering HSE when making decisions. Consultation, outlined below, has been undertaken prior to the Petroleum Activities Program.

External Context – Societal Values (includes environmental consequence and stakeholder expectations)

Woodside recognises that its licence to operate from a regulator and societal perspective is based on historical performance, complying with appropriate policies, standards and procedures, and understanding the expectations of external stakeholders. External consultation, outlined below, has been undertaken prior to the Petroleum Activities Program:

- Woodside has consulted with AMSA and WA DoT on spill response strategies. In accordance with the Memorandum of Understanding between Woodside and AMSA, a copy of the Oil Pollution First Strike Plan was provided to AMSA and WA DoT.
- Other relevantpersons and/ or organisations have been consulted (**Section 5**) and their feedback incorporated into this EP where appropriate.
- The impact assessment has determined that there is unlikely to be a major long-term environmental impact on the offshore environment or sensitive nearshore and shoreline habitats from a loss of well integrity.
- By providing additional measures to prevent loss of well containment, in addition to oil spill response measures that are commensurate with the current risk rating, location and sensitivity of the receiving environment (including social and aesthetic values), Woodside believes this addresses societal concerns to an acceptable level.

Other Requirements (includes laws, policies, standards and conventions)

The Petroleum Activities Program is consistent with laws, policies, standards and conventions, including:

- subsea BOP function testing in accordance with API Standard 53, 4th Edition
- *Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration*) *Regulations 2011*: accepted WOMP and application to drill
- notification of reportable and recordable incidents to NOPSEMA, if required, in accordance with **Section 7.8**
- mutual aid Memorandum of Understanding for relief well drilling is in place. Woodside develops a SCERP for each well, which is signed off by the Drilling Engineering Manager and maintains a list of rigs that are currently operating in Western Australia.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 12 No loss of well integrity resulting in loss of hydrocarbons to the marine environment during Petroleum Activities Program.	**C 10.1** See **Section 6.6.8**	**PS 10.1** See **Section 6.6.8**.	**MC 10.1.1** See **Section 6.6.8**
			MC 10.1.2 See **Section 6.6.8**
			MC 10.1.3 See **Section 6.6.8**
	C 12.1 In the event of requirement to abandon well, implement requirements for permanent well abandonment: • well barrier as per the internal Woodside Standard and Procedure	**PS 12.1** Woodside abandons the wells according to internal Woodside Procedure.	**MC 12.1.1** Records demonstrate Well Acceptance Criteria have been met.

	• placement, length, material and verification of a permanent barrier.		
	C 12.2 An approved SCERP shall exist prior to drilling each well, including feasibility and any specific considerations for relief well kill.	**PS 12.2** SCERP is in place to ensure feasibility of performing a well kill operation.	**MC 12.2.1** An approved Well Source Control Emergency Response Plan
	C 12.3 In the event of a spill, emergency response activities implemented in accordance with the OPEP (per **Table 7-5**)	**C 12.3.1** In the event of a spill, the OPEP requirements (per **Table 7 5**) are implemented.	**MC 12.3.1** Completed incident documentation.
	C 12.4 Arrangements supporting the activities in the OPEP (per **Table 7-5**) will be tested to ensure the OPEP can be implemented as planned.	**PS 12.4.1** Exercises/ tests will be conducted in alignment with the frequency identified in **Table 7 5**	**MC 12.4.1** Testing of arrangement records confirm that emergency response capability has been maintained.
	C 10.2See **Section 6.6.8**	**PS 10.2** See **Section 6.6.8**	**MC 10.2.1** See **Section 6.6.8**
For oil spill response outcomes, standards and measurement criteria refer to **Appendix D**.			

6.7.3 Accidental Hydrocarbon Release: Vessel Collision

Context

Relevant Activities	Existing Environment	Consultation
Project vessels – **Section 3.5**	Physical environment – **Section 4.4** Habitats and biological communities – **Section 4.5** Protected species – **Section 4.6** Socio-economic – **Section 4.8**	Consultation – **Section 5**

Risks Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Consequence*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Loss of hydrocarbons (diesel) to marine environment due to a vessel collision (e.g., support vessels or other marine users)			X		X	X	X	A	D	1	**M**	LCS GP PJ	Broadly Acceptable	EPO 13

Description of Source of Risk

The temporary presence of the MODU and project vessels in the Operational Area will result in a navigational hazard for commercial shipping within the immediate area (as discussed in **Section 6.6.1**). This navigational hazard could result in a third party vessel colliding with the MODU and other vessels which could release hydrocarbons.

The DP MODU has a total marine diesel capacity of about 3640 m^3 respectively that are distributed through a number of isolated tanks. MODU fuel tanks are located in the MODU pontoons, typically located on the inner sides of pontoons, and can be over 10 m below the waterline.

The marine diesel storage capacity of a support vessel can also be in the order of 1000 m^3 (total) that is distributed through multiple isolated tanks typically located mid-ships and can range in typical size from 22 to 105 m^3.

A typical installation vessel is likely to have multiple isolated fuel tanks distributed throughout the hull of the vessel. Individual fuel tanks are typically 500 m^3 but can be up to 1000 m^3 in volume. In the highly unlikely event of a collision involving an installation vessel during the Petroleum Activities Program, the vessel will have the capability to pump fuel from a ruptured tank to a tank with spare volume in order to reduce the potential volume of fuel released to the environment.

Industry Experience

Registered vessels or foreign flag vessels in Australian waters are required to report events to the Australian Transport Safety Bureau (ATSB), AMSA or Australian Search and Rescue (AusSAR).

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 connected 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 occurring.

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. The majority of these related to the grounding instances.

Credible Scenario

For a vessel collision to result in the worst-case scenario of a hydrocarbon spill potentially impacting an environmental receptor, several factors must align as follows:

- The identified causes of vessel interaction must result in a collision.
- The collision must have enough force to penetrate the vessel hull.
- The collision must be in the exact location of the fuel tank.
- The fuel tank must be full, or at least of volume which is higher than the point of penetration.

The environmental risk analysis and evaluation identified and assessed a range of potential scenarios that could result in a loss of vessel structural integrity resulting in damage to fuel storage tank(s) and a loss of marine diesel to the marine environment (**Table 6-18**). The scenarios considered damage to single and multiple fuel storage tanks in the support vessel, installation vessel and MODU due to dropped objects and various combinations of vessel to vessel and vessel to MODU collisions. In summary:

- It is not a credible scenario that the total storage volume of the MODU would be lost, as fuel is stored in more than one tank.
- It is not a credible scenario that a storage tank on the MODU would be damaged due to the location of the tanks within the hull, behind the bilge tanks, below the waterline.
- It is not a credible scenario that a collision between the support vessel and MODU would damage any storage tanks, due to the location of the tanks on both vessel types, and secondary containment.
- It is highly unlikely that the full volume of the largest storage tank on a support vessel or installation vessel would be lost.

The last scenario considered was a collision between the support vessel or installation vessel with a third party vessel (i.e., commercial shipping, other petroleum related vessels and commercial fishing vessels). This was assessed as being credible but highly unlikely, given the standard vessel operations and equipment in place to prevent collision at sea, the short duration of installation vessel operations in the Operational Area, the standby role of a support vessel (low vessel speed) and its operation in close proximity to the MODU (exclusion areas), and the construction and placement of storage tanks. The largest tank of the support vessel is unlikely to exceed 105 m^3; the largest tank volume of an installation vessel is unlikely to exceed 1000 m^3.

Given the offshore location of the Operational Area, vessel grounding is not considered a credible risk.

Table 6-18: Summary of credible hydrocarbon spill scenario as a result of vessel collision

Scenario	Hydrocarbon Volumes	Preventative and Mitigation Controls	Credibility
Breach of MODU fuel tanks due to support vessel collision.	MODU has a fuel oil storage capacity of about 966–1400 m^3 (up to 3640 m^3 for DP MODU), distributed through multiple tanks.	Fuel tanks are located on the inside of pontoons and protected by location below water line, protection from other tanks, e.g., bilge tanks. The draught of vessel and location of tanks in terms of water line prevent the tanks from being breached.	**Not credible** Due to location of tanks.
Breach of support vessel fuel tanks due to collision with MODU.	Activity support vessel has multiple marine diesel tanks typically ranging between 22–105 m^3 each.	Typically double wall tanks which are located mid ship (not bow or stern). Slow support vessel speeds when in close proximity to MODU.	**Not credible** Collision with MODU at slow speeds is highly unlikely and if did occur is highly unlikely to result in a breach of support vessel (low energy contact from slow moving vessel).
Breach of installation vessel fuel tanks due to collision with third party vessel, including	Installation vessel has multiple marine diesel isolated tanks; largest volume of a single tank is likely to be <1000 m^3.	Tank locations midship (not bow or stern).	**Credible** Installation vessel–third party vessel collision could potentially result in the release from a fuel tank.

commercial shipping and fishing.			
Breach of support vessel fuel tanks due to support vessel–other vessel collision including commercial shipping/fisheries.	Activity support vessel has multiple marine diesel tanks typically ranging between 22–105 m^3 each.	Typically double wall tanks which are located midship (not bow or stern). Vessels are not anchored and steam at low speeds when relocating within the Operational Area or providing stand-by cover. Normal maritime procedures would apply during such vessel movements.	**Credible** Activity support vessel–other vessel collision could potentially result in the release from a fuel tank.
Loss of well control due to third party vessel (e.g., large bulk carrier) collision with MODU during drilling activities.	Loss of containment of reservoir fluids – see **Section 6.7.2** for estimated volumes.	Refer to **Section 6.6.1** for preventative and mitigation controls.	**Credible** See **Section 6.7.2**.
Dropped object from back-loading/ offloading operations rupturing the MODU fuel tanks (e.g., a container or piece of equipment).	MODU has a fuel oil storage capacity of about 966–1400 m^3, distributed through multiple tanks.	Fuel tanks are located on the inside of pontoons and protected by location below water line, protection from other tanks, e.g., bilge tanks. The draught of vessel and location of tanks in terms of water line prevent the tanks from being breached.	**Not credible** No direct pathway to tanks from dropped objects.

Quantitative Hydrocarbon Risk Assessment

Modelling was undertaken by RPS, on behalf of Woodside, to determine the fate of marine diesel released from a collision at a location near the Operational Area. The modelling assessed the extent of marine diesel spill volume of 2000 m^3 (largest fuel tank on installation vessel) for all seasons, using an historic sample of wind and current data for the region.This release volume is considered to be conservative as the largest credible spill from a rupture of the diesel tank of the vessels contemplated for this activity is 1000 m^3.

Hydrocarbon Characteristics

Diesel characteristics are described in **Section 6.7.1** and **Table 6-11**. Marine diesel is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 35% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 54% should evaporate over several days (265 °C < BP < 380 °C). About 5% of the oil is shown to be persistent.

Under a calm constant-wind scenario (**Figure 6-3**), about 40% of the oil is predicted to evaporate within 36 hours. Under these conditions the majority of the remaining oil on the water surface will weather at a slower rate. Evaporation of the residual compounds will slow significantly and they will then be subject to more gradual decay through biological and photochemical processes.

Under the more realistic variable-wind scenario (**Figure 6-4**), where the winds are of greater strength, entrainment of marine diesel into the water column is indicated to be significant. About two days after the spill, about 50% of the oil mass is forecast to have entrained and a further 45% is forecast to have evaporated, leaving only a small proportion of the oil floating on the water surface (<2%). The residual compounds will tend to remain entrained beneath the surface under conditions that generate wind waves (about >6 m/s).

Biological and photochemical degradation is predicted to contribute to the decay of the floating slicks and oil droplets in the water column. However, given the large proportion of entrained oil and the tendency for it to remain mixed in the water column, the remaining hydrocarbons will decay and/or evaporate over time scales of several weeks to a few months. This long weathering duration will extend the area of potential effect, requiring the break-up and dispersion of the slicks and droplets to reduce concentrations below the thresholds considered.

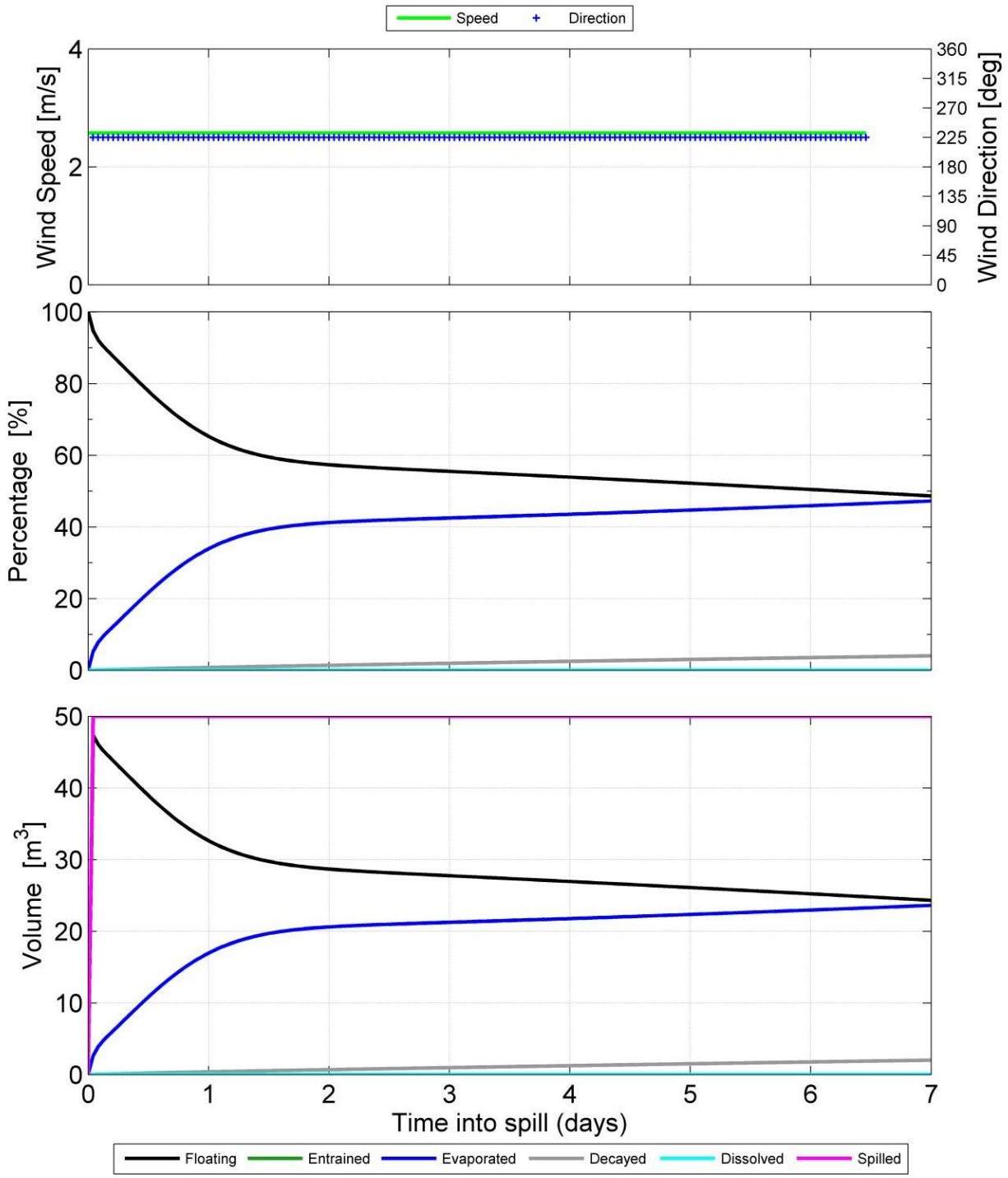

Figure 6-3: Mass balance plot representing, as proportion (middle panel) and volume (bottom panel), the weathering of marine diesel spilled onto the water surface as a one-off release (50 m³ over one hour) and subject to a constant 5 kn (2.6 m/s) wind at 27 °C water temperature and 25 °C air temperature

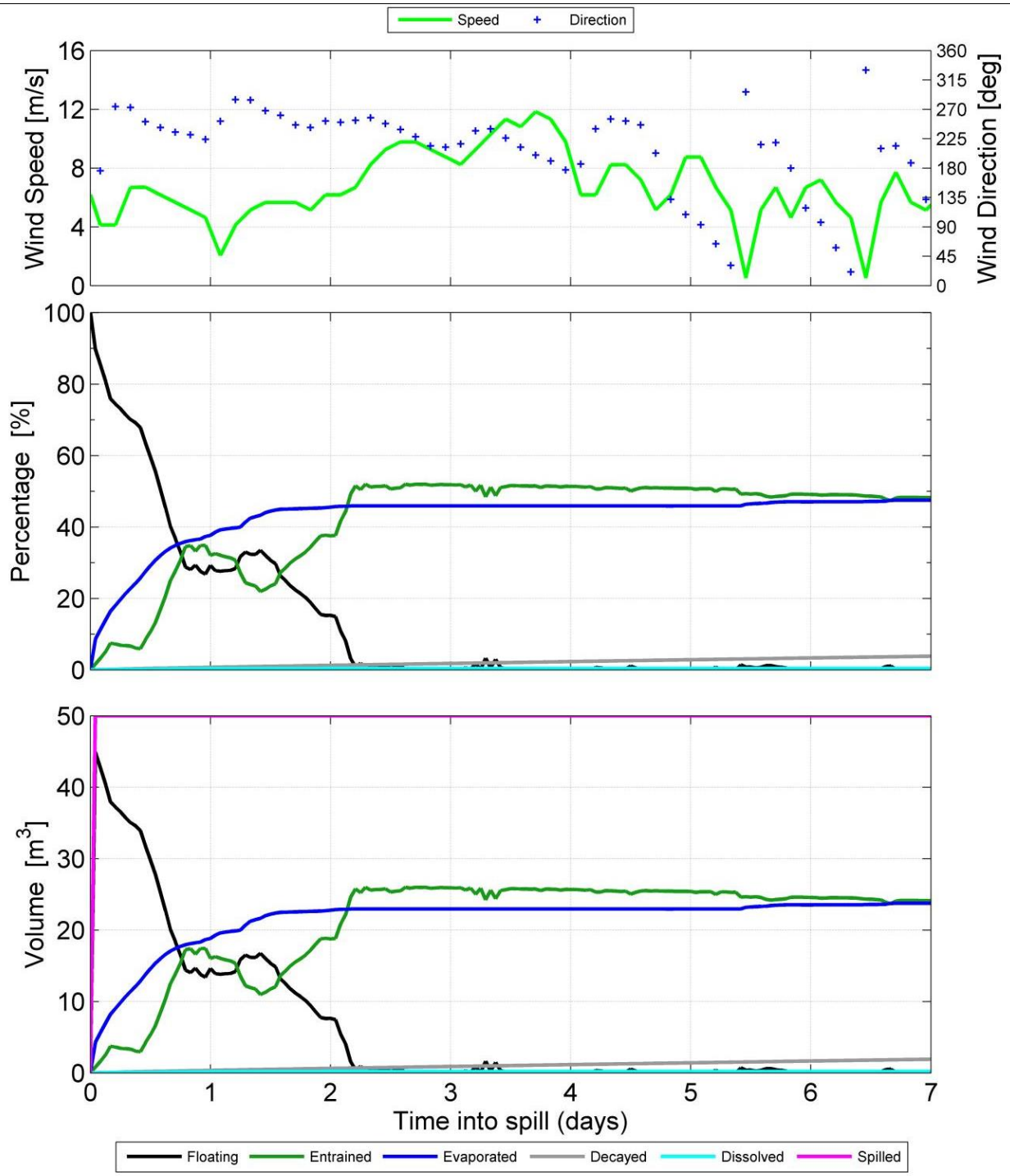

Figure 6-4: Mass balance plot representing, as proportion (middle panel) and volume (bottom panel), the weathering of marine diesel spilled onto the water surface as a one-off release (50 m³ over one hour) and subject to variable wind at 27 °C water temperature and 25 °C air temperature

Impact Assessment

Potential Consequence Overview

EMBA

Quantitative hydrocarbon spill modelling results are shown in **Table 6-19** and have been used to define the EMBA (**Sections 4.1** and **6.7.1**).

Surface Hydrocarbons

The probability contour figures for floating oil indicate that concentrations equal to or greater than the 10 g/m^2 thresholds could potentially be found, in the form of slicks, up to 40 km from the spill site. Probabilities of floating oil contact at the 10g/m^2 threshold are forecast to be less than 1% for all other shoreline receptors.

Entrained Hydrocarbons

Entrained oil at concentrations equal to or greater than the 100 ppb threshold is predicted to be found up to around 640 km south south-east from the spill site. The Montebello MP and Muiron Islands MMA-WHA receptors are predicted to receive entrained oil concentrations at the 100 ppb threshold with probabilities of 8% and 11%, respectively.

Dissolved Hydrocarbons

Dissolved aromatic hydrocarbons at concentrations equal to or greater than the 50 ppb threshold are predicted to be found up to around 210 km south south-east from the spill site. The Montebello MP receptor is predicted to receive dissolved aromatic hydrocarbon concentrations at the 50 ppb threshold with a probability of 1%.

Accummulated Hydrocarbons

Potential for accumulation of oil on shorelines is predicted to be low, with a maximum accumulated volume of <1 m^3 and a maximum local accumulated concentration on shorelines of 11 g/m^2 forecast at Barrow Island.

Table 6-19: Environment that May Be Affected – Key receptor locations and sensitivities with the summary hydrocarbon spill contact for an instantaneous release of marine diesel

Environmental setting	Location/name	Environmental, Social, Cultural, Heritage and Economic aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure (WM0000PG10055394))																										Hydrocarbon contact and fate (>1% probability) (Condensate)					
		Physical		Biological																		Socio-economic and Cultural					Socio-cultural EMBA		EMBA			
		Water Quality	Sediment Quality	Marine Primary Producers			Other Communities/Habitats							Protected Species								Other Species		Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas/Heritage – European and Indigenous/Shipwrecks	Offshore Oil & Gas Infrastructure (topside and subsea)						
		Open water – pristine	Marine sediment – pristine	Coral reef	Seagrass beds/macroalgae	Mangroves	Spawning/nursery areas	Open water – productivity/upwelling	Non biogenic coral reefs	Offshore filter feeders and/or	Nearshore filter feeders	Sandy shores	Estuaries/tributaries/ creeks/lagoons	Rocky shores	Cetaceans – migratory whales	Cetaceans – dolphins and porpoises	Dugongs	Pinnipeds (sea lions and fur seals)	Marine turtles (including foraging and interesting	Seasnakes	Whale sharks	Sharks and rays	Sea birds and/or migratory shorebirds	Pelagic fish populations	Resident/demersal fish					Surface hydrocarbon (1-10 g/m²)	Accumulated hydrocarbons (10-	Surface hydrocarbon (≥10 g/m²)	Entrained hydrocarbon	Dissolved aromatic hydrocarbon	Accumulated hydrocarbons
Offshore[1]	Montebello MP	✓	✓	✓			✓	✓						✓	✓			✓	✓	✓	✓	✓	✓	✓	✓			✓		100	N/A	100	78	-	N/A
	Argo-Rowley Terrace MP	✓	✓					✓							✓	✓			✓				✓	✓	✓	✓			✓		-	N/A	-	1	-	N/A
Submerged Shoals	Rankin Bank	✓	✓	✓			✓	✓		✓	✓				✓	✓			✓			✓		✓	✓	✓		✓			N/A	N/A	N/A	1	1	N/A
Islands	Barrow Island (including State Nature Reserves, State Marine Park and Marine Management Area)	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	1	1	1	5	1	-
	Lowendal Islands (including State Nature Reserve)	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	-	-	-	1	-	-
	Montebello Islands (including State Marine Park)	✓	✓	✓	✓	✓	✓	✓			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	-	-	-	8	1	-
	Muiron Islands (WHA, State Marine Park)	✓	✓	✓	✓		✓	✓			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		-	-	-	11	-	-
	Pilbara Islands – Southern, Middle and Northern Island Groups	✓	✓	✓	✓		✓	✓			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	-	-	-	5	-	-
Mainland (nearsh	Gascoyne	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		-	-	-	1	-	-

[1] *Note: hydrocarbons cannot accumulate on open ocean, submerged receptors, or receptors not fully emergent.*

Environmental setting	Location/name	Environmental, Social, Cultural, Heritage and Economic aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure (WM0000PG10055394))																									Hydrocarbon contact and fate (>1% probability) (Condensate)					
		Physical		*Biological*																			*Socio-economic and Cultural*									
		Water Quality	*Sediment Quality*	*Marine Primary Producers*			*Other Communities/Habitats*							*Protected Species*								*Other Species*		*Fisheries – commercial*	*Fisheries – traditional*	*Tourism and Recreation*	*Protected Areas/Heritage – European and Indigenous/Shipwrecks*	*Offshore Oil & Gas Infrastructure (topside and subsea)*	Socio-cultural EMBA		EMBA			
		Open water – pristine	*Marine sediment – pristine*	*Coral reef*	*Seagrass beds/macroalgae*	*Mangroves*	*Spawning/nursery areas*	*Open water – productivity/upwelling*	*Non biogenic coral reefs*	*Offshore filter feeders and/or*	*Nearshore filter feeders*	*Sandy shores*	*Estuaries/tributaries/ creeks/lagoons*	*Rocky shores*	*Cetaceans – migratory whales*	*Cetaceans – dolphins and porpoises*	*Dugongs*	*Pinnipeds (sea lions and fur seals)*	*Marine turtles (including foraging and internesting*	*Seasnakes*	*Whale sharks*	*Sharks and rays*	*Sea birds and/or migratory shorebirds*	*Pelagic fish populations*	*Resident/demersal fish*						*Surface hydrocarbon (1-10 g/m²)*	*Accumulated hydrocarbons (10-*	*Surface hydrocarbon (≥10 g/m²)*	*Entrained hydrocarbon*	*Dissolved aromatic hydrocarbon*	*Accumulated hydrocarbons*
	Pilbara	✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	-	10	1	-

Summary of Potential Impacts to Protected Species, Other Habitats and Communities, Water Quality and Socio-economic Values

Modelling of a release of marine diesel spill due to vessel collision predicts that no receptors will be contacted by accumulated oil concentrations equal to or greater than 100 g/m².

A range of receptors may be contacted by floating, entrained and dissolved oil above impact thresholds, concentrated in offshore waters and Pilbara coastal islands. One submerged receptor, Rankin Bank, was identified as potentially being contacted above impact thresholds.

The potential impacts of spilled hydrocarbons to species (protected and otherwise), marine primary producers, other habitats and communities, water quality, marine sediment quality, air quality, protected areas and socio-economic values are described in **Section 6.7.2**. The loss of well integrity EMBA is larger spatially than the marine diesel EMBA; therefore, the potential impacts of entrained hydrocarbons provided in **Section 6.7.2**, and the scale of impact described, provides a conservative assessment for potential impacts of a release of marine diesel. Impacts specific to a spill of marine diesel are summarised below. It is noted that the toxic components in marine diesel include alkylated naphthalenes which can be rapidly accumulated by marine biota including invertebrates such as marine oysters, clams, shrimp, as well as a range of vertebrates, such as finfish. Marine diesel also contains additives that contribute to its toxicity.

Given the localised area of the potential EMBA and the rapid dispersion, dilution and weathering of a marine diesel spill, it is expected that any potential impacts will be low magnitude and temporary in nature.

Protected Species

As identified in **Section 4.6**, protected species including migrating pygmy blue whales and humpback whales may be encountered near the Operational Area, and therefore could be impacted in close proximity to the marine diesel spill location, where the volatile, water soluble and most toxic components of the diesel may be present. However, the window for exposure to hydrocarbons with the potential for any toxicity effects in these waters would be limited to a few days following the spill. Potential impacts may include behavioural impacts (e.g., avoidance of impacted areas), sub-lethal biological effects (e.g., skin irritation, irritation from ingestion or inhalation, reproductive failure) and, in rare circumstances, organ or neurological damage leading to death. Given the absence of critical habitats or aggregation areas, cetaceans in the area are expected to be transient, and impacts are expected to be limited to individuals or small groups of animals. Impact on the overall population viability of cetaceans are not predicted.

The EMBA overlaps with habitat critical to the survival of flatback turtles for internesting and BIAs identified in **Section 4.6.2**, particularly the internesting BIAs for flatback turtles which extend for ~80 km from known nesting locations. The Operational Area also overlaps with an internesting BIA for flatback turtles and designated habitat critical to the survival of flatback turtles for internesting at the Montebello Islands (with peak nesting in December and January).

However, it is noted that the BIA and habitat critical to the survival of flatback turtles are considered very conservative as they are based on the maximum range of internesting females and many turtles are more likely to remain near their nesting beaches. In the event of a worst-case vessel spill of MDO, there is a potential that surface and entrained hydrocarbons exceeding impact threshold concentrations (10 g/m^2 and 100 ppb respectively) will be present in offshore waters extending up to 39 km and 308 km respectively, from the release site. Toxicity of hydrocarbons will be significantly reduced by weathering over such distances, with the volatile and water soluble (often the most toxic) components expected to have dissipated beyond the vicinity of the spill site. Dissolved aromatic hydrocarbons at concentrations equal to or greater than the 50 ppb threshold are predicted to be limited to the vicinity of the spill site. Low concentrations are only capable of causing sublethal impacts to the most sensitive marine organisms and no lethal or sub-lethal impacts to marine turtles are expected in the BIAs. The potential for lethal and sub-lethal impacts to marine turtles is limited to small numbers of transient individuals that may be present in offshore waters near the release location.

Seabirds may also be exposed to marine diesel on the sea surface or upper water column, if resting or foraging in waters near to the spill. Impacts may include mortality due to oiling of feathers or the ingestion of hydrocarbons. However, due to the limited spatial extent of a marine diesel spill and limited window for exposure, population level impacts are not expected.

Other protected species that may occasionally transit through the area and may potentially be exposed to a marine diesel spill, include shark and ray species such as whale sharks and manta rays. The EMBA overlaps the whale shark foraging BIA along the North-west shelf, but does not overlap the foraging (high density prey) BIA along the Ningaloo coast. Should sharks or rays be present in offshore waters near the Operational Area during the spill, direct impacts may occur if foraging within surface slicks or in the upper 20 to 30 m of the water column containing entrained hydrocarbons and dissolved aromatics. Contamination of their food supply and the subsequent ingestion of this prey may also result in long term impacts as a result of bioaccumulation. Impacts are again predicted to be limited to a small number of animals given the low numbers of animals that may transit through the area during the short period when spilled hydrocarbons are present.

Given the limited number of animals that may be impacted and the rapid dispersion of marine diesel, it is considered that any potential impacts will be minor.

Other Habitats, Species and Communities

Within the EMBA for a marine diesel spill resulting from a vessel collision, there is the potential for plankton communities to potentially be impacted where entrained or dissolved hydrocarbon threshold concentrations are exceeded. A range of lethal and sublethal impacts may occur to plankton exposed to entrained or dissolved hydrocarbons within the EMBA.

Communities are expected to recover quickly (weeks/months) due to high population turnover (International Tanker Owners Pollution Federation, 2011a). It is therefore considered that any potential impacts would be low magnitude and temporary in nature.

Pelagic fish populations in the open water offshore environment of the EMBA are highly mobile and have the ability to move away from a marine diesel spill. The spill-affected area would be confined to the surface layer and upper 20 to 30 m of the water column. It is therefore unlikely that fish populations would be exposed to widespread hydrocarbon contamination. Pelagic fish populations are distributed over a wide geographical area so impacts on populations or species level are considered to be negligible. Combined with these factors and the rapid dispersion of marine diesel, it is considered that any potential impacts will be minor.

Other communities (e.g., demersal fish, benthic infauna and epifauna) and key sensitivities (e.g., KEFs identified in **Section 4.6.6**) occur within the EMBA, however they will not be directly exposed or impacted by a marine diesel spill as hydrocarbons are confined to the upper layers of the water column.

Water Quality

It is likely that water quality will be reduced at the release location of the spill; however, such impacts to water quality would be temporary and localised in nature due to the rapid dispersion and weathering of marine diesel. The potential impact is therefore expected to be low.

Protected Areas

Surface, entrained and dissolved hydrocarbons at or exceeding impact thresholds have a low probability of contacting the outer boundaries of the Montebello AMP. The Gascoyne AMP, Argo-Rowley Terrace AMP, the submerged shoals of Rankin Bank as well as open waters of the Ningaloo Coast (Middle, Middle WHA, North WHA, South WHA and RUZ) also have a low probability of being affected by entrained hydrocarbons. Surface and entrained hydrocarbons are mostly only predicted within the deep open waters of these protected areas, with minimal overlap and no contact to seabed habitats or to shorelines above the ecological impact threshold values. Potential impacts to water quality and the natural values (e.g., mobile protected species) in these areas would be temporary and localised in nature due to the rapid dispersion and weathering of the marine diesel, as described above. Dissolved hydrocarbons (at or exceeding 50 ppb) are not predicted to reach any protected areas.

Socio-economic

A marine diesel spill is considered unlikely to cause significant direct impacts on the target species fished by Commonwealth and State fisheries (see **Section 4.8.2**) which overlap with the EMBA. The fisheries that operate within the EMBA predominantly target demersal fish species (demersal finfish and crustaceans) that inhabit waters in the range of >60–200 m depth, or pelagic species which are highly mobile. Therefore, a marine diesel spill is expected to only result in negligible impacts, considering that hydrocarbons are confined to the upper layers of the water column. Visible surface hydrocarbons at or exceeding 1 g/m^2 will also occur, which may result in fouling of fishing gear and a perception of impacts to fish stocks by fisheries and the public. There is the potential that a fishing exclusion zone would be applied in the area of the spill, which would put a temporary ban on fishing activities and therefore potentially lead to subsequent economic impacts on commercial fishing operators if they were planning to fish within the area of the spill. Such measures would likely be in place for less than a week and would not result in widespread or long-term impacts to fishing activities.

Summary of Potential Impacts to Environmental Value(s)

In the highly unlikely event of an unplanned hydrocarbon release to the marine environment due to vessel collision, combined with the adopted controls, it is considered that any potential impact to water quality would be localised, low and temporary in nature in comparison to background levels. Localised, low and temporary impacts to habitats, populations and shipping/fishing concerns are expected.

The highest environmental consequence identified for the assessment of an unplanned hydrocarbon release to the marine environment due to vessel collision, as classified in

Table 2-4, is defined as D, which equates to ‘minor, short-term impact (1–2 years) on species, habitat (but not affecting ecosystems), physical or biological attributes’.

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Legislation, Codes and Standards				
Marine Order 30 (Prevention of collisions) 2016, including: • adherence to steering and sailing rules including maintaining lookouts (e.g., visual, hearing, radar, etc.), proceeding at safe speeds, assessing risk of collision and taking action to avoid collision (monitoring radar) • adherence to navigation light display requirements, including visibility, light position/shape appropriate to activity • adherence to navigation noise signals as required.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of interference with other marine users resulting in a collision.	Controls based on legislative requirements – must be adopted.	Yes **C 13.1**
Marine Order 21 (Safety of navigation and emergency procedures) 2016, including: • adherence to minimum safe manning levels • maintenance of navigation equipment in efficient working order (compass/radar) • navigational systems and equipment required are those specified in Regulation 19 of Chapter V of *Safety of Life at Sea* • Automatic Identification System that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of interference with other marine users resulting in a collision.	Controls based on legislative requirements – must be adopted.	Yes **C 13.2**
Establishment of a 500 m safety exclusion zone around MODU and installation vessels and communicated to marine users.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of a collision with a third party vessel.	Controls based on legislative requirements – must be adopted.	Yes **C 1.2**
Arrangements supporting the activities in the OPEP (per **Table 7-5**) will be tested to ensure the OPEP can be implemented as planned.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirement based on vessel class. Unlikely to have a significant reduction in consequence.	Controls based on legislative requirements – must be adopted.	Yes **C 12.3**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Marine Order 27 (safety of navigation and radio equipment) 2016: • Maintenance of navigation equipment in efficient working order (compass/ radar) • Navigational system and equipment required are those specified in Regulation 19 of Chapter V of Safety of Life at Sea • Automatic Identification System that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed, reduces the likelihood of interference with other marine users resulting in a collision.	Controls based on legislative requirements – must be adopted.	Yes **C 13.3**
Good Practice				
Support vessel on standby as required during the PAP to assist in third-party vessel interactions. When a support vessel is designated for standby it will undertake actions to prevent unplanned interactions such as; • Maintain a 24-hour radio watch as designated radio channel(s) • Undertake continuous surveillance and warn the MODU/ installation vessel of any approaching vessels reaching 500 m petroleum safety zone. Surveillance shall be conducted by a combination of: – Visual lookout – Radar watch – Other electronic systems available including Automatic Identification System (AIS) – Monitoring any additional/ agreed radio communications channels – All other means available. While complying with the International Regulations for Preventing Collisions at Sea (COLREGS), approach any vessel attempting to transit through the 500 m zone and	F: Yes. CS: Minimal cost – support vessels available routinely in Operational Area during Petroleum Activities Program. Standard practice.	Given the legislative controls in place, use of a support vessel, as defined in the One Marine Charterers Instructions, will provide a small reduction in likelihood of a collision with a third-party vessel.	Benefits outweigh cost/sacrifice.	Yes **C 13.4**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
contact vessel by all available means. Monitor and advise the MODU if: • MODU navigation signals are defective. • Visibility becomes restricted. • Any buoys in the area are not holding position or are not working as expected				
Notify AHO of activities and movements no less than four working weeks prior to the scheduled activity commencement date.	F: Yes. CS: Minimal cost. Standard practice.	Notification to AHO will enable them to generate navigation warnings (Maritime Safety Information Notifications (MSIN) and Notice to Mariners (NTM) (including AUSCOAST warnings where relevant)).	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes **C 1.1**
Notify relevant government departments, fishing industry representative bodies and licence holders of activities three months prior to commencement and upon completion of activities.	F: Yes. CS: Minimal cost. Standard practice.	Communication of the Petroleum Activities Program to other marine users ensures they are informed and aware, thereby reducing the likelihood of interference with other marine users.	Benefits outweigh cost/ sacrifice. Control is also Standard Practice.	Yes **C 1.5**
Notify AMSA JRCC of activities and movements of the activity 24–48 hours before operations commence.	F: Yes. CS: Minimal cost. Standard practice.	Communication of the Petroleum Activities Program to other marine users ensures they are informed and aware, thereby reducing the likelihood of a collision with a third party vessel.	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes **C 1.3**
Mitigation: Oil spill response.	Refer to **Appendix D**.			
Professional Judgement – Eliminate				
Eliminate use of vessels.	F: No. The use of vessels is required to conduct the Petroleum Activities Program. CS: Not considered, control not feasible.	Not considered, control not feasible.	Not considered, control not feasible.	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
Risk Based Analysis				
A quantitative spill risk assessment was undertaken (see detail above).				
ALARP Statement On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the risks and consequences of an unplanned loss of hydrocarbon as a result of vessel collision. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that an unplanned loss of hydrocarbon as a result of a vessel collision represents a low current risk rating that is unlikely to result in potential impact greater than localised, minor and temporary disruption to a small proportion of the population and no impact on critical habitat or activity. Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines, good oil-field practice/industry best practice, and in some cases are above industry best practice and meet legislative requirements of Marine Orders 30 and 21. The potential risks and consequences are considered acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of a loss of vessel structural integrity to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 13 No release of hydrocarbons to the marine environment due to a vessel collision during the Petroleum Activities Program.	**C 13.1** Marine Order 30 (Prevention of collisions) 2016, including: • adherence to steering and sailing rules including maintaining lookouts (e.g., visual, hearing, radar, etc.), proceeding at safe speeds, assessing risk of collision and taking action to avoid collision (monitoring radar) • adherence to navigation light display requirements, including visibility, light position/ shape appropriate to activity	**PS 13.1** Support vessels, installation vessels and MODU compliant with Marine Order 30 (Prevention of collisions) 2016 (which requires vessels to be visible at all times) to prevent unplanned interaction with marine users.	**MC 13.1.1** Marine Assurance inspection records demonstrate compliance with standard maritime safety procedures (Marine Orders 21 and 30).

	• adherence to navigation noise signals as required.		
	C 13.2 Marine Order 21 (Safety of navigation and emergency procedures) 2016, including: • adherence to minimum safe manning levels • maintenance of navigation equipment in efficient working order (compass/radar) • navigational systems and equipment required are those specified in Regulation 19 of Chapter V of *Safety of Life at Sea* • Automatic Identification System that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safetyrelated data.	**PS 13.2** Support vessels, installation vessels and MODU compliant with Marine Order 21 (Safety of navigation and emergency procedures) 2016 to prevent unplanned interaction with marine users.	
	C 13.3 Arrangements supporting the activities in the OPEP (per **Table 7-5**) will be tested to ensure the OPEP can be implemented as planned.	**PS 13.3.1** Exercises/ tests will be conducted in alignment with the frequency identified in **Table 7-5**.	**MC 13.3.1** Testing of arrangement records confirm that emergency response capability has been maintained.
		PS 13.3.2 Testing of arrangement records confirm that emergency response capability has been maintained.	**MC 13.3.2** Emergency Management dashboard confirms that minimum levels of personnel trained for core OPEP roles are available.
	C 13.4 Marine Order 27 (safety of navigation and radio equipment) 2016: • Maintenance of navigation equipment in efficient working order (compass/ radar). • Navigational system and equipment required are those specified in Regulation 19 of	**PS 13.4** Support vessels, installation vessel and MODU compliant with Marine Orders 27 (Safety of navigation and radio equipment) 2016 to prevent unplanned interaction with marine users.	**MC 13.4.1** Marine Assurance Inspection records demonstrate compliance with standard maritime safety procedures (Marine Orders 27).

	Chapter V of Safety of Life at Sea. • Automatic Identification System that provides other users with information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data.		
	C 13.5 Support vessel on standby as required during the PAP to assist in third-party vessel interactions. When a support vessel is designated for standby it will undertake actions to prevent unplanned interactions such as; • Maintain a 24-hour radio watch as designated radio channel(s). • Undertake continuous surveillance and warn the MODU/ installation vessel of any approaching vessels reaching 500 m petroleum safety zone. Surveillance shall be conducted by a combination of: – Visual lookout. – Radar watch. – Other electronic systems available including Automatic Identification System (AIS). – Monitoring any additional/ agreed radio communications channels. – All other means available. While complying with the International Regulations for Preventing Collisions at Sea (COLREGS), approach any vessel attempting to transit through the 500 m zone and contact vessel by all available means.	**PS 13.5** 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 13.5.1** Records of non-conformance against controls maintained.

	Monitor and advise the MODU if: • MODU navigation signals are defective. • Visibility becomes restricted. • Any buoys in the area are not holding position or are not working as expected.		
	C 1.1 See **Section 6.6.1**	**PS 1.1** See **Section 6.6.1**	**MC 1.1.1** See **Section 6.6.1**
	C 1.5 See **Section 6.6.1**	**PS 1.5** See **Section 6.6.1**	**MC 1.5.1** See **Section 6.6.1**
	C 1.3 See **Section 6.6.1**	**PS 1.3** See **Section 6.6.1**	**MC 1.3.1** See **Section 6.6.1**
Detailed preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are presented in **Appendix D**.			

6.7.4 Accidental Hydrocarbon Release: Bunkering

Context

Relevant Activities	Existing Environment	Consultation
Project vessels – **Section 3.5**	Physical environment – **Section 4.4** Habitats and biological communities – **Section 4.5**	Consultation – **Section 5**

Risks Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Consequence*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Loss of hydrocarbons (diesel/jet fuel) to marine environment from bunkering/refuelling			X			X		A	E	1	**L**	LCS GP PJ	Broadly Acceptable	EPO 14

Description of Source of Risk

Bunkering of marine diesel between the support vessel(s) and the MODU or installation vessel may occur at the well or subsea installation location. Additionally, refuelling of helicopters using aviation jet fuel may take place onboard the MODU or project vessel.

Three credible scenarios for the loss of containment of marine diesel during bunkering operations were 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 coupling 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 shut off fuel pumps, for a period of up to five minutes, resulting in about 8 m^3 marine diesel loss 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.

Quantitative Spill Risk Assessment

Woodside has commissioned RPS to model several small marine diesel spills, including surface spill volumes of 8 m^3 in the offshore waters of north-west WA. The results of these models have indicated that exposure to surface hydrocarbons above the 10 g/m^2 threshold is limited to the immediate vicinity of the release site, with little potential to extend beyond 1 km. Therefore, it is considered that exposure to thresholds concentrations from an 8 m^3 surface spill from bunkering activities would be well within the EMBA for the vessel collision scenario detailed in **Section 6.7.3**. Given this, the offshore location of the Operational Area, and the fact that the same hydrocarbon type is involved for both scenarios, specific modelling for an 8 m^3 marine diesel release was not undertaken for this Petroleum Activities Program.

Given the physical and chemical similarities, and the relatively small credible spill volumes, marine diesel is considered to be a suitable substitute for aviation jet fuel for the purposes of this environmental risk assessment. Aviation jet fuel would behave similarly to diesel and have similar impacts and, considering small size of spill volumes likely to be contained on the helideck, this has not been modelled.

Hydrocarbon Characteristics

Refer to **Section 6.7.3** for a description of the characteristics of marine diesel, including detail on the predicted fate and weathering of a spill to the marine environment.

Impact Assessment

Assessment of Potential Impacts

A spill at the surface as a result of bunkering activities is likely to be localised with limited potential contact with sensitive receptor locations based on the modelling presented in **Section 6.7.3** for a larger spill (250 m^3), which predicted the spill to be restricted to open offshore waters.

The potential biological and ecological impacts associated with much larger hydrocarbon spills are presented in **Section 6.7.2**; further detail on impacts specific to a spill of marine diesel from a bunkering loss are provided below. The biological consequences of such a small volume spill on identified open water sensitive receptors relate to the potential for minor impacts to megafauna, plankton and fish populations (surface and water column biota) that are within the spill-affected area. No impacts to commercial fisheries are expected. Refer to **Section 6.7.3** (potential impacts of unplanned hydrocarbon release to the marine environment from vessel collision) for the detailed potential impacts. However, the extent of the EMBA associated with a marine diesel spill from loss during bunkering will be much reduced in terms of spatial and temporal scales, and hence, potential impacts from bunkering are considered slight.

Summary of Potential Impacts to Protected Species and Water Quality

The potential biological and ecological impacts associated with much larger hydrocarbon spills are presented in **Section 6.7.2** and **6.7.3**; further detail on impacts specific to a spill of marine diesel from a bunkering loss are provided below.

The biological consequences of such a small volume spill on identified open water sensitive receptors relate to the potential for minor impacts to megafauna, plankton and fish populations (surface and water column biota) that are within the spill-affected area and no impacts to commercial fisheries are expected. Refer to **Section 6.7.3** for the detailed potential impacts of unplanned hydrocarbon release to the marine environment from vessel collision; however, the extent of the EMBA associated with a marine diesel spill from loss during bunkering will be much reduced in terms of spatial and temporal scales, and hence, potential impacts from bunkering are considered very minor.

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/ Sacrifice (CS)*[27]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
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).	F: Yes. CS: Minimal cost. Standard practice.	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.	Controls based on legislative requirements – must be adopted.	Yes **C 14.1**
Helicopter fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily in accordance with the Australian	F: Yes. CS: Minimal cost. Standard practice.	Reduced the likelihood of an unplanned release during	Controls based on legislative requirements – must be adopted.	Yes **C 14.2**

[27] *Qualitative measure*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[27]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Government Civil Aviation Safety Authority CAAP 92-4(0) 'Guidelines for the development and operation of off-shore helicopter landing sites, including vessels.		helicopter operations. The consequence is unchanged.		
Good Practice				
Bunkering equipment controls: • All hoses that have a potential environmental risk following damage or failure shall be linked to the MODU's preventative maintenance system. • 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. • There shall be dry-break couplings and flotation on fuel hoses. • There shall be an adequate number of appropriately stocked, located and maintained spill kits.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of a spill occurring. Although no significant reduction in consequence could result, the overall risk is reduced.	Benefits outweigh cost/sacrifice.	Yes **C 14.3**
Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including: • A completed PTW and/or Job Safety Assessment (JSA) shall be implemented for the hydrocarbon bunkering/refuelling operation. • Visual monitoring of gauges, hoses, fittings and the sea surface during the operation. • Hose checks prior to commencement. • 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. • Hydrocarbons shall not be transferred in marginal weather conditions.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of a spill occurring. Although no significant reduction in consequence could result, the overall risk is reduced.	Benefits outweigh cost/sacrifice.	Yes **C 14.4**
Mitigation: Oil spill response.	Refer to **Appendix D**.			
Professional Judgement – Eliminate				
No refuelling of helicopter on MODU.	F: No. Given the distance of the Operational Area from the airports suitable for helicopter operations, and the	Not considered, control not feasible.	Not considered, control not feasible.	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[27]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
	endurance of available helicopters, eliminating helicopter refuelling is not feasible. Helicopter flights cannot be eliminated, and may be required in emergency situations. CS: Not assessed, control cannot feasibly be implemented.			
The MODU/project vessel brought into port to refuel.	F: No. Does not eliminate the fuel transfer risk. 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 port (Dampier 170 km). CS: Significant due to schedule delay and vessel transit costs and day rates.	Eliminates the risk in the Operational Area, However, moves risk to another location. Therefore, no overall benefit.	Disproportionate. The cost/ sacrifice outweighs the benefit gained.	No
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the risks and consequences of a bunkering spill. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement Loss of hydrocarbons to marine environment during bunkering has been evaluated as having a low current risk rating that is unlikely to result in potential impact greater than minor impacts to megafauna, plankton and fish populations (surface and water column biota) that are within the spill -affected area, and no impacts to commercial fisheries. Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of the described discharges to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 14 No unplanned loss of hydrocarbons to the marine environment from bunkering greater than a consequence level of E[28] during the Petroleum Activities Program.	**C 14.1** Marine Order 91 (marine pollution prevention – oil) 2014, requires SOPEP/ SMPEP (as appropriate to vessel class).	**PS 14.1** Appropriate initial responses prearranged and drilled in case of a hydrocarbon spill, as appropriate to vessel class.	**MC 14.1.1** Marine Assurance inspection records demonstrate compliance with Marine Order 91.
	C14.2 Helicopter fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily in accordance with the Australian Government Civil Aviation Safety Authority CAAP 92-4(0) 'Guidelines for the development and operation of off-shore helicopter landing sites, including vessels.	**PS 14.2** Failure of primary containment in storage areas does not result in loss to the marine environment.	**MC 14.2.1** Records confirms all liquid chemicals and fuel are stored in bunded/secondarily contained areas when not being handled/moved temporarily.
	C 14.3 Bunkering equipment controls: • All hoses that have a potential environmental risk following damage or failure shall be placed on the MODU's preventative maintenance system. • All bulk transfer hoses shall be tested for integrity before use (tested in accordance with Original Equipment Manufacturer recommendations) • There shall be dry-break couplings and flotation on fuel hoses. • There shall be an adequate number of appropriately stocked, located and maintained spill kits.	**PS 14.3.1** To ensure damaged equipment is replaced prior to failure.	**MC 14.3.1** Records confirm the MODU bunkering equipment is subject to systematic integrity checks.
		PS 14.3.2 All diesel transfer hoses to have dry break couplings and pressure rating suitable for intended use.	**MC 14.3.2** Records confirm presence of dry break of couplings and flotation on fuel hoses.
		PS 14.3.3 To ensure adequate resources are available to allow implementation of SOPEP.	**MC 14.3.3** Records confirm presence of spill kits.
	C 14.4 Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including: • a completed PTW and/or JSA for the hydrocarbon bunkering/refuelling operation. • Visually monitor gauges, hoses, fittings and the sea	**PS 14.4** Compliance with Contractor procedures for managing bunkering/helicopter operations.	**MC 14.4.1** Records demonstrate bunkering/refuelling performed in accordance with contractor bunkering procedures.

[28] *Defined as 'Slight, short term local impact (<1 year), on species, habitat but not affecting ecosystem function), physical or biological attributes'.*

	surface during the operation. • Check hoses prior to commencement. • Commence bunkering/refuelling 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. • Do not transfer hydrocarbons in marginal weather conditions.		
Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are presented in **Appendix D**.			

6.7.5 Unplanned Discharges: Drilling Fluids

Context

Relevant Activities	Existing Environment
Drilling Activities – **Section 3.8**	Physical environment – **Section 4.4**
Project fluids – **Section 3.10**	Habitats and biological communities – **Section 4.5**

Risks Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Consequence*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Accidental discharge of drilling fluids (WBM, NWBM or base oil) to marine environment due to failure of slip joint packers, bulk transfer hose/fitting, emergency disconnect system or from routine MODU operations		X	X		X	X		A	E	1	**L**	LCS GP PJ	Broadly Acceptable	EPO 15

Description of Source of Risk

Transfers

A support vessel will undertake bulk transfer of mud or base oil to the MODU, if and when required. Failure of a transfer hose or fittings during a transfer or backload could result in a spill of mud or base oil to either the bunded deck or into the marine environment.

Similar to a spill event during bunkering/refuelling (**Section 6.7.4**), the most likely spill volume of mud 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 mud 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).

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 mud 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.

Catastrophic 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 1000 gallons per minute, this volume would equate to an additional 3.8 m^3. It is expected that this catastrophic failure would result in a loss of 5.3 m^3 in total.

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.

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 BOP. There are two main scenarios where the EDS could be activated:

- automatic activation of the EDS due to a loss of MODU station keeping resulting from loss of station keeping
- manual activation of the EDS due to an identified threat to the safety of the MODU including potential collision by a third-party vessel or a loss of well control

The activation of the EDS can result in the release of the entire volume of the marine riser to the marine environment. When drilling, this could result in a subsurface release of a combination of mud and cuttings at the seabed and a release of base fluid. 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). The potential impacts from a hydrocarbon loss of well integrity are discussed in **Section 6.7.2**. It is expected the weight of mud would result in the majority of the release settling to the seabed and/or remaining at depth within the water column. If contingency NWBM were in use, the NWBM would initially remain in an emulsion with the other components of the mud system and drill cuttings, but may rise to the sea surface over time where it would weather.

NWBM Drilling Fluid System

WBM represent a lower risk to the environment relative to NWBM. Hence, a release of contingency NWBM is considered to be the worst-case unplanned discharge of drilling fluids. The selection of an NWBM drilling fluid system will be based on Woodside processes (as outlined in **Section 3.10**); however, for the purposes of this risk assessment an example base oil (Saraline 185V) has been used. Saraline 185V is a mixture of volatile to low volatility hydrocarbons. Predicted weathering of base oil, based on typical conditions in the region, indicates that about 50% by mass is predicted to evaporate over the first day or two (refer to **Table 6-20**). At this time the majority of the remainder could be entrained into the water column, in calm conditions entrained hydrocarbons are likely to resurface with up to 100% will be able to evaporate over time.

Table 6-20: Characteristics of the non-water based mud base oil

Oil type	Initial density (kg/m³)	Viscosity (cP @ 20 °C)	Volatiles (%) <180	Semi volatiles (%) 180–265	Low volatility (%) 265–380	Residual (%) >380	Aromatic (%) of whole oil <380 °C BP
			Non-Persistent		Persistent		
Base oil (Saraline 185V)	0.7760	2.0 @ 40 °C	8.5	41.1	50.4	0	0

All chemicals that may be released or discharged to the marine environment during the Petroleum Activities Program are assessed as per Woodside Chemical Selection and Assessment. This procedure is used to demonstrate that the potential impacts of the chemicals that may be released are acceptable and ALARP.

Cement

Bulk cement is transferred as powder from the supply vessel to the MODU prior to being mixed into a slurry in the cement unit. Additives are required to form a cement slurry; these are transferred to the MODU in drums from the supply vessel to the MODU. Unplanned discharge to the marine environment may occur due to crane operator error or machinery failure resulting in loss of a drum of cement additive, which cannot be recovered. Cement additives are typically stored in drums < 100 L.

Impact Assessment

Water Quality

NWBM is made up of a number of components detailed in **Section 3.10.2** including base oil, which generally has a high volatile to semi-volatile fraction. If released to the marine environment at surface, this generally evaporates within the first 48 hours, with the remaining fraction being on the sea surface and weathering at a slower rate. As a result of this volatility, combined with the worst-case credible spill scenario volumes (8 m^3), and based on Woodside's experience of modelling base oil, it is considered there would be an extremely small footprint area associated with any release. Therefore, any surface oil would be confined to open waters with a minor surface slick that would not reach any sensitive receptors. Therefore, impacts on water quality would be minor and temporary in nature. The material safety datasheet for Saraline 185V indicates that it is readily biodegradable, non-toxic in the water column and has low sediment toxicity (Shell, 2014). Marine fauna may be affected if they come in direct contact with a release (i.e., by traversing the immediate spill area), but due to the small footprint of such a spill, it is anticipated that any impacts would be negligible and temporary in nature.

WBM is made up of a number of components detailed in **Section 3.10** including a variety of chemicals, incorporated into the selected drilling fluid system to meet specific technical requirements. If released to the marine environment at surface, there would be an extremely small impact footprint area associated with a release. Any release would be confined to the open waters of the Operational Area that would not reach any sensitive receptors. Components of the WBM would settle out in the water column and be subject to dilution. Given the low toxicity of WBM and its planned discharge during drilling, any impacts on water quality would be slight and temporary in nature.

The EMBA associated with the release of NWBM from the activation of the EDS would be small and limited to deeper water seabed surrounding the well site (the release point). The environmental consequence of such a release would include a highly localised area at the discharge location. Lethal impacts to the underlying infauna may occur but are considered unlikely, and recolonisation would occur over time. Elevated hydrocarbon and metal concentrations in the

localised area of deposition would also occur, with reduction over time. It is likely that any impacts to water and sediment quality and low-sensitivity deeper water benthos would be short term, localised and a full recovery expected.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that accidental discharge of NWBM/base oil or WBM will not result in greater than slight, short-term impact to protected species and water quality. It is also considered that the release of NWBM cuttings from an unplanned discharge will not result in a potential impact greater than slight, short-term contamination above background levels, water quality standards, or known effect concentrations (i.e., Consequence – E).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[29]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
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.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment. No change in consequence would occur.	Benefits outweigh cost/sacrifice.	Yes **C 3.3**
Marine riser's telescopic joint to be: • comprised of a minimum of two packers (one hydraulic and one pneumatic) • Pressure tested in accordance with manufacturer's recommendations.	F: Yes. CS: Minimal cost. Standard practice.	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.	Benefits outweigh cost/sacrifice.	Yes **C 15.1**
Good Practice				
Drilling, completions, cementing, flowline cold commissioning and subsea control fluids and additives will have an environmental assessment completed prior to use.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the consequence of impacts resulting from discharges to the marine environment by ensuring chemicals have been assessed for environmental	Benefits outweigh cost/sacrifice.	Yes **C 5.1**

[29] *Qualitative measure.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[29]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
		acceptability. Planned discharges are required for safely executing activities; therefore, no reduction in likelihood can occur.		
No overboard disposal of bulk NWBM.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the consequence of the release on the environment. Although no change in likelihood is provided, the decrease in consequence results in an environmental benefit.	Benefits outweigh cost/sacrifice.	Yes **C 5.4**
Contractor procedure for the management of drilling fluids transfers onto, around and off the MODU, which requires: • emergency shutdown systems for stopping losses of containment (e.g., burst hoses) • break-away dry-break couplings for oil-based mud hoses • transfer hoses to have flotation devised to allow detection of a leak • the valve line-up will be checked prior to commencing mud transfers • constant monitoring of the transfer process • direct radio communications • completed PTW and JSA showing contractor procedures are implemented • recording and verification of volumes moved to identify any losses • mud pit dump valves will be locked closed when not in use for mud transfers and operated under a PTW.	F: Yes. CS: Minimal cost. Standard practice for Woodside to review contractor systems prior to undertaking activity.	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	Benefits outweigh cost/sacrifice.	Yes **C 15.2**
Check for the presence and functionality of: • additional SCE (augers and cuttings dryers) • mud tanks	F: Yes. CS: Minimal cost. Standard practice	Reduces the likelihood of an event occurring and reduces the potential consequences	Benefits outweigh cost/sacrifice.	Yes **C 15.3**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[29]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
• mud tank room • transfer hoses • NWBM base fluid transfer lines • NWBM base fluid transfer station • base fluid storage.		(by limiting volume released).		
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
Only use WBM.	F: Not feasible. A NWBM drilling fluid system may be required for safety and technical reasons; therefore, option to use must be maintained. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Professional Judgement – Engineered Solution				
Use a MODU which may have a larger tank storage capacity for WBM. As such, there would be fewer bulk transfer movements.	F: Not feasible. The use of a MODU with greater storage capacity cannot be confirmed. CS: Significant cost and schedule delay would occur if the MODU was limited to greater storage capacity.	Not considered – control not feasible.	Not considered – control not feasible.	No
ALARP Statement On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the risks and consequences of the accidental discharge of drilling fluids, described above. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that, given the adopted controls, unplanned discharges of drilling fluids represent a low current risk rating that is unlikely to result in a potential impact greater than minor and/or temporary contamination above background levels and/or national/international quality standards and/or known biological effect concentrations on a localised scale. Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of an unplanned discharge of NWBM/base oil or WBM to a broadly acceptable level.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***

EPO 15 No unplanned loss of WBM/ NWBM/base oil greater than a consequence level of E[30] during the Petroleum Activities Program.	**C 4.3** See **Section 6.6.4**	**PS 4.3** See **Section 6.6.4**	**MC 4.3.1** See **Section 6.6.4**
	C 5.1 See **Section 6.6.5**	**PS 5.1** See **Section 6.6.5**	**MC 5.1.1** See **Section 6.6.5**
	C 5.3 See **Section 6.6.5**	**PS 5.3** See **Section 6.6.5**	**MC 5.3s.1** See **Section 6.6.5**
	C 15.1 Marine riser's telescopic joint to be: • comprised of a minimum of two packers (one hydraulic and one pneumatic) • pressure tested in accordance with manufacturers recommendations.	**PS 15.1** MODU's joint packer designed and maintained to reduce hydrocarbons discharged to the environment.	**MC 15.1.1** Records demonstrate that MODU's joint packer is compliant.
	C 15.2 Contractor procedure for the management of drilling fluids transfers onto, around and off the MODU, which requires: • emergency shutdown systems for stopping losses of containment (e.g., burst hoses) • break-away dry-break couplings for oil-based mud hoses • transfer hoses to have flotation devised to allow detection of a leak • the valve line-up will be checked prior to commencing mud transfers • constant monitoring of the transfer process • direct radio communications • completed PTW and JSA showing contractor procedures are implemented • recording and verification of volumes	**PS 15.2** Compliance with contractor procedures to limit accidental loss to the marine environment.	**MC 15.2.1** Records demonstrate drilling fluid transfers are performed in accordance with the applicable contractor procedures.

[30] *Defined as 'Slight, short term local impact (<1 year), on species, habitat but not affecting ecosystem function), physical or biological attributes'.*

	moved to identify any losses • mud pit dump valves will be locked closed when not in use for mud transfers and operated under a PTW.		
	C 15.3 Check for the presence and functionality of: • SCE (augers and cuttings dryer) • mud tanks • mud tank room • transfer hoses • NWBM base fluid transfer lines • NWBM base fluid transfer station • base fluid storage.	**PS 15.3** To prevent unacceptable use or discharge of NWBM/base oil.	**MC 15.3.1** Records demonstrate the presence and functionality of the specified equipment.

6.7.6 Unplanned Discharges: Deck and Subsea Spills

Context

Relevant Activities	Existing Environment
Project fluids – **Section 3.10**	Physical environment – **Section 4.4** Habitats and biological communities – **Section 4.5**

Risks Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Consequence*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Accidental discharge to the ocean of other hydrocarbons/ chemicals from MODU or project vessels deck activities and equipment (e.g., cranes) including subsea ROV hydraulic leaks			X		X	X		A	F	1	**L**	LCS GP PJ	Broadly Acceptable	EPO 16

Description of Source of Risk

Deck spills can result from spills from stored hydrocarbons/chemicals or equipment. Support vessels, installation vessel and the MODU typically store hydrocarbon/chemicals in various volumes (20 L, 205 L; up to about 4000–6000 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).

Subsea spills can result from a loss of containment of fluids from subsea equipment including the BOP or ROVs. The ROV hydraulic fluid is supplied through hoses containing about 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, torque tool, bolt tensioning equipment, ROV tooling, etc.

Minor leaks during wireline activities (a contingent activity) 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
- backloading of raw slop fluids in an intermediate bulk container(s)
- stuffing box leak/under pressure
- draining of lubricator contents
- lubricant used to lubricate hole
- excess grease/lubricant leaking from the grease injection head. Wind-blown lubricant dripping from cable/on deck.

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.

Impact Assessment

Potential Impacts to Water Quality, Other Habitats and Communities and Protected Species

Accidental spills of hydrocarbons or chemicals from the MODU, installation vessel and support vessels will decrease the water quality in the immediate area of the spill; however, the impacts are expected to be temporary and very localised due to dispersion and dilution in the open ocean environment.

Given the offshore/open water location, receptors such as marine fauna may be affected if they come in direct contact with a release (i.e., by traversing the immediate spill area). In the event that marine fauna come into contact with a release, they could suffer fouling, ingestion, inhalation of toxic vapours, irritation of sensitive membranes in the eyes, mouth, digestive and respiratory tracts, and organ or neurological damage. Cetaceans may exhibit avoidance behaviour patterns and given they are smooth skinned, hydrocarbons and other chemicals are not expected to adhere. Given the small area of the potential spill and the dilution and weathering of any spill, the likelihood of ecological impacts to marine fauna (protected species), other communities and habitats is likely to be negligible to very minor.

No impacts on socio-economic receptors are expected due to the low levels of fishing activity in the Operational Area, the small volumes of hydrocarbons/chemicals that could be accidentally spilled, and the localised and temporary nature of the impacts.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that other hydrocarbon/chemical spills to the marine environment will not result in a potential impact greater than slight, short term local impacts on species, habitat (but not affecting ecosystems function), physical and biological attributes (i.e., Consequence – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/ Sacrifice (CS)*	*Benefit in Impact/ Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
Marine Order 91 (marine pollution prevention – oil) 2014, requires SOPEP/SMPEP (as appropriate to vessel class).	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of an unplanned release. The consequence is unchanged.	Controls based on legislative requirements – must be adopted.	Yes **C 14.1**
Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment.	Controls based on legislative requirements – must be adopted.	Yes **C 16.1**
Good Practice				
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.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of contaminated deck drainage water being discharged to the marine environment.	Benefits outweigh cost/sacrifice.	Yes **C 4.3**
Spill kits positioned in high-risk locations around the rig (near potential spill points such as transfer stations).	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of a deck spill from entering the marine environment. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes **C 16.2**
Installation vessels have self-containing hydraulic oil drip tray management system.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of a deck spill from entering the marine environment. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes **C 16.3**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are presented in **Appendix D**.				
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
Below-deck storage of all hydrocarbons and chemicals.	F: Not feasible. During operations there is a need to keep small volumes near activities and within equipment requiring use of hydrocarbons and chemicals and can result in increased risk of leaks from transfers via hose or smaller containers. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
A reduction in the volumes of chemicals and hydrocarbons stored onboard MODU/vessels.	F: Yes. Increases the risks associated with transportation and lifting operations. CS: Project delays if required chemicals not on board. Increases the risks associated with transportation and lifting operations.	No reduction in likelihood or consequence since chemicals will still be required to enable drilling activities to occur.	Disproportionate. The cost/ sacrifice outweighs the benefit gained.	No
ALARP Statement On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the risks and consequences of the potential unplanned accidental spills described above. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that an unplanned minor discharge of hydrocarbons as a result of minor deck and subsea spills represents a low current risk rating that is unlikely to result in potential impact greater than localised, minor and temporary disruption to a small proportion of the population and no impact on critical habitat or activity. Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are consistent with the most relevant regulatory guidelines and good oil-field practice/industry best practice. The potential risks and consequences are considered acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of minor unplanned deck and subsea spills to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 16 No unplanned spills to the marine environment from deck activities greater than a consequence level of F[31] during the Petroleum Activities Program.	**C 4.3** See **Section 6.6.4**	**PS 4.3** See **Section 6.6.4**	**MC 4.3.1** See **Section 6.6.4**
	C 14.1 See **Section 6.7.4**	**PS 14.1** See **Section 6.7.4**	**MC 14.1.1** See **Section 6.7.4**
	C 16.1 Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/ moved temporarily.	**PS 16.1** Failure of primary containment in storage areas does not result in loss to the marine environment.	**MC 16.1.1** Records confirms all liquid chemicals and fuel are stored in bunded/ secondarily contained areas when not being handled/moved temporarily.
	C 16.2 Spill kits positioned in high-risk locations around the MODU (near potential spill points such as transfer stations).	**PS 16.2** Spill kits to be available for use to clean up deck spills.	**MC 16.2.1** Records confirms spill kits are present, maintained and suitably stocked.
	C 16.3 Installation vessels have self-containing hydraulic oil drip tray management system.	**PS 16.3** Contain any on-deck spills of hydraulic oil.	**MC 16.3.1** Records demonstrate project installation vessels are equipped with self-containing hydraulic oil drip tray management system.

[31] *Defined as 'Slight, short term local impact (<1 year), on species, habitat but not affecting ecosystem function), physical or biological attributes'.*

6.7.7 Unplanned Discharges: Loss of Solid Hazardous and Non-hazardous Wastes/Equipment

Context

Relevant Activities	Existing Environment
Project vessel-based activities – **Section 3.7** Drilling activities – **Section 3.8** Subsea installation and commissioning activities – **Section 3.9** Contingent activities – **Section 3.11**	Physical environment – **Section 4.4** Habitats and biological communities – **Section 4.5** Protected species – **Section 4.6**

Risks Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Consequence*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Accidental loss of hazardous or non-hazardous wastes/ equipment to the marine environment (excludes sewage, grey water, putrescible waste and bilge water)			X		X	X		A	F	2	**L**	LCS GP PJ	Broadly Acceptable	EPO 17

Description of Source of Risk

The MODU and project vessels will generate a variety of solid wastes including packaging and domestic wastes such as aluminium cans, bottles, paper and cardboard. Hence, there is the potential for solid wastes to be lost overboard to the marine environment. Equipment that has been recorded as being lost on previous campaigns (primarily windblown or dropped overboard) have included a metal pole and hardhat. These have occurred during backloading activities, periods of adverse weather and incorrect waste storage.

Impact Assessment

Potential Impacts to Water Quality, Other Habitats and Communities, and Protected Species

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.

Water Quality

Hazardous solid wastes such as paint cans, oily rags, etc., can cause localised contamination of the water through a release of toxins and chemicals. The level of impact to water quality will depend on the nature of the discharge, however volumes of the hazardous components are generally low (such as residual paint in cans or oily rags). Modelling of small volumes of hydrocarbons such as this (e.g., Shell, 2010) indicate rapid dilution in the offshore marine environment, with impacts limited to the immediate vicinity of the contamination.

Given likely small volumes, and the occasional nature of the event, these would result in temporary and highly localised changes to the water quality.

Based on the detailed risk evaluation, the magnitude of potential impact of a change in water quality is slight. Receptor sensitivity is low for water quality, leading to a Negligible (F) consequence.

Benthic Habitats

Solid hazardous and non-hazardous waste that is negatively buoyant may be deposited on the seabed. Material that is readily biodegradable (e.g., cardboard) will degrade with little environmental consequence, while hazardous material (e.g., chemicals) may result in sediment contamination. Materials (e.g., plastics) that are not readily biodegradable may persist in the environment for a long period of time (decades to centuries) and will gradually become buried by natural sedimentary processes. These impacts are of slight (E) consequence.

Protected Species

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. The *Threat Abatement Plan for the Impacts of Marine Debris on the Vertebrate Wildlife of Australia's Coasts and Oceans* (Commonwealth of Australia, 2018) identifies EPBC Act-listed species for which there are scientifically documented adverse impacts resulting from marine debris. Marine turtles and seabirds in particular may be at risk from plastics which may cause entanglement or be mistaken for food and ingested causing damage to internal tissues and potentially preventing feeding activities. In the worst instance this could have a lethal affect to an individual. Marine debris has been identified as threat in the (refer to **Section 6.8**):

- *Conservation Management Plan for the Blue Whale: A Recovery Plan under the* Environment Protection and Biodiversity Conservation Act 1999 *2015-2025* (Commonwealth of Australia, 2015a)
- *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017)
- Sawfish and River Shark Multispecies Recovery Plan (Commonwealth of Australia, 2015c)

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 magnitude of potential impact to marine fauna is Slight, which results in a consequence of Minor (D) based on the high receptor sensitivity.

Summary of Potential Impacts to Environmental Value(s)

The overall risk rating for unplanned discharge of hazardous and non-hazardous solid waste is Low based on a Minor consequence, to the high value receptors (marine fauna), and a remote likelihood. With no lasting effect or more than a localised impact to the environment (i.e., Consequence – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/ Sacrifice (CS)*[32]	*Benefit in Impact/ Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
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.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of an unplanned release. The consequence is unchanged.	Controls based on legislative requirements – must be adopted.	Yes **C 4.1**
Good Practice				
Drilling and Completions Waste Management Plan, which requires: • dedicated space for waste segregation bins and skips shall be provided on the MODU • records of all waste to be disposed, treated or recycled	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of an unplanned release. The consequence is unchanged.	Benefit outweighs cost/ sacrifice.	Yes **C 17.1**

[32] *Qualitative measure.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[32]***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
• waste streams shall be handled and managed according to their hazard and recyclability class • all non-putrescible waste (excludes all food, greywater or sewage waste) shall be transported from the MODU and disposed of onshore.				
Installation Vessel Waste Management Plan, which requires: • dedicated waste segregation bins • records of all waste to be disposed, treated or recycled • waste streams shall be handled and managed according to their hazard and recyclability class.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of an unplanned release. The consequence is unchanged.	Benefit outweighs cost/ sacrifice.	Yes **C 17.2**
MODU/project vessel ROV, crane or support vessel may be used to attempt recovery of hazardous solid wastes lost overboard. Where safe and practicable for this activity, will consider: • risk to personnel to retrieve object • whether the location of the object is in recoverable water depths • object's proximity to subsea infrastructure • ability to recover the object (i.e., nature of object, lifting equipment, or ROV availability and suitable weather).	F: Yes. CS: Minimal cost. Standard practice.	Occurs after an unplanned release of solid waste and therefore no change to the likelihood. Since the waste objects may be recovered, a reduction in consequence is possible.	Benefit outweighs cost/ sacrifice.	Yes **C 17.3**
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
ALARP Statement On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the risks and consequences of accidental discharges of waste. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that, given the adopted controls, accidental discharge of solid waste represents a low current risk rating that is unlikely to result in a potential impact slight, short term impacts on species,

habitat (but not affecting ecosystems function), physical and biological attributes. Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet legislative requirements (Marine Orders 95 and 94). The management of the hazardous and non-hazardous wastes aspect of the Petroleum Activities Program is consistent with the objectives of threat abatement and species recovery plans made under the EPBC Act (**Section 6.8**). The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of these discharges to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 17 No unplanned releases of solid hazardous or non-hazardous waste to the marine environment greater than a consequence level of F[33] during the Petroleum Activities Program.	**C 4.1** See **Section 6.6.4**	**PS 4.1** See **Section 6.6.4**	**MC 4.1.1** See **Section 6.6.4**
	C 17.1 Drilling and Completions Waste Management Plan, which requires: • dedicated space for waste segregation bins and skips shall be provided on the MODU • records of all waste to be disposed, treated or recycled • waste streams shall be handled and managed according to their hazard and recyclability class • all non-putrescible waste (excludes all food, greywater or sewage waste) shall be transported from the MODU and disposed of onshore.	**PS 17.1** Hazardous and non-hazardous waste will be managed in accordance with the Drilling and Completions Waste Management Plan.	**MC 17.1.1** Records demonstrate compliance against Drilling and Completions Waste Management Plan.
	C 17.2 Installation Vessel Waste Management Plan, which requires: • dedicated waste segregation bins • records of all waste to be disposed, treated or recycled • waste streams shall be handled and managed according to their hazard and recyclability class. • implementation of waste management procedures which provide for safe handling and transportation, segregation and storage and appropriate classification of all waste generated.	**PS 17.2** Hazardous and non-hazardous waste will be managed in accordance with the Installation Vessel Waste Management Plan.	**MC 17.2.1** Records demonstrate compliance against Installation Vessel Waste Management Plan.

[33] *Defined as 'Slight, short term local impact (<1 year), on species, habitat but not affecting ecosystem function), physical or biological attributes'.*

	C 17.3 MODU/project vessel ROV, crane or support vessel may be used to attempt recovery of hazardous solid wastes lost overboard. Where safe and practicable for this activity, will consider: • risk to personnel to retrieve object • whether the location of the object is in recoverable water depths • object's proximity to subsea infrastructure • ability to recover the object (i.e., nature of object, lifting equipment, ROV availability and suitable weather). Any material dropped objects / waste that remain in the title will undergo an impact assessment and be added to the inventory.	**PS 17.3** Any hazardous solid waste dropped to the marine environment will be recovered where safe and practicable to do so.	**MC 17.3.1** Records detail the recovery attempt consideration and status of any hazardous waste lost to marine environment.
		PS 17.4 Where retrieval is not practicable and / or safe, material items (property) that are lost to the marine environment will undergo an impact assessment and will be added to the inventory for the title.	**MC 17.4.1** First Priority records demonstrate outcomes of the safe and practicable evaluation, including an impact assessment for the objects remaining.
			MC 17.4.2 Records demonstrate that material items left in title are added to the inventory.

6.7.8 Physical Presence: Vessel Collision with Marine Fauna

Context

Relevant Activities	**Existing Environment**
Project vessels – Section 3.5	Protected Species – **Section 4.6**

Risks Evaluation Summary

Source of Risk	***Environmental Value Potentially Impacted***							***Evaluation***						
	Soil and Groundwater	***Marine Sediment***	***Water Quality***	***Air Quality (incl Odour)***	***Ecosystems/Habitat***	***Species***	***Socio-Economic***	***Decision Type***	***Consequence***	***Likelihood***	***Current Risk Rating***	***ALARP Tools***	***Acceptability***	***Outcome***
Accidental collision between project vessels and protected marine fauna						X		A	E	1	**L**	LCS GP PJ	Broadly Acceptable	EPO 18

Description of Source of Risk

Project vessels in the Operational Area may interact with marine fauna. Support vessels are typically stationary or moving at low speeds when supporting drilling operations; support vessels typically transit to and from the Operational Area between two and four trips per week (e.g., to port) when the MODU is present in the Operational Area. While rare, project vessels may collide with marine fauna, such as cetaceans (e.g., humpback whales, pygmy blue whales) and marine turtles.

Impact Assessment

Potential Impacts to Protected Species

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), or mortality. Marine fauna are also at risk of mortality through being caught in thrusters during station keeping operations (dynamic positioning).

The likelihood of vessel/fauna collision being lethal is influenced by vessel speed—the greater the speed at impact, the greater the risk of mortality (Jensen and Silber, 2004; Laist et al., 2001). Vanderlaan and Taggart (2007) found that the chance of lethal injury to a large whale as a result of a vessel strike increases from about 20% at 8.6 knots to 80% at 15 knots. Project vessels within the Operational Area are likely to be travelling < 8 knots (and will often be stationary) within the 500 m zone around the MODU. At times, vessels will be transiting where speed could be up to a maximum of about 15 knots; however, these transits within the Operational Area would be very infrequent (if at all). Therefore, the chance of a vessel collision with protected species resulting in a lethal outcome is considered unlikely.

The risk of marine life getting caught in operating thrusters is unlikely, given the low density of individuals and the avoidance behaviour commonly displayed by fauna in response to dynamic positioning operations.

Marine Mammals

As described above, vessel speed influences the probability of a vessel collision with a cetacean and also whether a collision may result in lethal injury (Vanderlaan and Taggart, 2007). Additionally, behaviour of individuals may also influence the likelihood of a collision occurring. Although large cetaceans are expected to show localised avoidance in response to vessel noise, studies have reported limited behavioural response to approaching ships (McKenna et al., 2015) and individuals engaging in behaviours such as feeding, mating or nursing may be less aware of their surroundings and more susceptible to collision (Laist et al., 2001).

No known key aggregation areas for marine mammals (resting, breeding or feeding) are located within or immediately adjacent to the Operational Area. However, the Operational Area overlaps a migration BIA for pygmy blue whales, within which the species will be seasonally present (**Section 4.6.3**). The *Conservation Management Plan for the Blue*

Whale: A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 *2015-2025* (Commonwealth of Australia, 2015a) identifies vessel disturbance, including collisions, as a threat to the recovery of blue and pygmy blue whales. The plan describes several collisions between blue whales and vessels in Australian waters, all of which appear to be associated with blue whale feeding activities.

Recent tagging and modelling studies of pygmy blue whale distributions (Thums et al., 2022) show that migrating pygmy blue whales are most likely to be found in continental slope waters, and hence may occur within the Operational Area (which overlaps the continental slope).

Vanderlaan and Taggart (2007) estimate the risk of lethal injury to a large whale as a result of a vessel strike is less than 10% at a speed of 4 knots. Vessel-whale collisions at this speed are uncommon and, based on reported data contained in the NOAA database (Jensen and Silber, 2004) there are only two known instances of collisions when the vessel was travelling at less than 6 knots; both of these were from whale-watching vessels that were deliberately positioned amongst whales.

Several species of dolphin were identified as potentially occurring in the Operational Area. However, most dolphins show preference for coastal habitats over deep offshore waters. Dolphins are also very agile and can easily avoid slow-moving vessels such as those undertaking the Petroleum Activities Program.

Marine Reptiles

The *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017) recognises turtles are at risk from vessel strikes, particularly in shallow coastal foraging habitats and internesting areas where there are high numbers of recreational and commercial vessels. Considering the offshore location, it is expected that the presence of marine turtles would be very unlikely and only comprise individuals transiting the open, offshore waters for short periods of time. It is expected that individuals will respond to vessel presence by avoiding the immediate vicinity of the vessels and, combined with low vessel speed, will reduce the likelihood of a vessel-turtle collision.

Marine Fauna Summary

Potential impacts from collision with marine fauna will not result in a substantial adverse effect on a population or the spatial distribution of the population. Additionally, no adverse impact on marine ecosystem functioning or integrity or impacts to lifecycles of the population of migratory whales will occur.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls, it is considered that a collision, were it to occur, will not result in a potential impact greater than slight, short-term impact on species (i.e., Consequence – E).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures[34]: • Project vessels will not travel greater than 6 knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale. • Project 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). • If the cetacean or turtle shows signs of being disturbed, project vessels	F: Yes. CS: Minimal cost. Standard practice.	Implementation of these controls will reduce the likelihood of a collision between a cetacean, whale shark or turtle occurring. The consequence of a collision is unchanged.	Controls based on legislative requirements – must be adopted.	Yes **C 18.1**

[34]*For safety reasons, the distance requirements below are not applied for a vessel holding station or with limited manoeuvrability, e.g. loading, back-loading, bunkering, close standby cover for overside working and emergency situations.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
will immediately withdraw from the caution zone at a constant speed of less than 6 knots. • Vessels will not travel greater than 8 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.				
Good Practice				
Variation of the timing of the Petroleum Activities Program to avoid whale migration periods.	F: No. Timing of activities is linked to MODU schedule. Timing of all activities is currently not determined, and due to MODU availability and operational requirements, undertaking activities during migration seasons may not be able to be avoided. CS: Not considered, control not feasible.	Not considered, control not feasible.	Not considered, control not feasible.	No
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				
The use of dedicated MFOs on support vessels for the duration of each activity to watch for whales and provide direction on and monitor compliance with Part 8 of the EPBC Regulations.	F: Yes. However, vessel bridge crews already maintain a constant watch during operations in compliance with the Woodside Marine – Charterers Instructions on the requirements of vessel and whale interactions, and crew undertake specific cetacean observation training. CS: Additional cost of MFOs considered unnecessary.	Given that support vessel bridge crews already maintain a constant watch during operations in compliance with the Woodside Marine – Charterers Instructions, additional MFOs would not significantly further reduce the risk.	Disproportionate. The cost/ sacrifice outweighs the benefit gained.	No
ALARP Statement On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the risks and consequences of potential vessel collision with protected marine fauna. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that, given the adopted controls, vessel collision with marine fauna represents a low current risk rating that is unlikely to result in a potential impact greater than minor and temporary disruption to a small proportion of the population and no impact on critical habitat or activity. Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet the requirements of Part 8 (Division 8.1) of the *EPBC Regulations 2000*. The risk of vessel collisions with marine fauna is not inconsistent with the objectives in the *Conservation Management Plan for the Blue Whale: A Recovery Plan under the* Environment Protection and Biodiversity Conservation Act 1999 *2015-2025* (Commonwealth of Australia, 2015a) and the *Recovery Plan for Marine Turtles in Australia 2017-2027* (Commonwealth of Australia, 2017) (refer to **Section 6.8**). The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of vessel collision with marine fauna to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 18 No vessel strikes with protected marine fauna (whales, whale sharks, turtles) during the Petroleum Activities Program.	**C 18.1** EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures[35]: • Project vessels will not travel greater than 6 knots within 300 m of a cetacean or turtle (caution zone) and not approach closer than 100 m from a whale. • Project 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). • If the cetacean or turtle shows signs of being disturbed, project vessels will immediately withdraw from the caution zone at a constant speed of less than 6 knots. • Vessels will not travel greater than 8 knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	**PS 18.1** Compliance with EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.05 and 8.06) Interacting with cetaceans to minimise potential for vessel strike.	**MC 18.1.1** Records demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans.
		PS 18.2 All vessel strike incidents with cetaceans will be reported in the National Ship Strike Database (as outlined in the Conservation Management Plan for the Blue Whale – A Recovery Plan under the EPBC Act 1999, Commonwealth of Australia, 2015).	**MC 18.2.1** Records demonstrate reporting cetacean ship strike incidents to the National Ship Strike Database.

[35] *For safety reasons, the distance requirements below are not applied for a vessel holding station or with limited manoeuvrability e.g. anchor handling, loading, back-loading, bunkering, close standby cover for overside working and emergency situations.*

6.7.9 Physical Presence: Dropped Object Resulting in Seabed Disturbance

Context

Relevant Activities	Existing Environment
Project vessel-based activities – **Section 3.7** Drilling activities – **Section 3.8** Subsea installation and commissioning activities – **Section 3.9** Contingent activities – **Section 3.11**	Habitats and biological communities – **Section 4.5**

Risks Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Consequence*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Dropped objects resulting in the disturbance of benthic habitat		X			X			A	F	2	**L**	LCS GP PJ	Broadly Acceptable	EPO 19

Description of Source of Risk

There is the potential for objects to be dropped overboard from the MODU and project vessels to the marine environment. Objects that have been dropped during previous offshore projects include small numbers of personal protective gear (e.g., glasses, gloves, hard hats), small tools (e.g., spanners) hardware fixtures (e.g., riser hose clamp) and drill equipment (e.g., drill pipe). The spatial extent in which dropped objects can occur is restricted to the Operational Area.

The Operational Area contains subsea infrastructure tied back to the Pluto facility that may be producing hydrocarbons. A dropped object of sufficient mass landing on such subsea infrastructure may result in a loss of containment. Impacts and controls in relation to responding to a loss of containment from such infrastructure and described in the Pluto Facility Operations Environment Plan. Controls to prevent a dropped object event occurring are described in this EP.

No moored MODUs will be used to undertake the Petroleum Activities Program; only DP MODUs or drillships will be used for drilling. Only dynamically positioned MODUs, drillships, or WIVs will be used for well intervention and workover activities. The commitment to not use moored MODUs' eliminates the risk of dropped moorings. It also eliminates the risk of a moored MODU dragging moorings over subsea infrastructure containing hydrocarbons.

Impact Assessment

Assessment of Potential Impacts

In the unlikely event of an object being dropped into the marine environment, potential environmental effects would be limited to localised physical impacts on benthic communities. In most cases, objects will be able to be recovered and therefore these impacts will also be temporary in nature. However, there may be instances where objects are unable to be recovered due to health and safety, operational constraints or other factors such as the difficulty of recovering dropped objects at depth. When dropped objects are unable to be recovered, the impact will continue to be localised but would also be long-term.

Benthic Habitats

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 NWMR (**Section 4.5**).

The Continental Slope Demersal Fish Communities KEF partially overlaps the Operational Area. Impacts to the environmental values of this KEF (i.e., demersal fishes) from dropped objects will be negligible. These environmental values are widely represented in the region and not considered to be particularly sensitive to the credible impacts of dropped objects during the Petroleum Activities Program.

Given the nature and scale of risks and consequences from dropped objects, no lasting effect is expected to seabed sensitivities within the Operational Area. Further, considering the types, size and frequency of dropped objects that could occur, it is unlikely that a dropped object would have a significant impact on any benthic community.

On this basis, the magnitude of potential impacts to KEFs from unplanned seabed disturbance during activities is Slight. Receptor sensitivity for KEF is high, leading to a negligible consequence with no lasting effects.

Summary of Potential Impacts to Environmental Value(s)

Given the adopted controls and the predicted small footprint of a dropped object, it is considered that a dropped object will result in only localised impacts to a small area of the seabed and a small proportion of the benthic population. No significant impacts to environmental receptors, nor would there be any lasting effect (i.e., Consequence – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/ Sacrifice (CS)*[36]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
The MODU/ installation vessels' work procedures for lifts, bulk transfers and cargo loading, which require: • The security of loads shall be checked prior to commencing lifts. • Loads shall be covered if there is a risk of loss of loose materials. • 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.	F: Yes. CS: Minimal cost. Standard practice.	Occurs after a dropped object event and therefore no change to the likelihood. Since the object may be recovered, a reduction in consequence is possible.	Benefits outweigh cost/sacrifice.	Yes **C 19.1**
MODU/ installation vessel inductions include control measures and training for crew in dropped object prevention.	F: Yes. CS: Minimal cost. Standard practice.	By ensuring crew are appropriately trained in dropped object prevention, the likelihood of a dropped object event is reduced. No change in consequence will occur.	Benefits outweigh cost/sacrifice.	Yes **C 19.2**
Professional Judgement – Eliminate				
No additional controls identified.				
Professional Judgement – Substitute				
No additional controls identified.				
Professional Judgement – Engineered Solution				
No additional controls identified.				

[36] *Qualitative measure.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[36]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
ALARP Statement On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the risks and consequences of seabed disturbance from dropped objects. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that, given the adopted controls, dropped objects will not result in a potential impact greater than minor and temporary disruption to a small area of the seabed, a small proportion of the benthic population and no impact on critical habitat or activity. Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of seabed disturbance from dropped objects to an acceptable level.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 19 No incidents of dropped objects to the marine environment greater than a consequence level of F[37] during the Petroleum Activities Program.	**C 19.1** The MODU/installation vessels' work procedures for lifts, bulk transfers and cargo loading, which require: • the security of loads to be checked prior to commencing lifts • loads to be covered if there is a risk of losing loose materials • lifting operations to be conducted using the PTW and JSA systems to manage the specific risks of that lift, including consideration of weather and sea state.	**PS 19.1** All lifts conducted in accordance with applicable MODU/ installation vessel work procedures to limit potential for dropped objects.	**MC 19.1.1** Records show lifts conducted in accordance with the applicable MODU/ installation vessel work procedures.
	C 19.2 MODU/ installation vessel inductions include control measures and training for crew in dropped object prevention.	**PS 19.2** Awareness of requirements for dropped object prevention.	**MC 19.2.1** Records show dropped object prevention training is provided to the MODU/ installation vessels.

[37] *Defined as 'Slight, short term local impact (<1 year), on species, habitat but not affecting ecosystem function), physical or biological attributes'.*

6.7.10 Physical Presence: Accidental Introduction and Establishment of Invasive Marine Species

Context

Relevant Activities	Existing Environment	Consultation
Project vessels – **Section 3.5**	Habitats and biological communities – **Section 4.5** Key Ecological Features – **Section 4.6.6** Socio-economic – **Section 4.8**	Consultation – **Section 5**

Risks Evaluation Summary

Source of Risk	*Environmental Value Potentially Impacted*							*Evaluation*						
	Soil and Groundwater	*Marine Sediment*	*Water Quality*	*Air Quality (incl Odour)*	*Ecosystems/Habitat*	*Species*	*Socio-Economic*	*Decision Type*	*Consequence*	*Likelihood*	*Current Risk Rating*	*ALARP Tools*	*Acceptability*	*Outcome*
Introduction of invasive marine species					X	X	X	A	D	0	**L**	LCS GP PJ	Broadly Acceptable	EPO 20

Description of Source of Risk

During the Petroleum Activities Program, vessels will be transiting to and from the Operational Area, potentially including traffic mobilising from beyond Australian waters. These project vessels may include the MODU, installation vessels, WIVs, and activity support vessels (**Section 3.6**).

All vessels are subject to some level of marine fouling. Organisms attach to the vessel hull, particularly in areas where organisms can find a good attachment surface (e.g., seams, strainers and unpainted surfaces) or where turbulence is lowest (e.g., niches, sea chests, etc.). Commercial vessels typically maintain anti-fouling coatings to reduce the build-up of fouling organisms. Organisms can also be drawn into ballast tanks during onboarding of ballast water as cargo is loaded or to balance vessels under load.

During the Petroleum Activities Program, the MODU and project vessels have the potential to introduce IMS to the Operational Area through biofouling (containing IMS) on vessels as well as within high-risk ballast water discharge. Cross contamination between vessels can also occur (e.g., IMS translocated between project vessels).

Impact Assessment

Assessment of Potential Impacts

IMS are a subset of Non-indigenous Marine Species (NIMS) that have been introduced into a region beyond their natural biogeographic range resulting in impacts to social/cultural, human health, economic and/or environmental values. NIMS are species that have the ability to survive, reproduce and establish founder populations. However, not all NIMS introduced into an area will thrive or cause demonstrable impacts and the majority of NIMS around the world are relatively benign and few have spread widely beyond sheltered ports and harbours. NIMS are only considered IMS when they result in impacts to environmental values and/or have social/cultural, economic and/or human health impacts.

Potential IMS have historically been introduced and translocated around Australia by a variety of natural and human means, including marine fouling and ballast water. 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.

Habitats and Biological Communities

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)
- outcompete indigenous species for food, space or light
- 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.

Epifauna and infauna in the Operational Area may be susceptible to impacts from IMS due to the risk of changes to the ecosystem dynamics such as competition for resources and predation. Benthic productivity on the outer continental shelf and slope is low, and is a function of water depth, low nutrient availability, and the absence of hard substrates. The seafloor in the Operational Area is characterised by sparse epifauna and infauna such as shrimp, sea cucumbers, demersal fish and small, burrowing worms and crustaceans.

However, while project vessels have the potential to introduce IMS into the Operational Area, the deep offshore open waters of the Operational Area (approximately 170 to 990 m) are not conducive to the settlement and establishment of IMS. Furthermore, the Operational Area is far from shallow water habitats where IMS typically become established. The likelihood of IMS being introduced and establishing viable populations within the Operational Area or immediate surrounds is considered not credible.

Accordingly, impact to benthic habitats and communities from IMS are not considered credible. Receptor sensitivity for benthic habitats and communities is low, leading to a Negligible (F) risk consequence.

Key Ecological Features

As outlined above in Habitats and Biological Communities, establishment of IMS within the Operational Area is not considered credible. Receptor sensitivity for benthic habitats and communities is low, leading to a Negligible (F) risk consequence.

Socio-Economic Environment

IMS have also proven economically damaging to areas where they have been introduced and established. Such impacts include direct damage to assets (fouling of vessel hulls and infrastructure) and depletion of commercially harvested marine life (e.g., shellfish stocks). IMS have proven particularly difficult 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.

The establishment of IMS has the potential to cause changes to the functions, interests or activities of other users through indirect impact such as changes to fisheries target species resulting in economic and social implications, or due to compromised reputation to the oil and gas industry.

Given the low likelihood of IMS translocation to, and colonisation of, environments within the Operational Area, project activities will not result in establishment of IMS, and as such not adversely affect other marine user activities in the region.

Based on the detailed impact evaluation, the magnitude of potential impacts of a change to the functions, interests or activities of other users is slight (see **Table 6-21**). Receptor sensitivity for industry, shipping and defence is medium, leading to a Slight (E) risk consequence. The likelihood of the risk event occurring is Remote, therefore the risk is assessed as Low.

Table 6-21: Evaluation of risks and impacts from marine pest translocation

IMS Introduction Location	Credibility of Introduction	Consequence of Introduction	Likelihood
Introduced to Operational Area and establishment on the seafloor or subsea structures.	***Not Credible*** The deep offshore open waters of the Operational Area, away from shorelines and/or critical habitat, more than 50 km from a shoreline and in waters > 100 m deep are not conducive to the settlement and establishment of IMS.		
Introduced to Operational Area and establishment on a project vessel.	***Credible*** There is potential for the transfer of marine pests between project vessels within the Operational Area.	***Environment – Not credible*** The translocation of IMS from a colonised MODU or project vessel to shallower environments via natural dispersion is not considered credible, given the distances of the Operational Area from nearshore environments (i.e., greater than 12 nm/50 water depth). There is therefore no credible environmental risk and the	***Remote (0)*** Interactions between project vessel will be limited during the Petroleum Activities Program, with minimum 500 m safety exclusion zones being adhered

		assessment is limited to Woodside's reputation. **Reputation – E** If IMS were to establish on a project vessel (i.e. MODU, installation vessels, activity support vessels), this could potentially impact the vessel operationally through the fouling of intakes, result in translocation of an IMS into the Operational Area and, depending on the species, potentially transfer of an IMS to other support vessels, which would likely result in the quarantine of the vessel until eradication could occur (through cleaning and treatment of infected areas), which would be costly to perform. Such introduction would be expected to have slight impact to Woodside's reputation, particularly with Woodside's contractors, and would likely have a reputational impact on future proposals.	to around the MODU, and interactions limited to short periods of time alongside (i.e., during backloading, bunkering activities). There is also no direct contact (i.e., they are not tied up alongside) during these activities. Spread of marine pests via ballast water or spawning in these open ocean environments is also considered remote.
Transfer between project vessels and from project vessels to other marine environments beyond the Operational Area.	***Not Credible*** This risk is considered so remote that it is not credible for the purposes of the activity. The transfer of a marine pest between project vessels was already considered remote, given the offshore open ocean environment (i.e., transfer pathway discussed above). For a marine pest to then establish into a mature spawning population on the new project vessel (which would have been through Woodside's IMS process) and then transfer to another environment is not considered credible (i.e., beyond the Woodside risk matrix). Project vessels will be located in an offshore, open ocean, deep environment, where IMS survival is implausible. Furthermore, this marine pest once transferred would need to survive on a new vessel with good vessel hygiene (i.e., has been through Woodside's risk assessment process), and survive the transport back from the Operational Area to shore. In the event it was to survive this trip, it would then need to establish a viable population in nearshore waters.		

Summary of Potential Impacts to Environmental Value(s)

In support of Woodside's assessment of the risks and consequences of IMS introduction associated with the Petroleum Activities Program, Woodside conducted a risk and impact evaluation of the different aspects of a marine pest translocation. The results of this assessment are presented in **Table 6-21**.

As a result of this assessment, Woodside has presented the highest potential consequence as a E and likelihood as Remote (0), resulting in an overall Low risk following the implementation of identified controls. With the adopted controls in place there is not expected to be more than a slight, short-term impact (i.e. Consequence E).

Demonstration of ALARP

Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[1]***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
Legislation, Codes and Standards				
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.	F: Yes. CS: Minimal cost. Standard practice.	The use of an approved ballast water treatment system will reduce the likelihood of transfer of marine pests between project vessels within the Operational Area. No	Controls based on legislative requirements under the *Biosecurity Act 2015* – must be adopted.	Yes **C 20.1**

[1] *Qualitative measure.*

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[1]***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
		change in consequence would occur.		
Internationally sourced Project vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements.	F: Yes. CS: Standard practice.	Reduces the likelihood of transfer of marine pests between vessels within the Operational Area. No change in consequence would occur.	Controls based on legislative requirements under the *Biosecurity Act 2015* – must be adopted.	Yes **C 20.2**
Good Practice				
Woodside's IMS risk assessment process applied to project vessels which enter the Operational Area. For vessels / MODUs, the assessment will consider: • vessel / MODU type • recent IMS inspection and cleaning history, including internal niches • out-of-water period before mobilisation • age and suitability of antifouling coating and mobilisation date • internal treatment systems and history • number of stationary / slow speed periods > 7 days • region of stationary or slow speed periods • type of activity – contact with seafloor For immersible equipment, the assessment will consider: • region of deployment since last thorough clean, particularly coastal locations • duration of deployments • duration of tome out of water since last deployment • transport conditions during mobilisation	F: Yes. CS: Minimal cost. Good practice implemented across all Woodside Operations.	The IMS risk assessment process will identify potential risks and additional controls implemented accordingly. In doing so, the likelihood of transfer of marine pests between project vessels within the Operational Area is reduced. No change in consequence would occur.	Benefits outweigh cost/sacrifice.	Yes **C 20.3**

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[1]***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
• post-retrieval maintenance regime. Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as treating internal systems, IMS inspections or cleaning) will be implemented to minimise the likelihood of IMS being introduced.				
Professional Judgement – Eliminate				
No discharge of ballast water during the Petroleum Activities Program.	F: No. Ballast water discharges are critical for maintaining vessel stability. Given the nature of the Petroleum Activities Program, the use of ballast (including the potential discharge of ballast water) is considered to be a safety-critical requirement. CS: Not assessed, control not feasible.	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Eliminate use of MODU/vessels.	F: No. Given that vessels must be used to implement project, there is no feasible means to eliminate the source of risk. CS: Loss of the project.	Not assessed, control not feasible.	Not assessed, control not feasible.	No
Professional Judgement – Substitute				
Source project vessels based in Australia only.	F: Potentially. Limiting activities to only use local project vessels could potentially pose a significant risk in terms of time and duration of sourcing a vessel, as well as the ability of the local vessels to perform the required tasks. For example, there are limited installation vessels based in Australian waters. While the project will attempt to source support vessels locally, it is not always possible. Availability cannot always be guaranteed when considering competing oil and gas activities in the	Sourcing vessels from within Australia will reduce the likelihood of IMS from outside Australian waters; however, it does not reduce the likelihood of introduction of species native to Australia but alien to the Operational Area and NWMR, or of IMS that have established elsewhere in Australia. The consequence is unchanged.	Disproportionate. Sourcing vessels from Australian waters may result in a reduction in the likelihood of IMS introduction to the Operational Area; however, 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	No

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/ Sacrifice (CS)[1]***	***Benefit in Impact/ Risk Reduction***	***Proportionality***	***Control Adopted***
	region. In addition, sourcing Australian based vessels only will cause increases in cost due to pressures of vessel availability. CS: Significant cost and schedule impacts due to restrictions of vessel hire opportunities.		Australian based vessels, consequently this risk is considered not reasonably practicable.	
IMS Inspection of all vessels.	F: Yes. Approach to inspect vessels could be a feasible option. CS: Significant cost and schedule impacts. In addition, Woodside's IMS risk assessment process (**C 19.2**) 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.	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. No change in consequence would occur.	Disproportionate. The cost/sacrifice outweighs the benefit gained, as other controls to be implemented achieve an ALARP position.	No
Professional Judgement – Engineered Solution				
None identified				
ALARP Statement On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type (i.e., Decision Type A), Woodside considers the adopted controls appropriate to manage the risks and consequences of IMS introduction. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without grossly disproportionate sacrifice, the risks and consequences are considered ALARP.				

Demonstration of Acceptability
Acceptability Statement The impact assessment has determined that, given the adopted controls, translocation of IMS may result in a temporary impact with no lasting effect and the likelihood of introducing IMS to the Operational Area is considered remote[38]. Further opportunities to reduce the risks and consequences have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. The potential risks and consequences are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the risks and consequences of invasive marine species to an acceptable level.

[38] *All project vessels including the MODU will undergo Woodside's IMS risk assessment process therefore the risk of introducing IMS to the Operational Area and then onto nearshore or coastal areas was considered not credible.*

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 20 No introduction and establishment of invasive marine species into the Operational Area as a result of the Petroleum Activities Program.	**C 20.1** 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 20.1.1** Project vessels manage ballast water in accordance with Australian Ballast Water Management Requirements.	**MC 20.1.1** Ballast Water Records System maintained by vessels which verifies compliance against Australian Ballast Water Management Requirements.
	C 20.2 Internationally sourced Project vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements.	**PS 20.2.1** Compliance with Australian Biofouling Management Requirements.	**MC 20.2.1** Records of implementation of biofouling management measure and pre-arrival reporting.
	C 20.3 Woodside's IMS risk assessment process applied to project vessels which enter the Operational Area. For vessels / MODUs, the assessment will consider: • vessel / MODU type • recent IMS inspection and cleaning history, including internal niches	**PS 20.3.1** Before entering the Operational Area, project vessels, MODU and relevant immersible equipment are determined to be low risk of introducing IMS of concern, and maintain this low-risk status to mobilisation.	**MC 20.3.1** Records of IMS risk assessments maintained for all project vessels and relevant immersible equipment entering the operational area or IMS management area to undertake the Petroleum Activities Program.

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
	• out-of-water period before mobilisation • age and suitability of antifouling coating and mobilisation date • internal treatment systems and history • number of stationary / slow speed periods > 7 days • region of stationary or slow speed periods • type of activity – contact with seafloor For immersible equipment, the assessment will consider: • region of deployment since last thorough clean, particularly coastal locations • duration of deployments • duration of tome out of water since last deployment • transport conditions during mobilisation • post-retrieval maintenance regime. Based on the outcomes of each IMS risk assessment, management measures commensurate with the risk (such as treating internal systems, IMS inspections or cleaning) will be implemented to minimise the likelihood of IMS being introduced.	**PS 20.4.1** In accordance with Woodside's IMS risk assessment process, 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 20.4.1** Records confirm that the IMS risk assessments undertaken by an Environment Adviser or IMS inspector (as relevant).

6.8 Recovery Plan and Threat Abatement Plan Assessment

As described in **Section 1.10.2**, an EP must not be inconsistent with a recovery plan or threat abatement plan for a listed threatened species or ecological community. This section describes the assessment that Woodside has undertaken to demonstrate that the Petroleum Activities Program is not inconsistent with any relevant recovery plans or threat abatement plans. For the purposes of this assessment, the relevant Part 13 statutory instruments (recovery plans and threat abatement plans are:

- *Recovery Plan for Marine Turtles in Australia 2017 – 2027* (Commonwealth of Australia, 2017).
- *Conservation Management Plan for the Blue Whale - A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025* (Commonwealth of Australia, 2015a)
- *Recovery plan for the grey nurse shark (Carcharias taurus)* (Department of the Environment, 2014)
- *Sawfish and River Shark Multispecies Recovery Plan* (Commonwealth of Australia, 2015c)
- *Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans 2018* (Commonwealth of Australia, 2018).

Table 6-22 lists the objectives and (where relevant) the action areas of these plans, and also describes whether these objectives/action areas are applicable to government, the Titleholder and/or the Petroleum Activities Program. For those objectives/action areas applicable to the Petroleum Activities Program, the relevant actions of each plan have been identified, and an evaluation has been conducted as to whether impacts and risks resulting from the activity are clearly inconsistent with that action or not. The results of this assessment against relevant actions are presented in **Table 6-23** to **Table 6-27**.

The assessment of potential impacts and risks to pygmy blue whales from underwater noise emissions in **Section 6.6.3** has taken into account the definitions of terminology in the CMP, as described in the DAWE and NOPSEMA guidance released in September 2021. Similarly, the assessment against relevant actions in the CMP in **Table 6-24** has been undertaken in the context of the definitions included in the guidance note.

Table 6-22: Identification of applicability of recovery plan and threat abatement plan objectives and action areas

EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activities Program***
Recovery Plan for Marine Turtles in Australia 2017 – 2027			
Long-term Recovery Objective: Minimise anthropogenic threats to allow for the conservation status of marine turtles to improve so they can be removed from the EPBC Act threatened species list	Y	Y	Y
Interim Recovery Objectives			
Current levels of legal and management protection for marine turtle species are maintained or improved, both domestically and throughout the migratory range of Australia's marine turtles	Y		
The management of marine turtles is supported	Y		
Anthropogenic threats are demonstrably minimised	Y	Y	Y
Trends in nesting numbers at index beaches and population demographics at important foraging grounds are described	Y	Y	
Action Areas			
A. Assessing and addressing threats			
A1. Maintain and improve efficacy of legal and management protection	Y		
A2. Adaptatively manage turtle stocks to reduce risk and build resilience to climate change and variability	Y		
A3. Reduce the impacts of marine debris	Y	Y	Y
A4. Minimise chemical and terrestrial discharge	Y	Y	Y
A5. Address international take within and outside Australia's jurisdiction	Y		
A6. Reduce impacts from terrestrial predation	Y		
A7. Reduce international and domestic fisheries bycatch	Y		
A8. Minimise light pollution	Y	Y	Y
A9. Address the impacts of coastal development/infrastructure and dredging and trawling	Y	Y	
A10. Maintain and improve sustainable Indigenous management of marine turtles	Y		
B. Enabling and measuring recovery			
B1. Determine trends in index beaches	Y	Y	Y
B2. Understand population demographics at key foraging grounds	Y		
B3. Address information gaps to better facilitate the recovery of marine turtle stocks	Y	Y	Y
Conservation Management Plan for the Blue Whale - A Recovery Plan under the Environment Protection and Biodiversity Conservation Act 1999 2015-2025			
Long-term recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so they can be removed from the EPBC Act threatened species list	Y	Y	Y
Interim Recovery Objectives			
The conservation status of blue whale populations is assessed using efficient and robust methodology	Y		

EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activities Program***
The spatial and temporal distribution, identification of BIAs, and population structure of blue whales in Australian waters is described	Y	Y	Y
Current levels of legal and management protection for blue whales are maintained or improved and an appropriate adaptive management regime is in place	Y		
Anthropogenic threats are demonstrably minimised	Y	Y	Y
Action Areas			
A. Assessing and addressing threats			
A.1: Maintain and improve existing legal and management protection	Y		
A.2: Assess and address anthropogenic noise	Y	Y	Y
A.3: Understand impacts of climate variability and change	Y		
A.4: Minimise vessel collisions	Y	Y	Y
B. Enabling and measuring recovery			
B.1: Measure and monitor population recovery	Y		
B.2: Investigate population structure	Y		
B.3: Describe spatial and temporal distribution and define biologically important habitat	Y	Y	Y
Grey Nurse Shark Recovery Plan			
Overarching Objective			
To assist the recovery of the grey nurse shark in the wild, throughout its range in Australian waters, with a view to: • improving the population status, leading to future removal of the grey nurse shark from the threatened species list of the EPBC Act • ensuring anthropogenic activities do not hinder the recovery of the grey nurse shark in the near future, or impact on the conservation status of the species in the future	Y	Y	Y
Specific Objectives			
Develop and apply quantitative monitoring of the population status (distribution and abundance) and potential recovery of the grey nurse shark in Australian waters	Y		
Quantify and reduce the impact of commercial fishing on the grey nurse shark through incidental (accidental or illegal) take, throughout its range	Y		
Quantify and reduce the impact of recreational fishing on the grey nurse shark through incidental (accidental or illegal) take, throughout its range	Y		
Where practicable, minimise the impact of shark control activities on the grey nurse shark	Y		
Investigate and manage the impact of ecotourism on the grey nurse shark	Y		
Manage the impact of aquarium collection on the grey nurse shark	Y		
Improve understanding of the threat of pollution and disease to the grey nurse shark	Y	Y	Y
Continue to identify and protect habitat critical to the survival of the grey nurse shark and reduce the impact of threatening processes within these areas	Y	Y	

EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activities Program***
Continue to develop and implement research programs to support the conservation of the grey nurse shark	Y	Y	
Promote community education and awareness in relation to grey nurse shark conservation and management	Y		
Sawfish and River Sharks Recovery Plan			
Primary Objective			
To assist the recovery of sawfish and river sharks in Australian waters with a view to: • improving the population status leading to the removal of the sawfish and river shark species from the threatened species list of the EPBC Act • ensuring anthropogenic activities do not hinder recovery in the near future, or impact on the conservation status of the species in the future	Y	Y	Y
Specific Objectives			
Reduce and, where possible, eliminate adverse impacts of commercial fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate adverse impacts of recreational fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate adverse impacts of Indigenous fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate the impact of illegal, unregulated and unreported fishing on sawfish and river shark species	Y		
Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species	Y	Y	Y
Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species, noting the linkages with the Threat Abatement Plan for the Impact of Marine Debris on Vertebrate Marine Life	Y	Y	Y
Reduce and, where possible, eliminate any adverse impacts of collection for public aquaria on sawfish and river shark species	Y		
Improve the information base to allow the development of a quantitative framework to assess the recovery of, and inform management options for, sawfish and river shark species	Y		
Develop research programs to assist conservation of sawfish and river shark species	Y	Y	
Improve community understanding and awareness in relation to sawfish and river shark conservation and management	Y		
Marine Debris Threat Abatement Plan			
Objectives			
Contribute to long-term prevention of the incidence of marine debris	Y	Y	
Understand the scale of impacts from marine plastic and microplastic on key species, ecological communities and locations	Y	Y	Y
Remove existing marine debris	Y		

EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	***Titleholder***	***Petroleum Activities Program***
Monitor the quantities, origins, types and hazardous chemical contaminants of marine debris, and assess the effectiveness of management arrangements for reducing marine debris	Y		
Increase public understanding of the causes and impacts of harmful marine debris, including microplastic and hazardous chemical contaminants, to bring about behaviour change	Y		

Table 6-23: Assessment against relevant actions of the Marine Turtle Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Marine Turtle Recovery Plan	**Action Area A3:** Reduce the impacts from marine debris.	**Action:** Support the implementation of the Marine Debris Threat Abatement Plan. Priority actions at stock level: • G-NWS – Understand the threat posed to this stock by marine debris • LH-WA – Determine the extent to which marine debris is impacting loggerhead turtles. • F-Pil – No relevant actions.	Refer **Section 6.7.7**. **Not inconsistent assessment:** The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to marine turtles.	**EPO 8** **C 8.1, 8.2, 8.3, 8.4** **PS 8.1, 8.2, 8.3, 8.4**
	Action Area A4: Minimise chemical and terrestrial discharge.	**Action:** Ensure spill risk strategies and response programs adequately include management for marine turtles and their habitats, particularly in reference to 'slow to recover habitats', such as nesting habitat, seagrass meadows or coral reefs. Priority actions at stock level: • G-NWS – Ensure spill risk strategies and response programs include management for turtles and their habitats. • LH-WA and F-Pil – Ensure spill risk strategies and response programs include management for turtles and their habitats, particularly in reference to slow-to-recover habitats, such as seagrass meadows or corals.	Refer **Sections 6.7.2**, **6.7.3**, and **6.7.4**. **Not inconsistent assessment:** The assessment of accidental release of chemicals and hydrocarbons has considered the potential risks to marine turtles. Spill risk strategies and response program include management measures for turtles and their nesting habitats.	Refer **Sections 6.7.2**, **6.7.3**, and **6.7.4**. Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are in **Appendix D**.

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
	Action Area A8: Minimise light pollution.	**Action:** 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. Priority actions at stock level: • G-NWS – As above. • LH-WA – No relevant actions. • F-Pil – Manage artificial light from onshore and offshore sources to ensure biologically important behaviours of nesting adults and emerging and dispersing hatchlings can continue.	Refer **Section 6.6.9**. **Not inconsistent assessment:** The assessment of light emissions has considered the potential impacts to marine turtles. Internesting, mating, foraging or migrating turtles are not impacted by light from offshore vessels. Vessel light emissions will not result in impacts to nesting marine turtles or emerging hatchlings at nesting beaches. Transient individuals occurring within the Operational Areas are not undertaking behaviours guided by light cues, reducing the potential impacts to these individuals.	N/A
	Action Area B1: Determine trends at index beaches.	**Action:** Maintain or establish long-term monitoring programs at index beaches to collect standardised data critical for determining stock trends, including data on hatchling production. Priority actions at stock level: • G-NWS – Continue long-term monitoring of index beaches. • LH-WA – Continue long-term monitoring of nesting and foraging populations. • F-Pil – No relevant actions.	**Not inconsistent assessment:** Woodside contributes to Action Area B1 via its support of the Ningaloo Turtle Program[39].	N/A

[39] http://www.ningalooturtles.org.au/media_reports.html

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
	Action Area B3: Address information gaps to better facilitate the recovery of marine turtle stocks.	**Action:** Understand the impacts of anthropogenic noise on marine turtle behaviour and biology Priority actions at stock level: • G-NWS – Given this is a relatively accessible stock that is likely to be exposed to anthropogenic noise, investigate the impacts of anthropogenic noise on turtle behaviour and biology and extrapolate findings from the NWS stock to other stocks. • LH-WA – No relevant actions. • F-Pil – No relevant actions.	Refer **Section 6.6.3**. **Not inconsistent assessment:** The assessment of acoustic emissions has considered the potential impacts to turtles that may occur within the vicinity of the Operational Areas. Acoustic emissions could cause localised and short-term behavioural disturbance to isolated transient individuals; however, acoustic emissions are not expected to be detectable in aggregating areas such as internesting habitat, considering the distance to the nearest BIA (40 km).	N/A
Assessment Summary The Marine Turtle Recovery Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.				

Table 6-24: Assessment against relevant actions of the Blue Whale Conservation Management Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Blue Whale Conservation Management Plan	Action Area A.2: Assess and address anthropogenic noise.	Action 2: Assess the effect of anthropogenic noise on blue whale behaviour. Action 3: Anthropogenic noise in BIAs will be managed such that any blue whale continues to use the area without injury and is not displaced from a foraging area.	Refer **Section 6.6.3**. Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to pygmy blue whales.	**Section 6.6.3**
	Action Area A.4: Minimise vessel collisions.	Action 3: Ensure the risk of vessel strikes on blue whales is considered when assessing actions that increase vessel traffic in areas where blue whales occur and, if required, appropriate mitigation measures are implemented.	Refer **Section 6.7.8**. Not inconsistent assessment: The assessment of vessel collision with marine fauna has considered the potential risks to pygmy blue whales. No aggregations of this species, or migration routes, overlap the Operational Areas. Vessel collisions with pygmy blue whales are highly unlikely to occur, given the very slow vessel speeds.	**Section 6.7.8**
	Action Area B.3: Describe spatial and temporal distribution and define BIA.	Action 2: Identify migratory pathways between breeding and feeding grounds. Action 3: Assess timing and residency within BIAs.	Not inconsistent assessment: Woodside contributes to Action Area B.3 via its support of targeted research initiatives (such as satellite tracking of pygmy blue whale migratory movements[40]).	N/A
Assessment Summary The Blue Whale Conservation Management Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.				

[40] *Double, M.C., Andrews-Goff, V., Jenner, K.C.S., Jenner, M.-N., Laverick, S.M., Branch, T.A., Gales, N.J., 2014. Migratory movements of pygmy blue whales (Balaenoptera musculus brevicauda) between Australia and Indonesia as revealed by satellite telemetry. PloS One 9, e93578*

Table 6-25: Assessment against relevant actions of the Sawfish and River Shark Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Sawfish and River Shark Recovery Plan	Objective 5: Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species.	Action 5c: Identify risks to important sawfish and river shark habitat and measures needed to reduce those risks.	Refer **Section 6.7.2**. Not inconsistent assessment: The assessment of accidental release of chemicals and hydrocarbons has considered the potential risks to sawfish.	Refer **Section 6.7.2**. Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are in **Appendix D**.
	Objective 6: Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species.	Action 6a: Assess the impacts of marine debris, including ghost nets, fishing gear and plastics, on sawfish and river shark species.	Refer **Section 6.7.7**. Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to sawfish.	Refer **Section 6.7.7**.
Assessment Summary The Sawfish and River Shark Recovery Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.				

Table 6-26: Assessment against relevant actions of the Grey Nurse Shark Recovery Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Grey Nurse Shark Recovery Plan	Objective 7: Improve understanding of the threat of pollution and disease to the grey nurse shark.	Action 7.1: Review and assess the potential threat of introduced species, pathogens and pollutants.	Refer to **Sections 6.7.2**, **6.7.3**, **6.7.4**, **6.7.5**, **6.7.6**, and **6.7.7**. Not inconsistent assessment: The assessment of accidental release of chemicals and hydrocarbons has considered the potential risks to grey nurse sharks.	Refer **Section 6**. Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the Petroleum Activities Program are in **Appendix D**
Assessment Summary The Grey Nurse Shark Recovery Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.				

Table 6-27: Assessment against relevant actions of the Marine Debris Threat Abatement Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Marine Debris Threat Abatement Plan	Objective 1: Contribute to long-term prevention of marine debris.	Action 1.2: Limit the amount of single use plastic material lost to the environment in Australia.	Refer **Section 6.7.7**. Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to vertebrate wildlife.	Refer **Section 6.7.7**.
Assessment Summary The Marine Debris Threat Abatement Plan has been considered during the assessment of impacts and risks, and the Petroleum Activities Program is not considered to be inconsistent with the relevant actions of this plan.				

7 IMPLEMENTATION STRATEGY

7.1 Overview

Regulation 14 of the Environment Regulations requires an EP to contain an implementation strategy for the activity. The implementation strategy for the Petroleum Activities Program confirms fit-for-purpose systems, practices and procedures are in place to direct, review and manage the activities so environmental risks and impacts are continually being reduced to ALARP and are acceptable, and that environmental performance outcomes and standards outlined in this EP are achieved.

Woodside, as Operator, is responsible for ensuring the Petroleum Activities Program is managed in accordance with this Implementation Strategy and the WMS (see **Section 1.9**).

7.2 Systems, Practice and Procedures

All operational activities are planned and performed in accordance with relevant legislation and standards, management measures identified in this EP and internal environment standards and procedures (**Section 6**).

The systems, practices and procedures that will be implemented are listed in the Performance Standards (PS) contained in this EP. Document names and reference numbers may change during the statutory duration of this EP and is managed through a changes register and update process.

7.3 Roles and Responsibilities

Key roles and responsibilities for Woodside and contractor personnel relating to implementing, managing and reviewing this EP are described in Table 7-1. Roles and responsibilities for oil spill preparation and response are outlined in **Appendix D** and the *Woodside Oil Pollution Emergency Arrangements (Australia)*.

Table 7-1: Roles and responsibilities

Title (role)	Environmental Responsibilities
Office-based Personnel	
Woodside Project Manager	• Monitor and manage the activity so it is performed as per the relevant standards and commitments in this EP. • Notify the Woodside Environment Adviser in a timely manner of any scope changes. • Liaise with regulatory authorities as required. • Review this EP as necessary and manage change requests. • Ensure all project and support vessel crew members complete an HSE induction. • Verify that contractors meet environmental related contractual obligations. • Confirm environmental incident reporting meets regulatory requirements (as outlined in this EP) and Woodside's Health, Safety and Environment Reporting and Investigation Procedure. • Monitor and close out corrective actions identified during environmental monitoring or audits.
Woodside Head of Projects/Region (Global Wells and Seismic)	• Ensure drilling operations are undertaken as per this EP and approval conditions. • Provide sufficient resources to implement the drilling-related management measures (i.e. controls, EPOs, PSs and MC) in this EP. • Ensures the MODU start-up meets the requirements of the Drilling and Managing Rig Operations Process.
Subsea Delivery Lead	• Ensure the subsea installation activities are performed as per this EP and approval conditions. • Provide sufficient resources to implement the subsea installation-related management measures (i.e., controls, EPOs, PSs and MC) in this EP. • Ensure installation vessel personnel are given an Environmental Induction, as per **Section 7.4.2**, of this EP at the start of the installation activities. • Confirm controls and performance standards in this EP are actioned, as required, before installation activities commence. • Ensure relevant vessels meet the requirements of Woodside's Marine Operations Operating Standard. • Manage change requests for the activity and notify the Woodside Environment Adviser in a timely manner of any scope changes. • Confirm that site-based personnel are given an Environmental Induction, as per **Section 7.4.2**, of this EP at the start of the activity. • Communicate changes to the subsea and flowline installation program to the Woodside Environmental Adviser in a timely manner. • Ensure all chemicals and fluids proposed to be discharged are assessed and approved as per the requirements of the EP.

Title (role)	Environmental Responsibilities
Woodside Drilling Superintendent	• Ensure the drilling program meets the requirements detailed in this EP. • Ensure changes to the drilling program are communicated to the Woodside Environmental Adviser. • Ensure 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 implemented. • Confirm environmental incident reporting meets regulatory requirements (as outlined in this EP) and Woodside's Health, Safety and Environment Reporting and Investigation Procedure. • Monitor and close out corrective actions identified during environmental monitoring or audits.
Woodside Drilling Engineers	• Ensure changes to the drilling program are communicated to the Woodside Environmental Adviser. • Ensure all drilling and completions fluid chemical components and other fluids that may be used downhole have been reviewed by the Environmental Adviser.
Woodside Environmental Adviser	• Verify relevant Environmental Approvals for the activities exist before commencing activity. • Track compliance with performance outcomes and performance standards as per the requirements of this EP. • Prepare environmental component of relevant Induction Package. • Assist with the review, investigation and reporting of environmental incidents. • Ensure environmental monitoring and inspections/audits are performed as per the requirements of this EP. • Liaise with relevant regulatory authorities as required. • Assist in preparing required external regulatory reports, in line with environmental approval requirements and Woodside incident reporting procedures. • Monitor and close out corrective actions (Campaign Action Register) identified during environmental monitoring or audits. • Provide advice to relevant Woodside personnel and contractors to help them understand their environment responsibilities. • Liaise with installation contractors to ensure communication and understanding of environment requirements as outlined in this EP and in line with Woodside's Compass values and management systems.
Woodside Corporate Affairs Adviser	• Prepare and implement the Consultation Plan for the Petroleum Activities Program. • Report on consultation. • Continuously liaise and provide notification as required as outlined in the EP.
Woodside Marine Assurance Superintendent	• Conduct 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.

Title (role)	Environmental Responsibilities
Woodside Corporate Incident Management Team (CIMT) Duty Manager	On receiving notification of an incident, the Woodside CIMT Duty Manager shall: • Establish and take control of the Incident Management Team and establish an appropriate command structure for the incident. • Assess the situation, identify risks and actions to minimise the risk. • Communicate impact, risk and progress to the Crisis Management Team and stakeholders. • Develop the Incident Action Plan including objectives for action. • Approve, implement and manage the Incident Action Plan. • Communicate within and beyond the incident management structure. • Manage and review safety of responders. • Address the broader public safety considerations. • Conclude and review activities.
MODU-based Personnel	
MODU Offshore Installation Manager	• Ensure the MODU's management system and procedures are implemented. • Ensure personnel starting work on the MODU receive an environmental induction that meets the requirements specified in this EP. • Ensure personnel are competent to perform the work they have been assigned. • Verify that emergency drills are conducted as per the MODU's schedule. • Ensure the MODU's Emergency Response Team has been given sufficient training to implement the MODU's SOPEP. • Ensure any environmental incidents or breaches of outcomes or standards are reported immediately to the Well Site Manager. • Ensure corrective actions for incidents or breaches are developed, communicated to the Well Site Manager, and tracked to close-out in a timely manner.
Woodside Well Site Manager	• Ensure the drilling program is performed as detailed in this EP. • Ensure the management measures (i.e., controls, EPOs, PSs and MC) detailed in this EP (relevant to offshore activities) are implemented on the MODU (other controls will be implemented onshore). • Ensure environmental incidents or breaches of outcomes or standards are reported as per the Woodside Corporate Event Notification Matrix. Ensure corrective actions for incidents and breaches are developed, tracked and closed out in a timely manner. • Ensure actions in the Well Delivery HSE Improvement Plan are performed. • Ensure periodic environmental inspections/reviews are completed. Ensure corrective actions from inspections are developed, tracked and closed out in a timely manner.

Title (role)	Environmental Responsibilities
Woodside Offshore HSE Adviser	• Support the Well Site Manager to ensure the controls detailed in this EP relevant to offshore activities are implemented on the MODU and help collect and record evidence of implementation (other controls are implemented and evidence collected onshore). • Support the Well Site Manager to ensure the EPOs are met and the PSs detailed in this EP are implemented on the MODU. • Confirm actions in the Well Delivery HSE Improvement Plan are performed. • Support the Well Site Manager to ensure environmental incidents or breaches of outcomes or standards outlined in this EP, are reported, and corrective actions for incidents and breaches are developed, tracked and closed out in a timely manner. • Ensure periodic environmental inspections/reviews are completed and corrective actions from inspections are developed, tracked and closed out in a timely manner. • Review contractors' procedures, input into Toolbox talks and JSAs. • Provide day-to-day environmental support for activities in consultation with the Woodside Environment Adviser.
Drilling Logistics Coordinator	• Ensure waste is managed on the MODU and sent to shore as per the Drilling and Completions Waste Management Plan.
Vessel-based Personnel	
Project Vessels Master	• Ensure the vessel management system and procedures are implemented. • Ensure personnel commencing work on the vessel receive an environmental induction that meets the relevant requirements specified in this EP. • Ensure personnel are competent to perform the work they have been assigned. • Verify SOPEP drills are conducted as per the vessel's schedule. • Ensure the vessel Emergency Response Team has been given sufficient training to implement the SOPEP. • Ensure any environmental incidents or breaches of relevant EPOs or PSs detailed in this EP are reported immediately to the Woodside Well Site Manager. • Ensure corrective actions for incidents or breaches are developed, communicated to the Well Site Manager, and tracked to close-out in a timely manner. Ensure close-out of actions is communicated to the Well Site Manager.
Vessel Logistics Coordinators	• Ensure waste is managed on the relevant support vessels or installation vessels and sent to shore as per the relevant Waste Management Plan.
Vessel HSE Advisers	Refer to Woodside HSE Offshore Adviser responsibilities detailed above under MODU-based personnel.
Contractor Project Manager	• Confirm activities are performed in accordance with this EP, as detailed in the Woodside-approved Contactor Environmental Management Plan. • Ensure personnel commencing work on the project receive a relevant environmental induction that meets the requirements specified in this EP. • Ensure personnel are competent to perform the work they have been assigned. • Ensure any environmental incidents or breaches of objectives, standards or criteria outlined in this EP, are reported immediately to the Woodside Responsible Engineer or Vessel Master.

It is the responsibility of all Woodside employees and contractors to implement the Woodside *Corporate Health, Safety, Environment and Quality Policy* (**Appendix A**) in their areas of responsibility and that the personnel are suitably trained and competent in their respective roles.

7.4 Training and Competency

7.4.1 Overview

Woodside as part of its contracting process assesses a proposed contractor's environmental management systems to determine the level of compliance with the standard AS/NZ ISO 14001. This assessment is performed for the Petroleum Activities Program as part of the pre-mobilisation process. The assessment determines whether there is a clearly defined organisational structure that clearly defines the roles and responsibilities for key positions. The assessment also assesses whether there is an up-to-date training matrix that defines any corporate and site/activity -specific environmental training and competency requirements.

As a minimum, environmental awareness training is required for all personnel, detailing awareness and compliance with the contractor's environmental policy and environmental management system.

7.4.2 Inductions

Inductions are provided to all relevant personnel (e.g., contractors and Company representatives) before mobilising to or on arrival at the activity location. The induction covers the HSE requirements and environmental information specific to the activity location. Attendance records will be maintained.

The Petroleum Activities Program induction may cover information about:

- description of the activity
- ecological and socio-economic values of the activity location
- Regulations relevant to the activity
- Woodside's Environmental Management System – Health, Safety, Environment and Quality Policy
- EP importance/structure/implementation/roles and responsibilities
- main environmental aspects/hazards and potential environmental impacts and related performance outcomes
- oil spill preparedness and response
- monitoring and reporting on performance outcomes and standards using measurement criteria
- incident reporting.

7.4.3 Petroleum Activity Specific Environmental Awareness

Before commencing drilling and subsea installation campaigns associated with the Petroleum Activities Program, a pre-activity meeting will be held on the MODU/ installation vessels with all relevant personnel. The pre-activity meeting provides an opportunity to reiterate specific environmental sensitivities or commitments associated with the activity. Relevant sections of the pre-activity meeting will also be communicated to the support vessel personnel. Attendance lists are recorded and retained.

During operations, regular HSE meetings will be held on the MODU and project vessels. During these meetings, recent environmental incidents are reviewed and awareness material presented regularly.

7.4.4 Cetacean and Whale Shark Sightings Reporting

All project vessels and the MODU will be provided with sighting recording sheets which will be posted on notice boards for opportunistic reporting of cetacean and whale shark sightings. Awareness of sightings reporting will also be included in project inductions. These sightings reports will be collated and summarised on an annual basis during this activity (Regulation 29 notifications) and submitted to the Australian Antarctic Division of the Department of the Environment and Energy to satisfy condition 1(c)(vi) of EPBC Approval Decision 2006/2968.

7.4.5 Marine Fauna Observation Training

The Marine Fauna Observer (MFO) role may be completed by vessel crew who are appropriately trained prior to the activity commencing. For those performing the MFO role in the Pygmy Blue Whale migratory season as per PS 3.3, training will include information specific to PBW identification. Woodside and Contractor personnel will be trained to deliver the MFO training ('train-the-trainer' model) by an external organisation specialising in marine environmental training, with expertise in marine fauna observations. The bespoke training package will cover:

- An overview of the Project
- An overview of the potential impacts and risks to marine megafauna, including pygmy blue whales
- An overview of marine megafauna that may be present during activities
- An overview of EP controls and management procedures relevant to marine megafauna (including PBW) presence
- Precautionary approach to identification i.e. assume pygmy blue whale if positive ID of different species type not possible
- The role and responsibilities of MFOs
- The observation and reporting requirements (Section 7.14)
- When trained crew are undertaking observations, expectations are that:
- Observation equipment / tools are used as required (i.e. range-finding binoculars, marine megafauna ID prompts etc.)
- Escalation process carried out if cetaceans / pygmy blue whales are identified to allow for implementation of adaptive managementas required by controls throughout EP
- Make and maintain records including the date, time and approximate distance from the vessel, and the action taken to comply with EPS

Records will be maintained as evidence of the vessel crew who have completed the MFO training.

Completion of MFO Training (focusing on pygmy blue whales (PBWs)) is a minimum requirement for those performing observations relevant to PBW mitigation/adaptive management measures in this EP. For any trained crew who have not conducted MFO training for greater than 12 months, refresher training is required prior to undertaking the role.

7.4.6 Management of Training Requirements

All personnel on the MODU and project vessels are required to be competent to perform their assigned positions. This may be in the form of external or 'on the job' training. The vessel Safety Training Coordinator (or equivalent) is responsible for identifying training needs, keeping records of training undertaken and identifying minimum training requirements.

7.5 Monitoring, Auditing, Management of Non-conformance and Review

7.5.1 Monitoring

Woodside and its contractors will undertake a program of periodic monitoring during the Petroleum Activities Program – starting at mobilisation of each activity and continuing through the duration of each activity to activity completion. This information will be collected using the tools and systems outlined below, developed based on the environmental performance outcomes, controls, standards and measurement criteria in this EP. The tools and systems will collect, as a minimum, the data (evidence) referred to in the measurement criteria in **Section 6** and **Appendix D**.

The collection of this data (against the measurement criteria) will form part of the permanent record of compliance maintained by Woodside and will form the basis for demonstrating that the environmental performance outcomes and standards are met, which will be summarised in a series of routine reporting documents.

7.5.1.1 Source-Based Impacts and Risks

The tools and systems to monitor environmental performance, where relevant, will include:

- daily reports which include leading indicator compliance
- periodic review of waste management and recycling records
- use of contractor's risk identification program that requires to record and submit safety and environment risk observation cards routinely (frequency varies with contractor)
- collection of evidence of compliance with the controls detailed in the EP relevant to offshore activities by the Woodside Offshore HSE Adviser (other compliance evidence is collected onshore)
- environmental discharge reports that record volumes of planned and unplanned discharges downhole (in the well), to ocean and atmosphere
- monitoring of progress against the Well Delivery function scorecard for key performance indicators
- internal auditing and assurance program as described in **Section 7.5.2**.

Throughout this activity, Woodside will continuously identify new source-based risks and impacts through the Monitoring and Auditing systems and tools described above and in **Section 7.5.2**.

7.5.1.2 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). New knowledge checks take place both routinely primarily via quarterly and annual knowledge reviews and ad-hoc (as information is obtained), and encompasses the following topics:

- Environmental science – update checks conducted via desktop reviews: scientific literature, government publications and Woodside supported publications and studies relating to existing environment topics (including but not limited to species and habitats) as well as EPBC Act Matters of National Environmental Significance (Part 3) and Part 13 statutory instruments
- Socio-economic environment and stakeholder information – update checks conducted via desktop reviews: scientific literature, government publications and Woodside consultation; and,

- Environmental legislation – monitoring of emerging regulatory changes and the subsequent management of regulatory change (as outlined in the WMS Regulatory Compliance Management Procedure).

A management of knowledge tracker is maintained to record reviews and updates. Communication of relevant new knowledge is addressed at the EP Consolidation meetings and where changes in knowledge prompt a consideration of management of change, this is actioned and documented appropriately.

7.5.2 Auditing

Environmental performance auditing will be performed to:

- identify potential new or changes to existing environmental impacts and risk, and methods for reducing those to ALARP
- confirm that mitigation measures detailed in this EP are effectively reducing environmental impacts and risk, that mitigation measures proposed are practicable and provide appropriate information to verify compliance
- confirm compliance with the Performance Outcomes, Controls and Standards detailed in this EP.

Internal auditing will be performed to cover each key project activity as summarised below.

7.5.2.1 MODU Activities

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 the environmental performance of the activities:

- Survey environment rig equipment for a newly contracted MODU (if not previously contracted to Woodside within the last two years) against Woodside's Engineering Standard – Rig Equipment. This standard covers functional and technical requirements for Woodside -contracted rigs and their associated equipment. An environment rig equipment survey scope typically includes mud and solids control systems, environmental discharge control (including drainage management), and loss of containment management.
- Complete a minimum of monthly environmental inspection (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 or within 6 months of the Petroleum Activities Program, (by a Woodside Environment Adviser or delegate), which 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.

7.5.2.2 Subsea Scope Activities

The following internal auditing will be performed for the subsea installation and commissioning scopes:

- Pre-mobilisation inspection/audit report will be conducted by a relevant person (before commencing). The scope of the audits are risk-based and specific to the relevant activity, but will generally focus on aspects relating to ensuring appropriate understanding of environmental commitments and the operational readiness of the activity scope, including appropriate environmental controls in place. All primary vessels associated with the above scopes will be audited by Woodside, including the installation vessels. Support or transport vessels will be assessed on a risk-based approach, but will be audited via the primary subsea installation contractor's process.
- At least one operational compliance audit relevant to applicable EP commitments will be conducted by a Woodside Environment Adviser for the subsea campaign. The audit may be conducted offshore or office-based, subject to the duration of the activity and logistics of performing the audit offshore for short duration scopes (e.g., pipelay).
- Contractor-specific HSE audits will also be conducted of the installation vessels and associated support vessels. The audits will consider the implementation of HSE management, risk management, as well as pre-mobilisation and offshore readiness.
- Vessel-based HSE inspections will be conducted fortnightly by vessel HSE personnel. Each inspection will focus on a specific risk area relevant to the project activity and a formal report will be issued (for example, bunkering controls, chemical and discharge management, cetacean reporting, etc.).

The internal audits and reviews, combined with the ongoing monitoring described in **Section 7.5.1**, and collection of evidence for measurement criteria are used to assess environmental performance outcomes and standards.

As part of Woodside's EMS and/or assurances processes, activities may also be periodically selected for environmental audits as per Woodside's internal auditing process. Audit, inspection and review findings relevant to continuous improvement of environmental performance are tracked through the Environmental Commitments and Actions Register.

This Environmental Commitments and Actions Register is used to track subsea support vessel and subsea activity compliance with EP commitments, including any findings and corrective actions.

Non-conformances identified will be reported and/or tracked in accordance with **Section 7.5.4**.

7.5.3 Marine Assurance

All vessels are subject to the Marine Offshore Assurance process and review of the Offshore Vessel Inspection Database (OVID). 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 1978 (MARPOL) and other International Maritime Organization (IMO) standards.

Woodside's marine assurance is managed by the Marine Assurance Team of the Logistics Function 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 and International Maritime Contractors Association.

Woodside's Marine Offshore Assurance process is mandatory for all vessels (other than Tankers and Floating Production Storage and Offloading vessels) that are 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:

- Offshore Vessel Safety Management System assessment (OVMSA)
- DP system verification
- OVID
- 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:

1. Woodside Marine Vessel Inspection
2. OCIMF OVID Inspection
3. IMCA CMID Inspection
4. 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 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.

7.5.3.1 Risk Assessment

Woodside conducts a risk assessment of vessels where either an OVMSA Verification Review and/or an OVID 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 are 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.

7.5.4 Management of Non-Conformance

Woodside classifies non-conformances with environmental performance outcomes 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 consequence matrix for classification of environmental incidents, with the significant categories being A, B and C (as detailed in **Section 2.6**). Detailed investigations are completed for all categories A, B, C and high potential environmental incidents.

7.5.5 Review

7.5.5.1 Management Review

Within the Environment Function, senior management regularly monitor and review environmental performance and the effectiveness of managing environmental risks and performance. Within each Function and Business Unit Leadership Team (e.g., Well Delivery and Developments/Projects), managers review environmental performance regularly, including through quarterly HSE review meetings.

Woodside's Environment Team will perform six-monthly reviews of the effectiveness of the implementation strategy and associated tools. This will involve reviewing the:

- Well Delivery environment key performance indicators (leading and lagging)
- tools and systems to monitor environmental performance (detailed in **Section 7.5.1**)
- lessons learned about implementation tools and throughout each campaign.

Reviews of oil spill arrangements and testing are performed in accordance with **Section 7.9**.

7.5.5.2 Learning and Knowledge Sharing

Learning and knowledge sharing occurs via a number of different methods including:

- event investigations
- event bulletins
- after action review conducted at the end of each well, including review of environmental incidents as relevant
- ongoing communication with MODU operators
- formal and informal industry benchmarking
- cross asset learnings
- engineering and technical authorities discipline communications and sharing.

7.5.5.3 Review of Impacts, Risks and Controls Across the Life of the EP

In the unlikely case that 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 7.6**).

7.6 Management of Change and Revision

7.6.1 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, DAWE 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**); and potential new advice from consultation (**Section 5**), will be managed in accordance with Regulation 17 of the Environment Regulations.

Risk will be assessed in accordance with the environmental risk management methodology (**Section 2.5**) 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 17 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 17 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.

7.6.2 Oil Pollution Emergency Plan Management of Change and Revision

Relevant documents from the OPEP will be reviewed in circumstances of:

- 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 frameworks changes.

Where changes are required to the OPEP based on the outcomes of the reviews described above, they will be assessed against Regulation 17 to determine if resubmission of the EP, including the OPEP, is required (see **Section 7.6.1**). 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.

7.7 Record Keeping

Compliance records (outlined in Measurement Criteria in **Section 6**) will be maintained.

Record keeping will be in accordance with Regulation 14(7) that addresses maintaining records of emissions and discharges.

7.8 Reporting

To meet the environmental performance outcomes and standards outlined in this EP, Woodside reports at a number of levels, as outlined in the next sections.

7.8.1 Routine Reporting (Internal)

7.8.1.1 Daily Progress Reports and Meetings

Daily reports for drilling activities are prepared and issued to key support personnel and stakeholders, by relevant managers responsible for the well. The report provides performance information about drilling 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.

7.8.1.2 Regular HSE Meetings

Regular dedicated HSE meetings are held with the offshore and Perth-based management and advisers to address targeted HSE incidents and initiatives. Minutes of these meetings are produced and distributed as appropriate.

7.8.1.3 Performance Reporting

Monthly and quarterly performance reports are developed and reviewed by the Function and Business Unit Leadership Teams (e.g., Well Delivery). These reports cover a number of subject matters, including:

- HSE incidents (including high potential incidents and those related to this EP) and recent activities
- corporate Key Performance Indicator targets, which include environmental metrics
- outstanding actions as a result of audits or incident investigations
- technical high and low lights.

7.8.2 Routine Reporting (External)

7.8.2.1 Ongoing Consultation

In accordance with Regulation 14 (9) 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 with directly impacted relevant persons or organisations listed in **Table 7-2**.

Any significant changes on this activity will be communicated to relevant persons. Woodside hosts community forums at which members are updated on Woodside activities. These community and heritage meetings are held on a regular basis (for example, Karratha Community Liaison Group, Exmouth Community Reference Group). Representatives are from community and industry and include Woodside, State Government (for instance relevant Regional Development Commissions), Local Government, Indigenous Groups, Industry representative bodies, Community and industry organisations.

Relevant persons and those who are interested in the activities, can remain up to date on this activity through subscribing to our website.

In accordance with Regulation 14 (9) 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's approach to ongoing consultation is that feedback and comments received from relevant persons continue to be assessed and responded to, as required, through the life of an EP, including during EP assessment and throughout the duration of the accepted EP, in accordance with the intended outcome of consultation (as set out in **Section 5**).

Woodside proposes to undertake the engagements with directly impacted relevant persons listed **in Table 7-2.** Relevant new information identified during ongoing consultation will be assessed, as appropriate using the EP Management of Knowledge (refer to **Section 7.5.1.2**) and Management of Change Process (refer to **Section 7.6**).

Woodside hosts community forums at which members are provided updates on Woodside activities on a regular basis (for example community reference group meetings). Representatives who present at those meetings are from community and industry and include Woodside, State Government (for instance relevant Regional Development Commissions), Local Government, Indigenous Groups, industry representative bodies, Community and industry organisations.

Relevant persons and those who are merely 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 a measure or control that requires implementation or update to meet the intended outcome of consultation (see **Section 5**), Woodside will apply its EP Management of Knowledge process (refer to **Section 7.5.1.2**) and Management of Change process (refer to **Section 7.6**), as appropriate.

The ongoing consultation engagements that Woodside intends to progress for this EP are set out in the table below.

Table 7-2: Ongoing consultation engagements

Report/ Information	Recipient	Purpose	Frequency	Content
Notification (email) Updates (email)	AHO	As requested by AMSA during consultation.	No less than 4 weeks prior to commencement. As required.	**PS 1.4** (**Section 6.6.1**). Date of activity start. Changes to planned activities
Notification (email) Update (email)	AMSA	As requested by AMSA during consultation	At least 24-48 hours before operations commence. Provide updates to the AHO and JRCC should there be changes to the activity.	**PS 1.6** (**Section 6.6.1**). Date of activity start. Changes to planned activities
Notification (email)	DoD	Good practice	Five weeks prior to commencement of activities.	**PS 1.8** (**Section 6.6.1**). Date of activity start.
Notification (email)	DMIRS	Good practice	At least ten days prior to commencement	Date of activity start and end.
Notification (email)	AFMA DAFF - Fisheries CFA DPIRD WAFIC Recfishwest Relevant Commonwealth and State fishery licence holders (North West Slope and Trawl Fishery, Mackerel Managed Fishery (Area 2), Pilbara Line Fishery and Pilbara Trap Fishery)	As requested during consultation and/or organisation expectation	At least ten days prior to commencement and following completion of activities	**PS 1.5** (**Section 6.6.1**) Date of activity start and end.
Notification (email)	All relevant persons for the proposed activity	Notification of significant change	As appropriate	Notification of significant change. Any relevant new information will be

				assessed using the EP Knowledge Management System (refer to **Section 7.5.1**) and Management of Change Process (refer to **Section 7.6**)

7.8.2.2 Start and End Notifications of the Petroleum Activities Program

In accordance with Regulation 29, Woodside will notify NOPSEMA and DMIRS of the commencement of the Petroleum Activities Program at least ten days before the activity commences, and will notify NOPSEMA and DMIRS within ten days of completing the activity.

7.8.2.3 Environmental Performance Review and Reporting

In accordance with applicable environmental legislation for the activity, Woodside is required to report information about environmental performance to the appropriate regulator. Regulatory reporting requirements are summarised in **Table 7-3**.

Table 7-3: Routine external reporting requirements

Report	Recipient	Frequency	Content
Monthly Recordable Incident Reports (**Appendix F**)	NOPSEMA	Monthly, by the 15th of each month.	Details of recordable incidents that have occurred during the Petroleum Activities Program for previous month (if applicable).
Environmental Performance Report	NOPSEMA	Annually, with the first report submitted within 12 months of the commencement of the Petroleum Activities Program covered by this EP (as per the requirements of Regulation 14(2).	Compliance with environmental performance outcomes, controls and standards outlined in this EP, in accordance with the Environment Regulations.

7.8.2.4 End of the Environment Plan

The EP will end when Woodside notifies NOPSEMA that the Petroleum Activities Program has ended and all of the obligations identified in this EP have been completed, and NOPSEMA has accepted the notification, in accordance with Regulation 25A of the Environment Regulations.

7.8.3 Incident Reporting (Internal)

The process for reporting environmental incidents is described in **Sections 7.8.3** and **7.8.4** of this EP. It is the responsibility of the Woodside Project Manager to ensure reporting of environmental incidents meets Woodside and regulatory reporting requirements as detailed in the Woodside Health, Safety and Environment Event Reporting and Investigation Procedure and this section of this EP.

7.8.4 Incident Reporting (External) – Reportable and Recordable

7.8.4.1 Reportable Incidents

Definition

A reportable incident is defined under Regulation 4 of the Environment Regulations as:

- '*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 Activities Program is:

- an incident that has caused environmental damage with a Consequence Level of Moderate (C) or above (as defined under Woodside's Risk Table (refer to **Figure 2-4**))
- an incident that has the potential to cause environmental damage with a Consequence Level of Moderate (C) or above (as defined under Woodside's Risk Table (refer to **Figure 2-4**)).

The environmental risk assessment (**Section 6**) for the Petroleum Activities Program identifies those risks with a potential consequence level of C+ for environment. The incidents that have the potential to cause this level of impact include hydrocarbon loss of containment events to the marine environment resulting from a loss of well integrity.

Any such incidents represent potential events which would be reportable incidents. Incident reporting is undertaken with consideration of NOPSEMA (2014) guidance stating, 'if in doubt, notify NOPSEMA', and assessed on a case-by-case basis to determine if they trigger a reportable incident as defined in this EP and by the Regulations.

Notification

NOPSEMA will be notified of all reportable incidents, according to the requirements of Regulations 26, 26A and 26AA of the Environment Regulations. Woodside will:

- report all reportable incidents to the regulator (orally) as soon as practicable, but within two hours of the incident or of its detection by Woodside
- provide a written record of the reported incident to NOPSEMA, the National Offshore Petroleum Titles Administrator and the Department of the responsible State Minister (DMIRS) as soon as practicable after orally reporting the incident
- complete a written report for all reportable incidents using a format consistent with the NOPSEMA Form FM0831 – Reportable Environmental Incident (**Appendix F**) which must be submitted to NOPSEMA as soon as practicable, but within three days of the incident or of its detection by Woodside
- provide a copy of the written report to the National Offshore Petroleum Titles Administrator and DMIRS, within seven days of the written report being provided to NOPSEMA.

AMSA will be notified of oil spill incidents as soon as practicable after their occurrence, and DCCEEW notified if MNES are to be affected by the oil spill incident.

7.8.4.2 Recordable Incidents

Definition

A recordable incident as defined under Regulation 4 of the Environment Regulations is an incident arising from the activity that '*breaches an environmental performance outcome or environmental performance standard, in the EP that applies to the activity, that is not a reportable incident'*.

Notification

NOPSEMA will be notified of all recordable incidents, according to the requirements of Regulation 26B(4), no later than 15 days after the end of the calendar month using the NOPSEMA Form – Recordable Environmental Incident Monthly Summary Report (**Appendix F**) detailing:

- all recordable incidents that occurred during the calendar month
- all material facts and circumstances concerning the recordable incidents that the operator knows or is able, by reasonable search or enquiry, to find out

- any action taken to avoid or mitigate any adverse environment impacts of the recordable incidents
- the corrective action that has been taken, or is proposed to be taken, to prevent similar recordable incidents
- the action that has been taken, or is proposed to be taken, to prevent a similar incident occurring in the future.

7.8.4.3 Other External Incident Reporting Requirements

In addition to the notification and reporting of environmental incidents defined under the Environment Regulations and Woodside requirements, Table 7-4 describes the incident reporting requirements that also apply in the Operational Area.

Table 7-4: External Incident Reporting Requirements

Event	Responsibility	Notifiable party	Notification requirements	Contact	Contact detail
Any marine incidents during Petroleum Activities Program	Vessel Master	AMSA	Incident Alert Form 18 as soon as reasonably practicable* Within 72 hours after becoming aware of the incident, submit Incident Report Form 19	AMSA	reports@amsa.gov.au
Oil pollution incidents in Commonwealth waters	Vessel Master	AMSA RCC	As per Article 8 and Protocol I of MARPOL within two hours via the national emergency 24-hour notification contacts and a written report within 24 hours of the request by AMSA	AMSA Rescue Coordination Centre (RCC) Australia	If the ship is at sea, reports are to be made to: Free call: 1800 641 792 Phone: 08 9430 2100 (Fremantle)
Oil pollution incidents in Commonwealth waters	Vessel Master	AMSA	Without delay as per *Protection of the Sea Act*, part II, section 11(1), AMSA RCC notified verbally via the national emergency 24-hour notification contact of the hydrocarbon spill; follow up with a written Pollution Report as soon as practicable after verbal notification	RCC Australia	Phone: 1800 641 792 or +61 2 6230 6811 AFTN: YSARYCYX
Any oil pollution incident which has the potential to enter a National Park or requires oil spill response activities to be conducted within a National Park	Vessel Master	DCCEEW	Reported verbally, as soon as practicable	Director of National Parks	Phone: 02 6274 2220
Activity causes unintentional death of or injury to fauna species listed as Threatened or Migratory under the EPBC Act	Vessel Master	DCCEEW	Within seven days of becoming aware	Secretary of the DAWE	Phone: 1800 803 772 Email: protected.species@environment.gov.au

The following pollution activity should also be reported to AMSA via RCC Australia by the Vessel Master:

- any loss of plastic material
- garbage disposed of in the sea within 12 nm of land (garbage includes food, paper, bottles, etc.)
- any loss of hazardous materials.

For oil spill incidents, other agencies and organisations will be notified as appropriate to the nature and scale of the incident as per procedures and contact lists in the Oil Pollution Emergency Arrangements (Australia) and the WA-34-L Pyxis Drilling and Subsea Installation Oil Pollution First Strike Plan (**Appendix E**).

7.9 Emergency Preparedness and Response

7.9.1 Overview

Under Regulation 14(8), the implementation strategy must contain an Oil Pollution Emergency Plan and provide for updating the OPEP. Regulation 14(8AA) outlines the requirements for the OPEP which must include adequate arrangements for responding to and monitoring oil pollution.

A summary of how this EP and supporting documents address the various requirements of Environment Regulations relating to oil pollution response arrangements is shown in Table 7-5.

Table 7-5: Oil pollution and preparedness and response overview

Content	Environment Regulations Reference	Document/Section Reference
Details of (oil pollution response) control measures that will be used to reduce the impacts and risks of the activity to ALARP and an acceptable level	Regulation 13(5), (6), 14(3)	Oil Spill Preparedness and Response Mitigation Assessment for the WA-34-L Pyxis Drilling and Subsea Installation EP (**Appendix D**)
Describes the OPEP	Regulation 14(8)	Environment Plan: Woodside's oil pollution emergency plan has the following components: • Woodside Oil Pollution Emergency Arrangements (Australia) • WA-34-L Pyxis Drilling and Subsea Installation Oil Pollution First Strike Plan (**Appendix E**) • Oil Spill Preparedness and Response Mitigation Assessment for the WA-34-L Pyxis Drilling and Subsea Installation EP (**Appendix D**)
Details the arrangements for responding to and monitoring oil pollution (to inform response activities), including control measures	Regulation 14(8AA)	Oil Spill Preparedness and Response Mitigation Assessment for the WA-34-L Pyxis Drilling and Subsea Installation EP (**Appendix D**) • WA-34-L Pyxis Drilling and Subsea Installation Oil Pollution First Strike Plan (**Appendix E**)
Details the arrangements for updating and testing the oil pollution response arrangements	Regulation 14(8), (8A), (8B), (8C)	Environment Plan: **Section 7.9.5** Oil Spill Preparedness and Response Mitigation Assessment for the WA-34-L Pyxis Drilling and Subsea Installation EP (**Appendix D**)
Details of provisions for monitoring impacts to the environment from oil pollution and response activities	Regulation 14(8D)	Oil Spill Preparedness and Response Mitigation Assessment for the WA-34-L Pyxis Drilling and Subsea Installation EP (**Appendix D**)
Demonstrates that the oil pollution response arrangements are consistent with the national system for oil pollution preparedness and control	Regulation 14(8E)	Oil Pollution Emergency Arrangements (Australia)

7.9.2 Emergency Response Training

Regulation 14(5) requires that the implementation strategy includes measures to ensure employees and contractors have the appropriate competencies and training (**Table 7-6**). Woodside has conducted a risk-based training needs analysis on positions required for effective oil spill response. Following the mapping of training to Woodside identified competencies, training was then mapped to positions based on their required competencies.

Table 7-6: Minimum levels of competency for key Incident Management Team positions

Position	Minimum Competency
Corporate Incident Management Team (CIMT) Leader	• Incident and Crisis Leadership Development Program (ICLDP) • IMO2 or equivalent spill response specialist level with an oil spill response organisation (OSRO) • Participation in L2 oil spill exercise (initial) Participation in L2 oil spill exercise (refresher)

Operations, Planning, Logistics and Safety	• Oil Spill Response Skills Enhancement Course (OSREC – internal course). • CIMT Fundamentals Course (internal course). • Participation in Level 2 oil spill exercise (initial). • Participation in Level 2 oil spill exercise (refresher).
Environment Coordinator	• CIMT Fundamentals. • IMO2 or equivalent spill response Specialist level with an OSRO • Participation in Level 2 oil spill exercise (initial). • Participation in Level 2 oil spill exercise (refresher).

Note on competency/equivalency

In 2018, Woodside reviewed incident and crisis systems, processes and tools to assess whether these were fit-for-purpose and has rolled out a change to the Incident and Crisis Management training and the Oil Spill Response training requirements for both CIMT and field-based roles.

The revised CIMT Fundamentals Training Program and ICLDP align with the performance requirements of the *PMAOMIR320 – Manage Incident Response Information* and *PMAOM0R418 – Coordinate Incident Response.*

Regarding training-specific equivalency:

- ICLDP is mapped to *PMAOM0R418* (which is equivalent to IMO3 when combined with Woodside's OSREC course) and ensures broader incident management principles aligned with Australasian Inter-service Incident Management System.
- The revised CIMT Fundamentals Course is mapped to *PMAOMIR320* (which is equivalent to IMO2). The blended learning program offers modules aligned to IMO3, IMO2, IMO1 and Australian Marine Oil Spill Centre Core Group Training Oil Spill Response Organisation Specialist level training.
- OSREC involves the completion of two online AMSA Modules (Introduction to National Plan and incident management, and Introduction to oil spills) as well as elements of IMO1 and IMO2 tailored to Woodsidespecific oil spill response capabilities.
- Woodside Learning Services is responsible for collating and maintaining personnel training records. The Hydrocarbon Spill Preparedness (HSP) Dashboard reflects the competencies required for each oil spill role (Incident Management Team/operational).

7.9.3 Emergency Response Preparation

The 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 a roster of appropriately skilled personnel available on call 24 hours a day. The CIMT, under the leadership of the CIMT Duty Manager, supports the site-based Incident Management Team by providing operations, logistics, planning, people management and public information (corporate affairs) support. A description of Woodside's Incident Command Structure and arrangements is further detailed in the Woodside Oil Pollution Emergency Arrangements (Australia).

Woodside will have an Emergency Response Plan (ERP) in place relevant to the Petroleum Activities Program. The ERP provides procedural guidance specific to the rig and location of operations to control, coordinate and respond to an emergency or incident. For a drilling activity, the ERP will be a bridging document to the contracted rig's emergency documentation. This document summarises the emergency command, control and communications processes for the integrated operation and management of an emergency. It is developed in collaboration with the contracted rig and ensures roles and responsibilities between the contracted rig and Woodside personnel are identified and understood. The ERPs will contain instructions for vessel emergency, medical emergency, search and rescue, reportable incidents, incident notification, contact information and activation of the contractor's emergency centre and Woodside Communication Centre (WCC).

In the event of an emergency of any type:

- On the MODU the Offshore Installation Manager will assume overall onsite command and act as the Incident Controller (IC). All persons aboard the MODU will be required to act under the IC's directions. The MODU/vessels will maintain communications with the onshore Drilling

Superintendent and/or other emergency services in the event of an emergency. Emergency response support can be provided by the contractor's emergency centre or WCC if requested by the IC.

- Vessel Master (depending on the location of the emergency) will assume overall onsite command and act as the IC. All persons will be required to act under the IC's directions. The vessels will maintain communications with the onshore project manager and/or other emergency services in the event of an emergency. Emergency response support can be provided by the contractor's emergency centre or WCC if requested by the IC.
- The MODU and project vessels will have on-board equipment for responding to emergencies including medical equipment, fire-fighting equipment and oil spill response equipment.

7.9.4 Oil and Other Hazardous Materials Spill

A significant hydrocarbon spill during the proposed Petroleum Activities Program is unlikely, but should such an event occur, it has the potential to result in a serious safety or environmental incident and cause asset and reputational damage if not managed properly. The Woodside Oil Pollution Emergency Arrangements (Australia) document, supported by the WA-34-L PyxisDrilling and Subsea Installation – Oil Pollution First Strike Plan (**Appendix E**) which provides tactical response guidance to the activity/area and **Appendix D** of this EP, cover spill response for this Petroleum Activities Program.

In accordance with Woodside's Hydrocarbon Spill Preparedness and Response Procedure, the oil spill preparedness manager is responsible for managing Woodside's oil spill response equipment, and for maintaining oil spill preparedness and response documentation. In the event of a major spill, Woodside will request that AMSA (administrator of the National Plan) provides support to Woodside through advice and access to equipment, people and liaison. The interface and responsibilities, as defined under the National Plan, are described in the Woodside Oil Pollution Emergency Arrangements (Australia). AMSA and Woodside have a Memorandum of Understanding in place to support Woodside in the event of an oil spill.

The WA-34-L Pyxis Drilling and Subsea Installation – Oil Pollution First Strike Plan (**Appendix E**) provides immediate actions required to commence a response.

The MODU and project vessels will have SOPEPs in accordance with the requirements of MARPOL 73/78 Annex I. These plans outline responsibilities, specify procedures and identify resources available in the event of a hydrocarbon or chemical spill from vessel activities. The Oil Pollution First Strike Plan (**Appendix E**) is intended to work in conjunction with the SOPEPs, if hydrocarbons are released to the marine environment from a vessel.

Woodside has established environmental performance outcomes, performance standards and measurement criteria to be used for oil spill response during the Petroleum Activities Program, as detailed in **Appendix D**.

7.9.5 Emergency and Spill Response Categorisation

Woodside categorises incidents and emergencies in relation to response requirements as follows:

7.9.5.1 Level 1

Level 1 incidents are those that can be resolved using existing resources, equipment and personnel. A Level 1 incident is contained, controlled and resolved by site/regionally based teams using existing resources and functional support services.

7.9.5.2 Level 2

Level 2 incidents are characterised by a response that requires external operational support to manage the incident. It is triggered if the capabilities of the tactical level response are exceeded. This support is provided to the activity by activating all or part of the responsible CIMT.

7.9.5.3 Level 3

A Level 3 incident or crisis is identified as a critical event that seriously threatens the organisation's people, the environment, company assets, reputation, livelihood or essential services. At Woodside, the Crisis Management Team manages the strategic impacts to respond to and recover from the threat to the company (material impacts, litigation, legal & commercial, reputation, etc.). The CIMT may also be activated as required to manage the operational response to the Level 3 incident.

7.9.6 Source Control Response Capability

Source Control IMT Structure

The Woodside Incident and Crisis Management Structure is outlined in the Woodside Oil Pollution Emergency Arrangements (Australia). In a Level 3 Incident, the Source Control Functional Support Team (FST) will be formed reporting to the Operations Coordinator. The structure of the Source Control FST is shown in **Figure 7-1**.

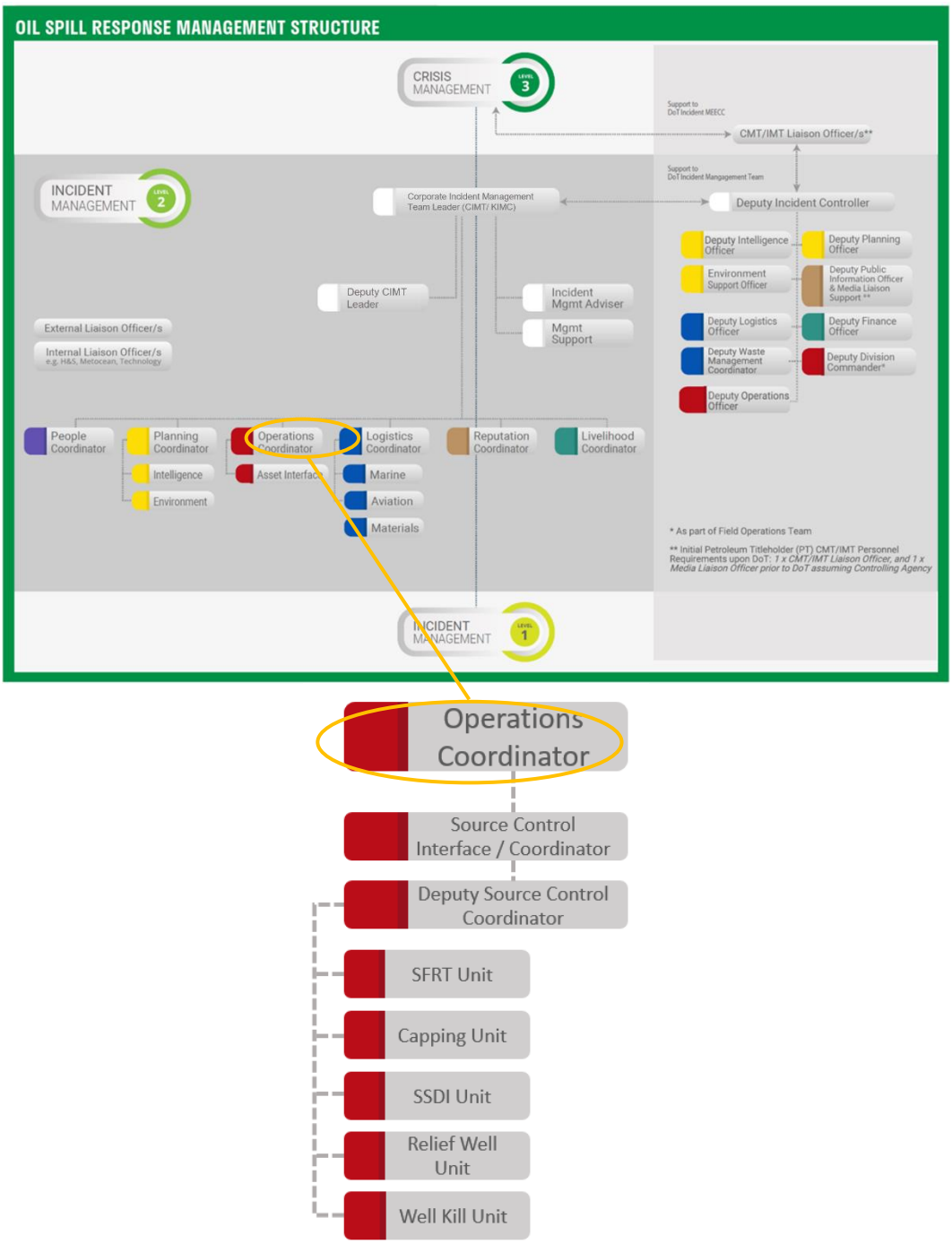

Figure 7-1: Source Control Functional Support Team Structure

Roles and responsibilities of the Source Control FST Leaders are summarised in **Table 7-7**.

Table 7-7: Source Control Functional Support Team roles and responsibilities

Role	Key Responsibilities
Source Control Coordinator	• Activate Source Control responses • Approve operational plans • Manage Source Control FST • Report to Operations Coordinator

Role	Key Responsibilities
Deputy Source Control Coordinator	• Approve operational plans • Manage Source Control Function and ensure coordination among groups/units
Subsea First Response Toolkit (SFRT) Unit Coordinator	• Mobilise vessel with work class ROVs • Survey and attempt to function BOP • Debris clearance survey and operations
Capping Unit Coordinator	• Mobilise capping stack and support equipment • Assemble and test capping stack for deployment • Hydrate remediation • Capping stack operations as required
Subsea Dispersant Injection (SSDI) Unit Coordinator	• Develop dispersant application and monitoring plans • Apply for local Government approvals • Conduct subsea dispersant application and monitoring operations
Relief Well Unit Coordinator	• Determine if impacted rig may be utilised for relief rig or capping stack deployment • Determine number of relief wells to be drilled • Obtain and assess information on reservoir and wellbore geometry • Coordinates mobilisation of relief well rig(s) and execution of relief well(s)
Well Kill Unit Coordinator	• Obtain and review reservoir and wellbore data • Determine kill weights and pumping rates • Develop the well kill plan • Conduct kill operations

The Source Control units described in **Table 7-7**, may include the following support positions:

- HSE Adviser/s
- Well Delivery Manager/s
- Subsea Manager/s
- D&C Superintendent/s
- Subsea Vessel Superintendent/s
- Lead D&C and Subsea Engineers
- D&C Engineering support, as required
- Subsea Engineering support, as required
- Contractor Representatives including source control contractors
- Logistics Coordinator/s

7.9.6.1 Source Control Response Personnel Resourcing and Competency

All Source Control unit leader positions will be filled with Woodside personnel from the Subsea and Pipeline (SSPL) and Drilling and Completions (D&C) Departments.

All personnel will hold a relevant tertiary qualification, well control certifications and industry experience commensurate with the position being held.

Initial Source Control functional response will typically be led by a Subsea and Pipeline Manager or Well Delivery Manager in the role of the Source Control Coordinator and the remaining FST roles would be filled by suitably experienced people, sourced from the operational team and across the broader SSPL and D&C functions.

The Source Control teams will be scaled with additional resources depending on the specifics of the scenario. As the emergency response duration increases suitable arrangements will be made to establish shifts and duty roster cycles to ensure ongoing functional support. Woodside has access to sufficient personnel to cover 24 hour operations on a rolling roster through existing personnel capabilities.

The Source Control IMT response structure indicated in **Figure 7-1** is estimated to require from 4–12 positions per shift varying with the scale of response, 8–24 positions for 24-hour coverage. For an prolonged response resources to provide on/off weekly cycles, an additional 8–24 positions will be required, totalling 16–48 positions over the scale of response. These numbers are indicative and will vary depending on scale and complexity of operations.

The current organisational review indicates Woodside has >80 internal staff members to support the Source Control IMT positions. In the event of a level 3 incident, response activities will be given priority and other projects may be reduced or suspended allowing reallocation of significant additional resources. Woodside would require access to external resources primarily for Specialist Services and Expertise in Source Control / Well Control operations.

Additional personnel to support the Source Control FST will be filled through the following avenues:

- Well Control Specialists through existing contracts e.g. Wild Well Control, Add Energy
- Secondment of Personnel from other Titleholders through APPEA Industry Memorandum of Understanding (2021)
- Engineering support through call-off frame agreements.

Following personnel call-off, online briefings will be held for external personnel prior to commencing work. If building access is required, onboarding will commence as per the Woodside`s Office Access Management Procedures. In the event of an emergency, building access can be expedited at the discretion of the CIMT or identified senior leaders and facilities for remote operations would also be set up.

7.9.7 Emergency and Spill Response Drills and Exercises

Woodside's capability to respond to incidents will be tested periodically, in accordance with the Emergency and Crisis Management Procedure. The scope, frequency and objective of these tests is described in **Table 7-8**. Emergency response testing 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 points developing and scheduling emergency and crisis management exercises. External participants may be invited to attend exercises (e.g., government agencies, specialist service providers, oil spill response organisations, or industry members with which Woodside has mutual aid arrangements).

The overall objective of exercises is to test procedures, skills and the teamwork of the Emergency Response and Command Teams in their ability to respond to major accident / major environment events. After each exercise, the team holds a debriefing session, during which the exercise is reviewed. Any lessons learned or areas for improvement are identified and incorporated into revised procedures, where appropriate.

Table 7-8: Testing of response capability

Response Category	Scope	Response Testing Frequency	Response Testing Objective
Level 1 Response	Exercises are project-/ activity-specific	At least one Level 1 OPEP 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	Comprehensive exercises test elements of the Oil Pollution First Strike Plan (**Appendix E**).

Response Category	Scope	Response Testing Frequency	Response Testing Objective
		commencing the activity and then at least every 6 month hire period thereafter.	Emergency drills are scheduled to test other aspects of the Emergency Response Plan.
Level 2 Response	Exercises are vessel 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 vessel per campaign must be conducted within the first month of commencing the activity and then at 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.

7.9.8 Hydrocarbon Spill 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 7-8**, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment.

7.9.8.1 Testing of Arrangements Schedule

Woodside's Testing of Arrangements Schedule (**Figure 7-2**) aligns with international good practice for spill preparedness and response management; the testing is compatible with the IPIECA 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.

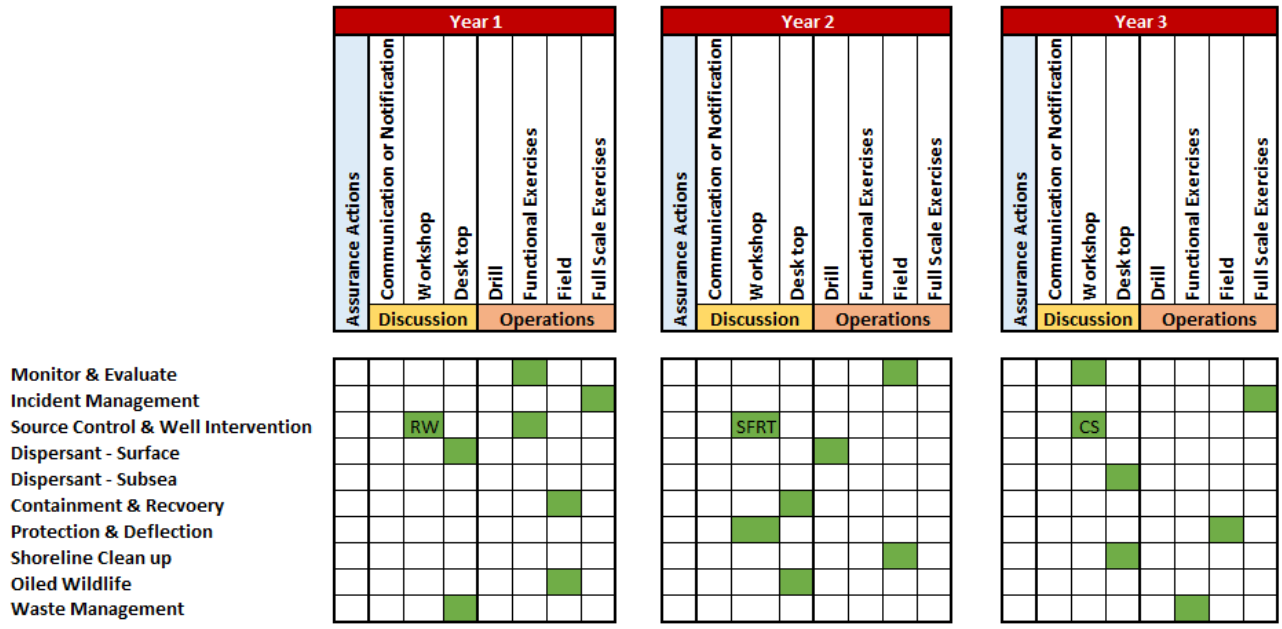

Figure 7-2: Indicative 3-yearly testing of arrangements schedule

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 3-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).

7.9.8.2 Source Control testing and exercise arrangements

This section aims to present the testing and exercise arrangements for Source Control techniques as recommended in the recent industry guidelines such as the APPEA *Australian Offshore Titleholders Source Control Guideline* (issued June 2021) and the NOPSEMA Information Paper: *Source Control Planning and Procedures* (issued June 2021)

The paragraphs below elaborate on the scope, testing frequency, objectives and close-out processes applicable to testing/ exercises for Source Control techniques.

Scope, objectives and KPIs

- The objective of tests/exercises is to verify the capability of Woodside and/or contractors to manage and deliver elements of the Source Control Plans presented in OPEP.
- Tests may include specific elements of the response cycle for source control strategy, e.g. activation of arrangements, mobilisation of equipment and personnel and if relevant, testing of specific operational plans (e.g. SFRT, capping and relief well).

- Objectives typically include; testing of IMT capabilities, communications requirements, testing of source control response plans and evaluating specific aspects of source control arrangements, e.g. number of personnel, equipment, mobilisation plans and timeframes for response.
- An example of test objectives from recent exercise are presented below for reference –
  - Objective 1 – Exercising Source Control IMT against worst case credible loss of containment scenario
  - Objective 2 – Sourcing of Relief well MODU
  - Objective 3 – Verify key equipment and services availability to support Relief well operations.
  - Objective 4 – Delivery of *xx* day Relief well as per Activity SCERP.
- KPIs are taken from the ALARP commitments as stated in the OSPRMA (**Appendix D**).
- The exercises are planned utilising SMEs from the function with independent observers/ agencies as available (e.g. AMOSC, OSRL) along with Industry collaboration as available/ permitted.
- Formal exercise plans are produced prior to tests and exercises to document the scope, objectives, allocate resources and select relevant plans and previous lessons learnt for the test or exercise.
- **Table 7-8** provides indicative scope, testing frequency and objectives of the emergency and spill response drills and exercises which includes Source Control response techniques.

Frequency of tests

In addition to Testing of Arrangements for all responses listed in the schedule, source control techniques are tested on an annual basis; at least one technique per year. The schedule for testing of Source Control techniques is described in **Section 7.9.8.1**.

Woodside has tested the below response techniques in last two years:

- SSDI and relief well response in 2019
- SFRT response (joint industry exercise hosted by Woodside) in 2020

Woodside plans to test capping response in Q4 2021. In addition, Woodside Source Control team members participate in joint industry exercises on source control as available for continuous improvements to response plans.

Close out Processes

Post-exercise debriefs are held with the exercise team to identify gaps and capture learnings. The recommendations and actions are documented and assigned to the relevant function within the organisation and tracked until close-out. Close-out reports are distributed to relevant function leads and captured under Woodside's document management systems and relevant processes. Lessons learned are incorporated into Woodside's processes and procedures and improvements are made where required.

7.9.9 Cyclone and Dangerous Weather Preparation

As the timing of some activities associated with the Petroleum Activities Program are not yet determined, it is possible drilling and subsea installation activities will overlap with the cyclone season (November to April, with most cyclones occurring between January and March). If drilling in cyclone season, the MODU contractor and vessel contractors must have a Cyclone Contingency Plan (CCP) in place outlining the processes and procedures that would be implemented during a cyclone event, which will be reviewed and accepted by Woodside.

The MODU and project vessels will receive daily forecasts from the BoM. If a cyclone (or severe weather event) is forecast, the path and its development will be plotted and monitored using the BoM data. If there is the potential for the cyclone (severe weather event) to affect the Petroleum Activities Program, the CCP will be actioned. If required, vessels can transit from the proposed track of the cyclone (severe weather event).

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GLOSSARY AND ABBREVIATIONS

Term	Meaning
(the) Regulator	The Government Agency (State or Commonwealth) that is the decision maker for approvals and undertakes ongoing regulation of the approval once granted.
3D seismic data	A set of numerous closely-spaced seismic lines that provide a high spatially sampled measure of subsurface reflectivity and 3D image.
Acceptability	The EP must demonstrate that the environmental impacts and risks of an activity will be of an acceptable level as per Regulation 10A(c).
ALARP	A legal term in Australian safety legislation, it is taken here to mean that all contributory elements and stakeholdings have been considered by assessment of costs and benefits, and which identifies a preferred course of action.
API (gravity)	A measure of how heavy or light a petroleum liquid is compared to water.
Australian Standard	An Australian Standard which provides criteria and guidance on design, materials, fabrication, installation, testing, commissioning, operation, maintenance, re-qualification and abandonment.
Ballast	Extra weight taken on to increase a ship's stability to prevent rolling and pitching. Most ships use seawater as ballast. Empty tank space is filled with inert (non-combustible) gas to prevent the possibility of fire or explosion.
Bathymetry	Related to water depth, a bathymetry map shows the depth of water at a given location on the map.
Benthos/Benthic	Relating to the seabed, and includes organisms living in or on sediments/rocks on the seabed.
Biodiversity	Relates to the level of biological diversity of the environment. The EPBC Act defines biodiversity as: "the variability among living organisms from all sources (including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part) and includes: (a) diversity within species and between species; and (b) diversity of ecosystems".
Biota	The animal and plant life of a particular region, habitat or geological period.
Cetacean	Whale and dolphin species.
Consequence	The worst case credible outcome associated with the selected event assuming some controls (prevention and mitigation) have failed. Where more than one impact applies (e.g. environmental and legal/compliance), the consequence level for the highest severity impact is selected.
Coral	Anthozoa that are characterised by stone like, horny, or leathery skeletons (external or internal). The skeletons of these animals are also called coral.
Coral Reef	A wave-resistant structure resulting from skeletal deposition and cementation of hermatypic corals, calcareous algae, and other calcium carbonate-secreting organisms.
Crustacean	A large and variable group of mostly aquatic invertebrates which have a hard external skeleton (shell), segmented bodies, with a pair of often very modified appendages on each segment, and two pairs of antennae (e.g. crabs, crayfish, shrimps, wood lice, water fleas and barnacles).
Cyclone	A rapidly-rotating storm system characterised by a low-pressure centre, strong winds, and a spiral arrangement of thunderstorms that produce heavy rain.
Datum	A reference location or elevation which is used as a starting point for subsequent measurements.
dB	Decibel – this is a measure of the overall noise level of sound across the audible spectrum with a frequency weighting (that is, 'A' weighting) to compensate for the varying sensitivity of the human ear to sound at different frequencies.

Term	Meaning
dB re 1 µPa²	Measure of underwater noise, in terms of sound pressure. Because the dB is a relative measure, rather than an absolute measure, it must be referenced to a standard 'reference intensity', in this case one micro Pascal (1 mPa), which is the standard reference that is used. The dB is also measured over a specified frequency, which is usually either a one Hertz bandwidth (expressed as dB re 1 mPa²/Hz), or over a broadband which has not been filtered. Where a frequency is not specified, it can be assumed that the measurement is a broadband measurement.
dB re 1 µPa².s	Normal unit for sound exposure level.
Demersal	Living close to the floor of the sea (typically of fish).
Drill casing	Tubing that is set inside the drilled well to protect and support the well stream.
Drilling fluids	The main functions of drilling fluids include providing hydrostatic pressure to prevent formation fluids from entering into the well bore, keeping the drill bit cool and clean during drilling, carrying out drill cuttings, and suspending the drill cuttings while drilling is paused and when the drilling assembly is brought in and out of the hole. The drilling fluid used for a particular job is selected to avoid formation damage and to limit corrosion. The three main categories of drilling fluids are water-based muds (which can be dispersed and non-dispersed), non-aqueous muds, usually called oil-based mud, and gaseous drilling fluid, in which a wide range of gases can be used.
DRIMS	Woodside's internal document management system.
Dynamic positioning	In reference to a marine vessel that uses satellite navigation and radio transponders in conjunction with thrusters to maintain its position.
EC_{50}	the concentration of a drug, antibody or toxicant which induces a response halfway between the baseline and maximum after a specified exposure time.
Echinoderms	Any of numerous radially symmetrical marine invertebrates of the phylum Echinodermata, which includes the starfishes, sea urchins, and sea cucumbers, which have an internal calcareous skeleton and often covered with spines.
Endemic	A species that is native to, or confined to a certain region.
Environment	The surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans and their interrelations (Source: ISO 14001).
Environment Plan	Prepared in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009, which must be assessed and accepted by the Designated Authority (NOPSEMA) before any petroleum-related activity can be performed.
Environment Regulations	OPGGS (Environment) Regulation 2009.
Environmental approval	The action of approving something, which has the potential to have an adverse impact on the environment. Environmental impact assessment is generally required before environmental approval is granted.
Environmental Hazard	The characteristic of an activity or event that could potentially cause damage, harm or adverse effects on the environment
Environmental impact	Any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services (Source: HB 203:2006).
Environmental impact assessment	An orderly and systematic process for evaluating a proposal or scheme (including its alternatives), and its effects on the environment, and mitigation and management of those effects (Source: Western Australian *Environmental Impact Assessment Administrative Procedures 2010*).
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*. Commonwealth legislation designed to promote the conservation of biodiversity and protection of the environment.
Epifauna	Benthic animals that live on the surface of a substrate.
Fauna	Collectively, the animal life of a particular region.

Term	Meaning
Flora	Collectively the plant life of a particular region.
IC_{50}	A measure of the effectiveness of a compound in inhibiting biological or biochemical function.
Infauna	Aquatic animals that live in the substrate of a body of water, especially in a soft sea bottom.
ISO 14001	ISO 14001 is an international standard that specifies a process (called an Environmental Management System or EMS) for controlling and improving a company's environmental performance. An EMS provides a framework for managing environmental responsibilities so that they become more efficient and more integrated into overall business operations.
Jig Fishing	Fishing with a jig, which is a type of fishing lure. A jig consists of a lead sinker with a hook moulded into it and usually covered by a soft body to attract fish.
LC_{50}	The concentration of a substance that is lethal to 50% of the population exposed to it for a specified time.
Likelihood	The description that best fits the chance of the selected consequence actually occurring, assuming reasonable effectiveness of the prevention and mitigation controls.
MARPOL (73/78)	The International Convention for the Prevention of Pollution from Ships 1973, as modified by the Protocol of 1978. MARPOL 73/78 is one of the most important international marine environmental conventions. It was designed to minimise pollution of the seas, including dumping, oil and exhaust pollution. Its stated object is to preserve the marine environment through the complete elimination of pollution by oil and other harmful substances and the minimization of accidental discharge of such substances.
Meteorology	The study of the physics, chemistry, and dynamics of the earth's atmosphere, including the related effects at the air–earth boundary over both land and the oceans.
Mitigation	Management measures which minimise and manage undesirable consequences.
NOHSC (1008:2004)	National Occupational Health and Safety Commission – Approved Criteria for Classifying Hazardous Substances.
Oligotrophic	Low in plant nutrients and having a large amount of dissolved oxygen throughout.
pH	measure of the acidity or basicity of an aqueous solution.
Protected Species	Threatened, vulnerable or endangered species which are protected from extinction by preventive measures. Often governed by special federal or state laws.
Putrescible	Refers to food scraps and other organic waste associated with food preparation that will be subject to decay and rot (putrefaction).
Risk	The combination of the consequences of an event and its associated likelihood. For guidance see Environmental Guidance on Application of Risk Management Procedure.
S-BRUVS	Stereo-baited remote underwater video systems.
Sessile	Organism that is fixed in one place; immobile.
Syngnathids	Family of fish which includes the seahorses, the pipefishes, and the weedy and leafy sea dragons.
Teleost	A fish belonging to the Teleostei or Teleostomi, a large group of fishes with bony skeletons, including most common fishes. The teleosts are distinct from the cartilaginous fishes such as sharks, rays, and skates.
Thermocline	A temperature gradient in a thermally stratified body of water.
XC Polymer	A polysaccharide secreted by the bacteria genus *Xanthomonas campestris*.
Zooplankton	Plankton consisting of small animals and the immature stages of larger animals.

Abbreviation	Meaning
µm	Micrometer
AHO	Australian Hydrographic Office
AHV	Anchor handling vessel
AIMS	Australian Institute of Marine Science
ALARP	As low as reasonably practicable
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
API	American Petroleum Institute
APPEA	Australian Petroleum Production and Exploration Association
AS/NZS	Australian Standard (New Zealand Standard)
ATSB	Australian Transport Safety Bureau
AusSAR	Australian Search and Rescue
bbl	Oil barrel
BIA	Biologically important areas
BoM	Bureau of Meteorology
BOP	Blowout preventer
BP	Boiling point
CALM	Department of Conservation and Land Management
CCP	Cyclone Contingency Plan
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CIMT	Corporate Incident Management Team
CV	Company values
DAWR	Department of Agriculture and Water Resources
DEWHA	Department of Environment, Water, Heritage and the Arts
DGPS	Differential global positioning system
DMIRS	Department of Mines, Industry Regulation and Safety
DMP	Department of Mines and Petroleum
DNP	Director of National Parks
DoD	Department of Defence
DoEE	Department of Environment and Energy
DoT	Department of Transport
DP	Dynamically positioned
DPaW	Department of Parks and Wildlife
DPIRD	Department of Primary Industries and Regional Development
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EC_{50}	Half maximal effective concentration
EDS	Emergency disconnect sequence
EEZ	Exclusive Economic Zone
EFL	Electrical flying lead

Abbreviation	Meaning
EHU	Electro-hydraulic umbilical
EMBA	Environment that may be affected
EMS	Environmental Management System
ENVID	Environmental hazard identification
EP	Environment Plan
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999*
EPO	Environmental Performance Outcome
EPS	Environmental Performance Standard
ERP	Emergency Response Plans
ESD	Emergency shutdown
FCGT	Flood, clean and gauge testing
FEWD	Formation evaluation while drilling
FPSO	Floating production, storage and offtake vessel
g/m²	Grams per square metre
GP	Good practice
HAZID	Hazard identification
HFL	Hydraulic flying lead
HLV	Heavy lift vessel
HOCNF	Harmonised Offshore Chemical Notification Format
HQ	Hazard quotient
HSE	Health, safety and environment
Hz	Hertz
IC	Incident Controller
IC_{50}	Half maximal inhibitory concentration
IMO	International Maritime Organization
IMS	Invasive marine species
IOGP	International Association of Oil and Gas Producers
ITF	Indonesian Through Flow
IUCN	International Union for Conservation of Nature
JRCC	Joint Rescue Coordination Centre
JSA	Job safety assessment
KEF	Key ecological feature
kHz	Kilohertz
km	Kilometre
kPa	Kilopascal
L	Litres
LAT	Lowest astronomical tide
LC_{50}	Lethal concentration, 50%
LBL	Long baseline transponder

Abbreviation	Meaning
LCS	Legislation, codes and standards
LNG	Liquefied natural gas
LWI	Light well intervention
LWIV	Light well intervention vessel
MBES	Multi-beam echo sounder
MC	Measurement criteria
MEG	Monoethylene glycol
MFO	Marine Fauna Observers
scf	Standard cubic feet
MNES	Matters of National Environmental Significance
MOC	Management of Change
MODU	Mobile offshore drilling unit
MPA	Marine Protected Area
ms^{-1}	Metres per second
MSIN	Maritime Safety Information Notifications
NIMS	Non-indigenous marine species
nm	Nautical mile (1852 m), a unit of distance on the sea
NOAA	National Oceanic and Atmospheric Administration
NOECs	No-observed-effect concentrations
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NTM	Notice to Mariners
NWBM	Non water-based mud
NWMR	North West Marine Region
NWSTF	North West Slope Trawl Fishery
OCNS	Offshore Chemical Notification Scheme
OIW	Oil in water
OOC	Oil on cuttings
OPEP	Oil Pollution Emergency Plan
OPGGS Act	*Offshore Petroleum and Greenhouse Gas Storage Act*
OSPAR	Oslo and Paris Commission for the Convention for the Protection of the Marine Environment of the North-East Atlantic
HSPU	Hydrocarbon Spill Preparedness Unit
OVID	Offshore Vessel Inspection Database
OVMSA	Offshore Vessel Safety Management System assessment
PAH	Polycyclic aromatic hydrocarbons
PJ	Professional judgement
PLONOR	OSPAR definition of a substance ‘poses little or no risk’ to the environment
PPA	Pearl Producers Association
ppb	Parts per billion

Abbreviation	Meaning
ppm	Parts per million
psi	Pounds per square inch
PS	Performance standards
PTW	Permit to Work
PW	Produced water
RBA	Risk based analysis
RCC	Rescue Co-ordination Centre
RMR	Riserless mud recovery
RMS	Root mean square
ROV	Remotely operated vehicle
SCE	Solids control equipment
SDU	Subsea distribution unit
SIMAP	Spill Impact Mapping and Analysis Program
SIMOPS	Simultaneous operations
SMPEP	Spill Monitoring Programme Execution Plan
SOPEP	Ship Oil Pollution Emergency Plan
SPL	Sound pressure levels
SV	Societal values
TD	Total depth
TSS	Total suspended solids
TTS	Temporary threshold shift
USBL	Ultra short baseline transponder
UTA	Umbilical termination assembly
UK	United Kingdom
VLS	Vertical lay system
VOC	Volatile organic compounds
WA	Western Australia
WAF	Water accommodated fractions
WAFIC	Western Australian Fishing Industry Council
WBM	Water based mud
WCBD	Well Control Bridging Document
WCC	Woodside Communication Centre
WHA	World Heritage Area
WMS	Woodside Management System
WOMP	Well Operation Management Plan
Woodside	Woodside Energy Ltd
wt%	Weight per cent

APPENDIX A WOODSIDE HEALTH AND SAFETY, ENVIRONMENT AND BIODIVERSITY & RISK MANAGEMENT POLICIES

WOODSIDE POLICY

Woodside Energy

Health and Safety Policy

OBJECTIVES

At Woodside we believe that process and personal safety related incidents, and occupational illnesses are preventable. We strive to be an industry leader in health and safety and are committed to managing our activities to minimise adverse health and safety risk related impacts.

PRINCIPLES

Woodside will achieve this by:

- Implementing a systematic approach to health, personal safety, and process safety risk management.
- Maintaining a culture in which everybody is aware of their health and safety obligations and are empowered to speak up and intervene on health and safety issues.
- Identifying current and emerging hazards across the value chain activities to reduce risks to as low as reasonably practicable.
- Embedding health and safety management in our business planning and decision-making processes.
- Integrating health, personal safety and process safety requirements when designing, purchasing, constructing, and modifying equipment and facilities including requiring our contractors to comply with our HSE expectations in a mutually beneficial manner.
- Complying with relevant laws and regulations and applying responsible standards where laws do not exist.
- Setting targets and publicly reporting on our health and safety performance to help us continually improve.

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 leaders are also responsible for promotion of this Policy in non-operated joint ventures.

This Policy will be reviewed regularly and updated as required.

Revised by the Woodside Energy Group Ltd Board in December 2022

DRIMS# 3475310

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APPROVED

WOODSIDE POLICY

Woodside Energy

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'.

DRIMS# 1401783899

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APPROVED

WOODSIDE POLICY

Woodside Energy

Risk Management Policy

OBJECTIVES

Woodside recognises that risk is inherent in our business and the effective management of risk is vital to deliver our strategic objectives, continued growth and success. We are committed to managing risks in a proactive and effective manner as a source of competitive advantage.

Our approach protects us against potential negative impacts, enables us to take risk for reward and improves our resilience against emerging risks. The objective of our risk management framework is to provide a single consolidated view of risks across the company to understand our full risk exposure and prioritise risk management and governance.

The success of our approach lies in the responsibility placed on everyone at all levels to proactively identify, assess and treat risks relating to the objectives they are accountable for delivering.

PRINCIPLES

Woodside achieves these objectives by:

- Applying a structured and comprehensive framework for the identification, assessment and treatment of current risks and response to emerging risks;
- Ensuring line of sight of financial and non-financial risks at appropriate levels of the organisation;
- Demonstrating leadership and commitment to integrating risk management into our business activities and governance practices;
- Recognising the value of stakeholder engagement, best available information and proactive identification of potential changes in external and internal context;
- Embedding risk management into our critical business processes and control framework;
- Understanding our exposure to risk and tolerance for uncertainty to inform our decision making and assure that Woodside is operating with due regard to the risk appetite endorsed by the Board; and
- Evaluating and improving the effectiveness and efficiency our approach.

APPLICABILITY

The Managing Director of Woodside is accountable to the Board of Directors for ensuring this Policy is effectively implemented.

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.

Reviewed by the Woodside Energy Group Ltd Board in December 2022.

DRIMS# 8692011

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APPENDIX B RELEVANT REQUIREMENTS

The below table refers to Commonwealth Legislation related to the activity

Commonwealth Legislation	Legislation Summary
Air Navigation Act 1920 • *Air Navigation Regulations 1947* • *Air Navigation (Aerodrome Flight Corridors) Regulations 1994* • *Air Navigation (Aircraft Engine Emissions) Regulations 1995* • *Air Navigation (Aircraft Noise) Regulations 1984* • *Air Navigation (Fuel Spillage) Regulations 1999*	This Act relates to the management of air navigation.
Australian Maritime Safety Authority Act 1990	This Act establishes a legal framework for the Australian Maritime Safety Authority (AMSA), which represents the Australian Government and international forums in the development, implementation and enforcement of international standards including those governing ship safety and marine environment protection. AMSA is responsible for administering the Marine Orders in Commonwealth waters.
Australian Radiation Protection and Nuclear Safety Act 1998	This Act relates to the protection of the health and safety of people, and the protection of the environment from the harmful effects of radiation.
Biosecurity Act 2015 • *Quarantine Regulations 2000* • *Biosecurity Regulation 2016* • *Australian Ballast Water Management Requirements 2017* • *Biosecurity Amendment (Biofouling Management) Regulations 2021*	This Act provides the Commonwealth with powers to take measures of quarantine, and implement related programs as are necessary, to prevent the introduction of any plant, animal, organism or matter that could contain anything that could threaten Australia's native flora and fauna or natural environment. The Commonwealth's powers include powers of entry, seizure, detention and disposal. This Act includes mandatory controls on the use of seawater as ballast in ships and the declaration of sea vessels voyaging out of and into Commonwealth waters. The Regulations stipulate that all information regarding the voyage of the vessel and the ballast water is declared correctly to the quarantine officers. The Biofouling Management Regulations requires ships to report information about biofouling management and the voyage history of the ship in the past 12 months through a pre-arrival report.
Environment Protection and Biodiversity Conservation Act 1999 • *Environment Protection and Biodiversity Conservation Regulations 2000*	This Act protects matters of national environmental significance (NES). It streamlines the national environmental assessment and approvals process, protects Australian biodiversity and integrates management of important natural and culturally significant places. Under this Act, actions that may be likely to have a significant impact on matters of NES must be referred to the Commonwealth Environment Minister.
Environment Protection (Sea Dumping) Act 1981 • *Environment Protection (Sea Dumping) Regulations 1983*	This Act provides for the protection of the environment by regulating dumping matter into the sea, incineration of waste at sea and placement of artificial reefs.

Commonwealth Legislation	Legislation Summary
Industrial Chemicals (Notification and Assessment Act) 1989 • *Industrial Chemicals (Notification and Assessment) Regulations 1990*	This Act creates a national register of industrial chemicals. The Act also provides for restrictions on the use of certain chemicals which could have harmful effects on the environment or health.
National Environment Protection Measures (Implementation) Act 1998 • *National Environment Protection Measures (Implementation) Regulations 1999*	This Act and Regulations provide for the implementation of National Environment Protection Measures (NEPMs) to protect, restore and enhance the quality of the environment in Australia and ensure that the community has access to relevant and meaningful information about pollution. The National Environment Protection Council has made NEPMs relating to ambient air quality, the movement of controlled waste between states and territories, the national pollutant inventory, and used packaging materials.
National Greenhouse and Energy Reporting Act 2007 • *National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015*	This Act and associated Rule establishes the legislative framework for the NGER scheme for reporting greenhouse gas emissions and energy consumption and production by corporations in Australia.
Navigation Act 2012 • *Marine order 12 – Construction – subdivision and stability, machinery and electrical installations* • *Marine order 30 - Prevention of collisions* • *Marine order 47 – Offshore Industry units* • *Marine order 57 - Helicopter operations* • *Marine order 91 - Marine pollution prevention—oil* • *Marine order 93 - Marine pollution prevention—noxious liquid substances* • *Marine order 94 - Marine pollution prevention—packaged harmful substances* • *Marine order 96 - Marine pollution prevention—sewage* • *Marine order 97 - Marine pollution prevention—air pollution*	This Act regulates navigation and shipping including Safety of Life at Sea (SOLAS). The Act will apply to some activities of the MODU and project vessels. This Act is the primary legislation that regulates ship and seafarer safety, shipboard aspects of marine environment protection and pollution prevention.
Offshore Petroleum and Greenhouse Gas Storage Act 2006 1 *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* 2 *Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011* 3 *Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009*	This Act is the principal Act governing offshore petroleum exploration and production in Commonwealth waters. Specific environmental, resource management and safety obligations are set out in the Regulations listed.
Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 • *Ozone Protection and Synthetic Greenhouse Gas Management Regulations 1995*	This Act provides for measures to protect ozone in the atmosphere by controlling and ultimately reducing the manufacture, import and export of ozone depleting substances (ODS) and synthetic greenhouse gases, and replacing them with suitable alternatives. The Act will only apply to Woodside if it manufactures, imports or exports ozone depleting substances.

Commonwealth Legislation	Legislation Summary
Protection of the Sea (Powers of Intervention) Act 1981	This Act authorises the Commonwealth to take measures for the purpose of protecting the sea from pollution by oil and other noxious substances discharged from ships and provides legal immunity for persons acting under an AMSA direction.
Protection of the Sea (Prevention of Pollution from Ships) Act 1983 *Protection of the Sea (Prevention of Pollution from Ships) (Orders) Regulations 1994* • *Marine order 91 - Marine pollution prevention—oil* • *Marine order 93 - Marine pollution prevention—noxious liquid substances* • *Marine order 94 - Marine pollution prevention—packaged harmful substances* • *Marine order 95 - Marine pollution prevention—garbage* • *Marine order 96 - Marine pollution prevention—sewage* *Maritime Legislation Amendment (Prevention of Air Pollution from Ships) Act 2007* MARPOL Convention	This Act relates to the protection of the sea from pollution by oil and other harmful substances discharged from ships. Under this Act, discharge of oil or other harmful substances from ships into the sea is an offence. There is also a requirement to keep records of the ships dealing with such substances. The Act applies to all Australian ships, regardless of their location. It applies to foreign ships operating between 3 nautical miles (nm) off the coast out to the end of the Australian Exclusive Economic Zone (200 nm). It also applies within the 3 nm of the coast where the State/Northern Territory does not have complementary legislation. All the Marine Orders listed, except for Marine Order 95, are enacted under both the *Navigation Act 2012* and the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*. This Act is an amendment to the *Protection of the Sea (Prevention of Pollution from Ships) Act 1983*. This amended Act provides the protection of the sea from pollution by oil and other harmful substances discharged from ships.
Protection of the Sea (Harmful Antifouling Systems) Act 2006 *Marine order 98—(Marine pollution—anti-fouling systems)*	This Act relates to the protection of the sea from the effects of harmful anti-fouling systems. It prohibits the application or reapplication of harmful anti-fouling compounds on Australian ships or foreign ships that are in an Australian shipping facility.
Recycling and Waste Reduction (Mandatory Product Stewardship—Mercury-added Products) Rules 2021 (Minamata Convention on Mercury 2017)	This convention is an agreement to protect human and environmental health from the effects of releases of mercury and mercury-containing compounds to the environment. The convention is not yet ratified by Australia, and hence is not currently implemented in Commonwealth law. Australia has signed the convention and is currently undertaking an assessment process prior to ratification.

APPENDIX C EPBC ACT PROTECTED MATTERS SEARCH

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: 13-Jun-2023

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:	23
Listed Migratory Species:	38

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:	66
Whales and Other Cetaceans:	28
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	1
Habitat Critical to the Survival of Marine Turtles:	1

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:	32
Key Ecological Features (Marine):	2
Biologically Important Areas:	8
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
EEZ and Territorial Sea

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		
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
FISH		

Scientific Name	Threatened Category	Presence Text
[Thunnus maccoyii](#) Southern Bluefin Tuna [69402]	Conservation Dependent	Breeding known to occur within area
MAMMAL		
[Balaenoptera borealis](#) Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
[Balaenoptera musculus](#) Blue Whale [36]	Endangered	Migration route known to occur within area
[Balaenoptera physalus](#) Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
REPTILE		
[Aipysurus apraefrontalis](#) Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat may occur within area
[Caretta caretta](#) Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
[Chelonia mydas](#) Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
[Dermochelys coriacea](#) Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
[Eretmochelys imbricata](#) Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
[Natator depressus](#) Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
SHARK		
[Carcharias taurus (west coast population)](#) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus Common Noddy [825]		Species or species habitat may occur within area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat may occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat likely to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat likely to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Pristis clavata		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat may occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Species or species habitat known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa sahulensis as Sousa chinensis		
Australian Humpback Dolphin [87942]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Numenius madagascariensis		
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		
Common Sandpiper [59309]		Species or species habitat may occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat may occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat may occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat may occur within area overfly marine area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat may occur within area overfly marine area
Calidris melanotos		
Pectoral Sandpiper [858]		Species or species habitat may occur within area overfly marine area
Calonectris leucomelas		
Streaked Shearwater [1077]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Fish		
Acentronura larsonae Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
[Micrognathus micronotopterus](#) Tidepool Pipefish [66255]		Species or species habitat may occur within area
[Phoxocampus belcheri](#) Black Rock Pipefish [66719]		Species or species habitat may occur within area
[Solegnathus hardwickii](#) Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
[Solegnathus lettiensis](#) Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
[Solenostomus cyanopterus](#) Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
[Syngnathoides biaculeatus](#) Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
[Trachyrhamphus bicoarctatus](#) Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
[Trachyrhamphus longirostris](#) Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Reptile		
[Acalyptophis peronii](#) Horned Seasnake [1114]		Species or species habitat may occur within area
[Aipysurus apraefrontalis](#) Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat may occur within area
[Aipysurus duboisii](#) Dubois' Seasnake [1116]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus eydouxii Spine-tailed Seasnake [1117]		Species or species habitat may occur within area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Species or species habitat known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Species or species habitat known to occur within area
Chitulia ornata as Hydrophis ornatus Spotted Seasnake, Ornate Reef Seasnake [87377]		Species or species habitat may occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Ephalophis greyi North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Leioselasma czeblukovi as Hydrophis czeblukovi Fine-spined Seasnake, Geometrical Seasnake [87374]		Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Congregation or aggregation known to occur within area
Pelamis platurus Yellow-bellied Seasnake [1091]		Species or species habitat may 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	Species or species habitat likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus Fin Whale [37]	Vulnerable	Species or species habitat likely to occur within area
Delphinus delphis Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat may occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahulensis Australian Humpback Dolphin [87942]		Species or species habitat may occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat may occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat likely to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks	[Resource Information]
Park Name	Zone & IUCN Categories
Montebello	Multiple Use Zone (IUCN VI)

Habitat Critical to the Survival of Marine Turtles		
Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus		
Flatback Turtle [59257]	Nesting	Known to occur

Extra Information

EPBC Act Referrals			[Resource Information]
Title of referral	Reference	Referral Outcome	Assessment Status
Project Highclere Cable Lay and Operation	2022/09203		Completed
Controlled action			
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Gorgon Gas Development	2003/1294	Controlled Action	Post-Approval
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Not controlled action			
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Cable Seismic Exploration Permit areas WA-323-P and WA-330-P	2008/4227	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular Manner)	Post-Approval
Moosehead 2D seismic survey within permit WA-192-P	2005/2167	Not Controlled Action (Particular Manner)	Post-Approval
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
West Panaeus 3D seismic survey	2006/3141	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region

Name	Region
Ancient coastline at 125 m depth contour	North-west
Continental Slope Demersal Fish Communities	North-west

Biologically Important Areas

Scientific Name	Behaviour	Presence
Marine Turtles		
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Seabirds		
Ardenna pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Whales		
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	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: 02-May-2023

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:	1
National Heritage Places:	2
Wetlands of International Importance (Ramsar	1
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	3
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	63
Listed Migratory Species:	72

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:	7
Commonwealth Heritage Places:	3
Listed Marine Species:	128
Whales and Other Cetaceans:	34
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	14
Habitat Critical to the Survival of Marine Turtles:	4

Extra Information

This part of the report provides information that may also be relevant to the area you have

State and Territory Reserves:	44
Regional Forest Agreements:	None
Nationally Important Wetlands:	4
EPBC Act Referrals:	221
Key Ecological Features (Marine):	8
Biologically Important Areas:	55
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties		[Resource Information]
Name	State	Legal Status
The Ningaloo Coast	WA	Declared property

National Heritage Places		[Resource Information]
Name	State	Legal Status
Indigenous		
Dampier Archipelago (including Burrup Peninsula)	WA	Listed place
Natural		
The Ningaloo Coast	WA	Listed place

Wetlands of International Importance (Ramsar Wetlands)	[Resource Information]
Ramsar Site Name	Proximity
Eighty-mile beach	Within Ramsar site

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
EEZ and Territorial Sea
Extended Continental Shelf
Extended Continental Shelf

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		
Anous tenuirostris melanops		
Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Erythrotriorchis radiatus Red Goshawk [942]	Endangered	Species or species habitat may occur within area
Falco hypoleucos Grey Falcon [929]	Vulnerable	Species or species habitat known to occur within area
Limosa lapponica menzbieri Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit [86432]	Critically Endangered	Species or species habitat known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Malurus leucopterus edouardi White-winged Fairy-wren (Barrow Island), Barrow Island Black-and-white Fairy-wren [26194]	Vulnerable	Species or species habitat likely to occur within area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Pezoporus occidentalis Night Parrot [59350]	Endangered	Species or species habitat may occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Polytelis alexandrae Princess Parrot, Alexandra's Parrot [758]	Vulnerable	Species or species habitat may occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area
Sternula nereis nereis Australian Fairy Tern [82950]	Vulnerable	Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Thalassarche steadi		
White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
CRUSTACEAN		
Kumonga exleyi		
Cape Range Remipede [86875]	Vulnerable	Species or species habitat known to occur within area
FISH		
Milyeringa veritas		
Cape Range Cave Gudgeon, Blind Gudgeon [66676]	Vulnerable	Species or species habitat known to occur within area
Ophisternon candidum		
Blind Cave Eel [66678]	Vulnerable	Species or species habitat known to occur within area
Thunnus maccoyii		
Southern Bluefin Tuna [69402]	Conservation Dependent	Breeding known to occur within area
MAMMAL		
Balaenoptera borealis		
Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus		
Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Bettongia lesueur Barrow and Boodie Islands subspecies		
Boodie, Burrowing Bettong (Barrow and Boodie Islands) [88021]	Vulnerable	Species or species habitat known to occur within area
Dasyurus hallucatus		
Northern Quoll, Digul [Gogo-Yimidir], Wijingadda [Dambimangari], Wiminji [Martu] [331]	Endangered	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
[Eubalaena australis](#) Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
[Isoodon auratus barrowensis](#) Golden Bandicoot (Barrow Island) [66666]	Vulnerable	Species or species habitat known to occur within area
[Lagorchestes conspicillatus conspicillatus](#) Spectacled Hare-wallaby (Barrow Island) [66661]	Vulnerable	Species or species habitat known to occur within area
[Lagorchestes hirsutus Central Australian subspecies](#) Mala, Rufous Hare-Wallaby (Central Australia) [88019]	Endangered	Translocated population known to occur within area
[Macroderma gigas](#) Ghost Bat [174]	Vulnerable	Species or species habitat likely to occur within area
[Macrotis lagotis](#) Greater Bilby [282]	Vulnerable	Species or species habitat likely to occur within area
[Osphranter robustus isabellinus](#) Barrow Island Wallaroo, Barrow Island Euro [89262]	Vulnerable	Species or species habitat likely to occur within area
[Petrogale lateralis lateralis](#) Black-flanked Rock-wallaby, Moororong, Black-footed Rock Wallaby [66647]	Endangered	Species or species habitat known to occur within area
[Rhinonicteris aurantia (Pilbara form)](#) Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area
[Trichosurus vulpecula arnhemensis](#) Northern Brushtail Possum [83091]	Vulnerable	Species or species habitat may occur within area
PLANT		
[Minuria tridens](#) Minnie Daisy [13753]	Vulnerable	Species or species habitat may occur within area
REPTILE		

Scientific Name	Threatened Category	Presence Text
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus foliosquama Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Ctenotus zastictus Hamelin Ctenotus [25570]	Vulnerable	Species or species habitat known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Liasis olivaceus barroni Olive Python (Pilbara subspecies) [66699]	Vulnerable	Species or species habitat known to occur within area
Liopholis kintorei Great Desert Skink, Tjakura, Warrarna, Mulyamiji [83160]	Vulnerable	Species or species habitat may occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
SHARK		
Carcharias taurus (west coast population) Grey Nurse Shark (west coast population) [68752]	Vulnerable	Species or species habitat known to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Centrophorus uyato listed as Centrophorus zeehaani		
Little Gulper Shark [68446]	Conservation Dependent	Species or species habitat likely to occur within area
Pristis clavata		
Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
Pristis pristis		
Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron		
Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
Rhincodon typus		
Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sphyrna lewini		
Scalloped Hammerhead [85267]	Conservation Dependent	Species or species habitat known to occur within area

Listed Migratory Species		[Resource Information]
Scientific Name	Threatened Category	Presence Text
Migratory Marine Birds		
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area
Ardenna carneipes		
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Ardenna pacifica		
Wedge-tailed Shearwater [84292]		Breeding known to occur within area
Calonectris leucomelas		
Streaked Shearwater [1077]		Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Hydroprogne caspia Caspian Tern [808]		Breeding known to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Breeding known to occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Congregation or aggregation known to occur within area
Sula dactylatra Masked Booby [1021]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Migratory Marine Species		
Anoxypristis cuspidata Narrow Sawfish, Knifetooth Sawfish [68448]		Species or species habitat known to occur within area
Balaenoptera bonaerensis Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus Blue Whale [36]	Endangered	Migration route known to occur within area

Scientific Name	Threatened Category	Presence Text
Balaenoptera physalus Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Carcharhinus longimanus Oceanic Whitetip Shark [84108]		Species or species habitat likely to occur within area
Carcharodon carcharias White Shark, Great White Shark [64470]	Vulnerable	Species or species habitat known to occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Dugong dugon Dugong [28]		Breeding known to occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Eubalaena australis as Balaena glacialis australis Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area
Isurus oxyrinchus Shortfin Mako, Mako Shark [79073]		Species or species habitat likely to occur within area
Isurus paucus Longfin Mako [82947]		Species or species habitat likely to occur within area
Lamna nasus Porbeagle, Mackerel Shark [83288]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mobula alfredi as Manta alfredi Reef Manta Ray, Coastal Manta Ray [90033]		Species or species habitat known to occur within area
Mobula birostris as Manta birostris Giant Manta Ray [90034]		Species or species habitat known to occur within area
Natator depressus Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Orcaella heinsohni Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Breeding known to occur within area
Pristis pristis Freshwater Sawfish, Largetooth Sawfish, River Sawfish, Leichhardt's Sawfish, Northern Sawfish [60756]	Vulnerable	Species or species habitat known to occur within area
Pristis zijsron Green Sawfish, Dindagubba, Narrowsnout Sawfish [68442]	Vulnerable	Breeding known to occur within area
Rhincodon typus Whale Shark [66680]	Vulnerable	Foraging, feeding or related behaviour known to occur within area
Sousa sahulensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Tursiops aduncus (Arafura/Timor Sea populations)		
Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Migratory Terrestrial Species		
Cuculus optatus		
Oriental Cuckoo, Horsfield's Cuckoo [86651]		Species or species habitat may occur within area
Hirundo rustica		
Barn Swallow [662]		Species or species habitat likely to occur within area
Motacilla cinerea		
Grey Wagtail [642]		Species or species habitat may occur within area
Motacilla flava		
Yellow Wagtail [644]		Species or species habitat likely to occur within area
Migratory Wetlands Species		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Calidris acuminata		
Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus		
Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area
Calidris ferruginea		
Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area
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 known to occur within area

Scientific Name	Threatened Category	Presence Text
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area
Limnodromus semipalmatus Asian Dowitcher [843]		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 known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Thalasseus bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		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
Defence	
Defence - EXMOUTH VLF TRANSMITTER STATION [50123]	WA
Defence - EXMOUTH VLF TRANSMITTER STATION [50122]	WA
Defence - LEARMONTH - AIR WEAPONS RANGE [50193]	WA
Defence - LEARMONTH RADAR SITE - VLAMING HEAD EXMOUTH [50001]	WA

Commonwealth Land Name	State
Unknown	
Commonwealth Land - [51104]	WA
Commonwealth Land - [52236]	WA
Commonwealth Land - [50385]	WA

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Natural		
Learmonth Air Weapons Range Facility	WA	Listed place
Mermaid Reef - Rowley Shoals	WA	Listed place
Ningaloo Marine Area - Commonwealth Waters	WA	Listed place

Listed Marine Species [Resource Information]

Scientific Name	Threatened Category	Presence Text
Bird		
Actitis hypoleucos		
Common Sandpiper [59309]		Species or species habitat known to occur within area
Anous stolidus		
Common Noddy [825]		Species or species habitat likely to occur within area
Anous tenuirostris melanops		
Australian Lesser Noddy [26000]	Vulnerable	Species or species habitat may occur within area
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat likely to occur within area overfly marine area
Ardenna carneipes as Puffinus carneipes		
Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Foraging, feeding or related behaviour likely to occur within area
Ardenna pacifica as Puffinus pacificus		
Wedge-tailed Shearwater [84292]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Bubulcus ibis as Ardea ibis Cattle Egret [66521]		Species or species habitat may occur within area overfly marine area
Calidris acuminata Sharp-tailed Sandpiper [874]		Species or species habitat known to occur within area
Calidris canutus Red Knot, Knot [855]	Endangered	Species or species habitat known to occur within area overfly marine area
Calidris ferruginea Curlew Sandpiper [856]	Critically Endangered	Species or species habitat known to occur within area overfly marine area
Calidris melanotos Pectoral Sandpiper [858]		Species or species habitat known to occur within area overfly marine area
Calonectris leucomelas Streaked Shearwater [1077]		Species or species habitat likely to occur within area
Chalcites osculans as Chrysococcyx osculans Black-eared Cuckoo [83425]		Species or species habitat known to occur within area overfly marine area
Charadrius leschenaultii Greater Sand Plover, Large Sand Plover [877]	Vulnerable	Species or species habitat known to occur within area
Charadrius veredus Oriental Plover, Oriental Dotterel [882]		Species or species habitat may occur within area overfly marine area
Chroicocephalus novaehollandiae as Larus novaehollandiae Silver Gull [82326]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Diomedea amsterdamensis Amsterdam Albatross [64405]	Endangered	Species or species habitat likely to occur within area
Diomedea exulans Wandering Albatross [89223]	Vulnerable	Species or species habitat may occur within area
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Breeding known to occur within area
Fregata minor Great Frigatebird, Greater Frigatebird [1013]		Species or species habitat may occur within area
Glareola maldivarum Oriental Pratincole [840]		Species or species habitat may occur within area overfly marine area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat known to occur within area
Hirundo rustica Barn Swallow [662]		Species or species habitat likely to occur within area overfly marine area
Hydroprogne caspia as Sterna caspia Caspian Tern [808]		Breeding known to occur within area
Larus pacificus Pacific Gull [811]		Breeding known to occur within area
Limnodromus semipalmatus Asian Dowitcher [843]		Species or species habitat known to occur within area overfly marine area
Limosa lapponica Bar-tailed Godwit [844]		Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area
Macronectes halli Northern Giant Petrel [1061]	Vulnerable	Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area overfly marine area
Motacilla cinerea Grey Wagtail [642]		Species or species habitat may occur within area overfly marine area
Motacilla flava Yellow Wagtail [644]		Species or species habitat likely to occur within area overfly marine area
Numenius madagascariensis Eastern Curlew, Far Eastern Curlew [847]	Critically Endangered	Species or species habitat known to occur within area
Onychoprion anaethetus as Sterna anaethetus Bridled Tern [82845]		Breeding known to occur within area
Onychoprion fuscatus as Sterna fuscata Sooty Tern [90682]		Breeding known to occur within area
Pandion haliaetus Osprey [952]		Breeding known to occur within area
Papasula abbotti Abbott's Booby [59297]	Endangered	Species or species habitat may occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	Species or species habitat may occur within area
Phaethon rubricauda Red-tailed Tropicbird [994]		Breeding known to occur within area
Pterodroma macroptera Great-winged Petrel [1035]		Foraging, feeding or related behaviour known to occur within area
Pterodroma mollis Soft-plumaged Petrel [1036]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Puffinus assimilis Little Shearwater [59363]		Foraging, feeding or related behaviour likely to occur within area
Rostratula australis as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Stercorarius skua as Catharacta skua Great Skua [823]		Species or species habitat may occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Congregation or aggregation known to occur within area
Sternula nereis as Sterna nereis Fairy Tern [82949]		Breeding known to occur within area
Sula dactylatra Masked Booby [1021]		Breeding known to occur within area

Scientific Name	Threatened Category	Presence Text
Sula leucogaster Brown Booby [1022]		Breeding known to occur within area
Thalassarche carteri Indian Yellow-nosed Albatross [64464]	Vulnerable	Species or species habitat may occur within area
Thalassarche cauta Shy Albatross [89224]	Endangered	Species or species habitat may occur within area
Thalassarche impavida Campbell Albatross, Campbell Black-browed Albatross [64459]	Vulnerable	Species or species habitat may occur within area
Thalassarche melanophris Black-browed Albatross [66472]	Vulnerable	Species or species habitat may occur within area
Thalassarche steadi White-capped Albatross [64462]	Vulnerable	Species or species habitat may occur within area
Thalasseus bengalensis as Sterna bengalensis Lesser Crested Tern [66546]		Breeding known to occur within area
Thalasseus bergii as Sterna bergii Greater Crested Tern [83000]		Breeding known to occur within area
Tringa nebularia Common Greenshank, Greenshank [832]		Species or species habitat likely to occur within area overfly marine area
Fish		
Acentronura larsonae Helen's Pygmy Pipehorse [66186]		Species or species habitat may occur within area
Bhanotia fasciolata Corrugated Pipefish, Barbed Pipefish [66188]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Bulbonaricus brauni Braun's Pughead Pipefish, Pug-headed Pipefish [66189]		Species or species habitat may occur within area
Campichthys galei Gale's Pipefish [66191]		Species or species habitat may occur within area
Campichthys tricarinatus Three-keel Pipefish [66192]		Species or species habitat may occur within area
Choeroichthys brachysoma Pacific Short-bodied Pipefish, Short-bodied Pipefish [66194]		Species or species habitat may occur within area
Choeroichthys latispinosus Muiron Island Pipefish [66196]		Species or species habitat may occur within area
Choeroichthys suillus Pig-snouted Pipefish [66198]		Species or species habitat may occur within area
Corythoichthys amplexus Fijian Banded Pipefish, Brown-banded Pipefish [66199]		Species or species habitat may occur within area
Corythoichthys flavofasciatus Reticulate Pipefish, Yellow-banded Pipefish, Network Pipefish [66200]		Species or species habitat may occur within area
Corythoichthys intestinalis Australian Messmate Pipefish, Banded Pipefish [66202]		Species or species habitat may occur within area
Corythoichthys schultzi Schultz's Pipefish [66205]		Species or species habitat may occur within area
Cosmocampus banneri Roughridge Pipefish [66206]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Doryrhamphus dactyliophorus Banded Pipefish, Ringed Pipefish [66210]		Species or species habitat may occur within area
Doryrhamphus excisus Bluestripe Pipefish, Indian Blue-stripe Pipefish, Pacific Blue-stripe Pipefish [66211]		Species or species habitat may occur within area
Doryrhamphus janssi Cleaner Pipefish, Janss' Pipefish [66212]		Species or species habitat may occur within area
Doryrhamphus multiannulatus Many-banded Pipefish [66717]		Species or species habitat may occur within area
Doryrhamphus negrosensis Flagtail Pipefish, Masthead Island Pipefish [66213]		Species or species habitat may occur within area
Festucalex scalaris Ladder Pipefish [66216]		Species or species habitat may occur within area
Filicampus tigris Tiger Pipefish [66217]		Species or species habitat may occur within area
Halicampus brocki Brock's Pipefish [66219]		Species or species habitat may occur within area
Halicampus dunckeri Red-hair Pipefish, Duncker's Pipefish [66220]		Species or species habitat may occur within area
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area
Halicampus nitidus Glittering Pipefish [66224]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Halicampus spinirostris Spiny-snout Pipefish [66225]		Species or species habitat may occur within area
Haliichthys taeniophorus Ribboned Pipehorse, Ribboned Seadragon [66226]		Species or species habitat may occur within area
Hippichthys penicillus Beady Pipefish, Steep-nosed Pipefish [66231]		Species or species habitat may occur within area
Hippocampus angustus Western Spiny Seahorse, Narrow-bellied Seahorse [66234]		Species or species habitat may occur within area
Hippocampus histrix Spiny Seahorse, Thorny Seahorse [66236]		Species or species habitat may occur within area
Hippocampus kuda Spotted Seahorse, Yellow Seahorse [66237]		Species or species habitat may occur within area
Hippocampus planifrons Flat-face Seahorse [66238]		Species or species habitat may occur within area
Hippocampus spinosissimus Hedgehog Seahorse [66239]		Species or species habitat may occur within area
Hippocampus trimaculatus Three-spot Seahorse, Low-crowned Seahorse, Flat-faced Seahorse [66720]		Species or species habitat may occur within area
Lissocampus fatiloquus Prophet's Pipefish [66250]		Species or species habitat may occur within area
Micrognathus micronotopterus Tidepool Pipefish [66255]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Nannocampus subosseus Bonyhead Pipefish, Bony-headed Pipefish [66264]		Species or species habitat may occur within area
Phoxocampus belcheri Black Rock Pipefish [66719]		Species or species habitat may occur within area
Solegnathus hardwickii Pallid Pipehorse, Hardwick's Pipehorse [66272]		Species or species habitat may occur within area
Solegnathus lettiensis Gunther's Pipehorse, Indonesian Pipefish [66273]		Species or species habitat may occur within area
Solenostomus cyanopterus Robust Ghostpipefish, Blue-finned Ghost Pipefish, [66183]		Species or species habitat may occur within area
Stigmatopora argus Spotted Pipefish, Gulf Pipefish, Peacock Pipefish [66276]		Species or species habitat may occur within area
Syngnathoides biaculeatus Double-end Pipehorse, Double-ended Pipehorse, Alligator Pipefish [66279]		Species or species habitat may occur within area
Trachyrhamphus bicoarctatus Bentstick Pipefish, Bend Stick Pipefish, Short-tailed Pipefish [66280]		Species or species habitat may occur within area
Trachyrhamphus longirostris Straightstick Pipefish, Long-nosed Pipefish, Straight Stick Pipefish [66281]		Species or species habitat may occur within area
Mammal		
Dugong dugon Dugong [28]		Breeding known to occur within area
Reptile		
Acalyptophis peronii Horned Seasnake [1114]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Aipysurus apraefrontalis Short-nosed Seasnake [1115]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus duboisii Dubois' Seasnake [1116]		Species or species habitat may occur within area
Aipysurus eydouxii Spine-tailed Seasnake [1117]		Species or species habitat may occur within area
Aipysurus foliosquama Leaf-scaled Seasnake [1118]	Critically Endangered	Species or species habitat known to occur within area
Aipysurus laevis Olive Seasnake [1120]		Species or species habitat may occur within area
Aipysurus pooleorum Shark Bay Seasnake [66061]		Species or species habitat may occur within area
Aipysurus tenuis Brown-lined Seasnake [1121]		Species or species habitat may occur within area
Astrotia stokesii Stokes' Seasnake [1122]		Species or species habitat may occur within area
Caretta caretta Loggerhead Turtle [1763]	Endangered	Breeding known to occur within area
Chelonia mydas Green Turtle [1765]	Vulnerable	Breeding known to occur within area
Chitulia ornata as Hydrophis ornatus Spotted Seasnake, Ornate Reef Seasnake [87377]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Foraging, feeding or related behaviour known to occur within area
Disteira kingii Spectacled Seasnake [1123]		Species or species habitat may occur within area
Disteira major Olive-headed Seasnake [1124]		Species or species habitat may occur within area
Emydocephalus annulatus Turtle-headed Seasnake [1125]		Species or species habitat may occur within area
Ephalophis greyi North-western Mangrove Seasnake [1127]		Species or species habitat may occur within area
Eretmochelys imbricata Hawksbill Turtle [1766]	Vulnerable	Breeding known to occur within area
Hydrelaps darwiniensis Black-ringed Seasnake [1100]		Species or species habitat may occur within area
Hydrophis elegans Elegant Seasnake [1104]		Species or species habitat may occur within area
Hydrophis macdowelli as Hydrophis mcdowelli Small-headed Seasnake [75601]		Species or species habitat may occur within area
Lapemis curtus as Lapemis hardwickii Spine-bellied Seasnake [83554]		Species or species habitat may occur within area
Leioselasma czeblukovi as Hydrophis czeblukovi Fine-spined Seasnake, Geometrical Seasnake [87374]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
Natator depressus		
Flatback Turtle [59257]	Vulnerable	Breeding known to occur within area
Pelamis platurus		
Yellow-bellied Seasnake [1091]		Species or species habitat may 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 bonaerensis		
Antarctic Minke Whale, Dark-shoulder Minke Whale [67812]		Species or species habitat likely to occur within area
Balaenoptera borealis		
Sei Whale [34]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Balaenoptera edeni		
Bryde's Whale [35]		Species or species habitat likely to occur within area
Balaenoptera musculus		
Blue Whale [36]	Endangered	Migration route known to occur within area
Balaenoptera physalus		
Fin Whale [37]	Vulnerable	Foraging, feeding or related behaviour likely to occur within area
Delphinus delphis		
Common Dolphin, Short-beaked Common Dolphin [60]		Species or species habitat may occur within area
Eubalaena australis		
Southern Right Whale [40]	Endangered	Species or species habitat likely to occur within area

Current Scientific Name	Status	Type of Presence
Feresa attenuata Pygmy Killer Whale [61]		Species or species habitat may occur within area
Globicephala macrorhynchus Short-finned Pilot Whale [62]		Species or species habitat may occur within area
Globicephala melas Long-finned Pilot Whale [59282]		Species or species habitat may occur within area
Grampus griseus Risso's Dolphin, Grampus [64]		Species or species habitat may occur within area
Indopacetus pacificus Longman's Beaked Whale [72]		Species or species habitat may occur within area
Kogia breviceps Pygmy Sperm Whale [57]		Species or species habitat may occur within area
Kogia sima as Kogia simus Dwarf Sperm Whale [85043]		Species or species habitat may occur within area
Lagenodelphis hosei Fraser's Dolphin, Sarawak Dolphin [41]		Species or species habitat may occur within area
Megaptera novaeangliae Humpback Whale [38]		Breeding known to occur within area
Mesoplodon densirostris Blainville's Beaked Whale, Dense-beaked Whale [74]		Species or species habitat may occur within area
Mesoplodon ginkgodens Gingko-toothed Beaked Whale, Gingko-toothed Whale, Gingko Beaked Whale [59564]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Mesoplodon grayi Gray's Beaked Whale, Scamperdown Whale [75]		Species or species habitat may occur within area
Orcaella heinsohni as Orcaella brevirostris Australian Snubfin Dolphin [81322]		Species or species habitat known to occur within area
Orcinus orca Killer Whale, Orca [46]		Species or species habitat may occur within area
Peponocephala electra Melon-headed Whale [47]		Species or species habitat may occur within area
Physeter macrocephalus Sperm Whale [59]		Species or species habitat may occur within area
Pseudorca crassidens False Killer Whale [48]		Species or species habitat likely to occur within area
Sousa sahulensis as Sousa chinensis Australian Humpback Dolphin [87942]		Species or species habitat known to occur within area
Stenella attenuata Spotted Dolphin, Pantropical Spotted Dolphin [51]		Species or species habitat may occur within area
Stenella coeruleoalba Striped Dolphin, Euphrosyne Dolphin [52]		Species or species habitat may occur within area
Stenella longirostris Long-snouted Spinner Dolphin [29]		Species or species habitat may occur within area
Steno bredanensis Rough-toothed Dolphin [30]		Species or species habitat may occur within area

Current Scientific Name	Status	Type of Presence
Tursiops aduncus Indian Ocean Bottlenose Dolphin, Spotted Bottlenose Dolphin [68418]		Species or species habitat likely to occur within area
Tursiops aduncus (Arafura/Timor Sea populations) Spotted Bottlenose Dolphin (Arafura/Timor Sea populations) [78900]		Species or species habitat known to occur within area
Tursiops truncatus s. str. Bottlenose Dolphin [68417]		Species or species habitat may occur within area
Ziphius cavirostris Cuvier's Beaked Whale, Goose-beaked Whale [56]		Species or species habitat may occur within area

Australian Marine Parks	[Resource Information]
Park Name	Zone & IUCN Categories
Gascoyne	Habitat Protection Zone (IUCN IV)
Argo-Rowley Terrace	Multiple Use Zone (IUCN VI)
Argo-Rowley Terrace	Multiple Use Zone (IUCN VI)
Eighty Mile Beach	Multiple Use Zone (IUCN VI)
Gascoyne	Multiple Use Zone (IUCN VI)
Montebello	Multiple Use Zone (IUCN VI)
Shark Bay	Multiple Use Zone (IUCN VI)
Argo-Rowley Terrace	National Park Zone (IUCN II)
Gascoyne	National Park Zone (IUCN II)
Mermaid Reef	National Park Zone (IUCN II)
Ningaloo	National Park Zone (IUCN II)
Ningaloo	Recreational Use Zone (IUCN IV)
Ningaloo	Recreational Use Zone (IUCN IV)
Argo-Rowley Terrace	Special Purpose Zone (Trawl) (IUCN VI)

Park Name	Zone & IUCN Categories

Habitat Critical to the Survival of Marine Turtles		
Scientific Name	Behaviour	Presence
Aug - Sep		
Natator depressus		
Flatback Turtle [59257]	Nesting	Known to occur
Dec - Jan		
Chelonia mydas		
Green Turtle [1765]	Nesting	Known to occur
Nov-Feb		
Caretta caretta		
Loggerhead Turtle [1763]	Nesting	Known to occur
Nov - May		
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Nesting	Known to occur

Extra Information

State and Territory Reserves		[Resource Information]
Protected Area Name	Reserve Type	State
Airlie Island	Nature Reserve	WA
Barrow Island	Nature Reserve	WA
Barrow Island	Marine Park	WA
Barrow Island	Marine Management Area	WA
Bedout Island	Nature Reserve	WA
Bessieres Island	Nature Reserve	WA
Boodie, Double Middle Islands	Nature Reserve	WA
Bundegi Coastal Park	5(1)(h) Reserve	WA
Cape Range	National Park	WA
Great Sandy Island	Nature Reserve	WA
Jinmarnkur	Conservation Park	WA
Jurabi Coastal Park	5(1)(h) Reserve	WA

Protected Area Name	Reserve Type	State
Karajarri	Indigenous Protected Area	WA
Little Rocky Island	Nature Reserve	WA
Locker Island	Nature Reserve	WA
Lowendal Islands	Nature Reserve	WA
Montebello Islands	Conservation Park	WA
Montebello Islands	Conservation Park	WA
Montebello Islands	Marine Park	WA
Muiron Islands	Nature Reserve	WA
Muiron Islands	Marine Management Area	WA
Murujuga	National Park	WA
Ningaloo	Marine Park	WA
North Sandy Island	Nature Reserve	WA
North Turtle Island	Nature Reserve	WA
Rocky Island	Nature Reserve	WA
Round Island	Nature Reserve	WA
Rowley Shoals	Marine Park	WA
Serrurier Island	Nature Reserve	WA
Thevenard Island	Nature Reserve	WA
Unnamed WA36907	5(1)(h) Reserve	WA
Unnamed WA36909	5(1)(h) Reserve	WA
Unnamed WA36910	5(1)(h) Reserve	WA
Unnamed WA36915	Nature Reserve	WA
Unnamed WA40322	5(1)(h) Reserve	WA
Unnamed WA40828	5(1)(h) Reserve	WA
Unnamed WA40877	5(1)(h) Reserve	WA
Unnamed WA41080	5(1)(h) Reserve	WA

Protected Area Name	Reserve Type	State
Unnamed WA44665	5(1)(h) Reserve	WA
Unnamed WA44667	5(1)(h) Reserve	WA
Unnamed WA44672	5(1)(h) Reserve	WA
Victor Island	Nature Reserve	WA
Weld Island	Nature Reserve	WA
Y Island	Nature Reserve	WA

Nationally Important Wetlands [Resource Information]

Wetland Name	State
Bundera Sinkhole	WA
Cape Range Subterranean Waterways	WA
Learmonth Air Weapons Range - Saline Coastal Flats	WA
Mermaid Reef	EXT

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status
Balla Balla Export Facilities ? Design Variation	2022/09254		Assessment
Browse to North West Shelf Development, Indian Ocean, WA	2018/8319		Approval
North West Shelf Project Extension, Carnarvon Basin, WA	2018/8335		Approval
Optimised Mardie Solar Salt Project	2022/9169		Assessment
Project Highclere Cable Lay and Operation	2022/09203		Completed
Action clearly unacceptable			
Highlands 3D Marine Seismic Survey	2012/6680	Action Clearly Unacceptable	Completed
Controlled action			
'Van Gogh' Petroleum Field Development	2007/3213	Controlled Action	Post-Approval
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Construction and operation of a Solar Salt Project, SW Onslow, WA	2016/7793	Controlled Action	Assessment Approach
Develop Jansz-Io deepwater gas field in Permit Areas WA-18-R, WA-25-R and WA-26-	2005/2184	Controlled Action	Post-Approval
Development of Angel gas and condensate field, North West Shelf	2004/1805	Controlled Action	Post-Approval
Development of Browse Basin Gas Fields (Upstream)	2008/4111	Controlled Action	Completed
Development of Coniston/Novara fields within the Exmouth Sub-basin	2011/5995	Controlled Action	Post-Approval
Development of Stybarrow petroleum field incl drilling and facility installation	2004/1469	Controlled Action	Post-Approval
Echo-Yodel Production Wells	2000/11	Controlled Action	Post-Approval
Enfield full field development	2001/257	Controlled Action	Post-Approval
Equus Gas Fields Development Project, Carnarvon Basin	2012/6301	Controlled Action	Completed
Eramurra Industrial Salt Project	2021/9027	Controlled Action	Assessment Approach
Gorgon Gas Development	2003/1294	Controlled Action	Post-Approval
Gorgon Gas Development 4th Train Proposal	2011/5942	Controlled Action	Post-Approval
Gorgon Gas Revised Development	2008/4178	Controlled Action	Post-Approval
Greater Enfield (Vincent) Development	2005/2110	Controlled Action	Post-Approval
Greater Gorgon Development - Optical Fibre Cable, Mainland to Barrow Island	2005/2141	Controlled Action	Completed
Light Crude Oil Production	2001/365	Controlled Action	Post-Approval
Mardie Project, 80 km south west of Karratha, WA	2018/8236	Controlled Action	Post-Approval
Nava-1 Cable System	2001/510	Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
Ningaloo Lighthouse Development, 17km north west Exmouth, Western Australia	2020/8693	Controlled Action	Assessment Approach
Pluto Gas Project	2005/2258	Controlled Action	Completed
Pluto Gas Project Including Site B	2006/2968	Controlled Action	Post-Approval
Pyrenees Oil Fields Development	2005/2034	Controlled Action	Post-Approval
Simpson Development	2000/59	Controlled Action	Completed
Simpson Oil Field Development	2001/227	Controlled Action	Post-Approval
The Scarborough Project - FLNG & assoc subsea infrastructure, Carnarvon Basin	2013/6811	Controlled Action	Post-Approval
Vincent Appraisal Well	2000/22	Controlled Action	Post-Approval
Yardie Creek Road Realignment Project	2021/8967	Controlled Action	Assessment Approach
Not controlled action			
'Goodwyn A' Low Pressure Train Project	2003/914	Not Controlled Action	Completed
'Van Gogh' Oil Appraisal Drilling Program, Exploration Permit Area WA-155-P(1)	2006/3148	Not Controlled Action	Completed
Airlie Island soil and groundwater investigations, Exmouth Gulf, offshore Pilbara coast	2014/7250	Not Controlled Action	Completed
Baniyas-1 Exploration Well, EP-424, near Onslow	2007/3282	Not Controlled Action	Completed
Barrow Island 2D Seismic survey	2006/2667	Not Controlled Action	Completed
Bollinger 2D Seismic Survey 200km North of North West Cape WA	2004/1868	Not Controlled Action	Completed
Bultaco-2, Laverda-2, Laverda-3 and Montesa-2 Appraisal Wells	2000/103	Not Controlled Action	Completed
Carnarvon 3D Marine Seismic Survey	2004/1890	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
Cazadores 2D seismic survey	2004/1720	Not Controlled Action	Completed
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Controlled Source Electromagnetic Survey	2007/3262	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
Development of iron ore facilities	2013/7013	Not Controlled Action	Completed
Development of Mutineer and Exeter petroleum fields for oil production, Permit	2003/1033	Not Controlled Action	Completed
Drilling of an exploration well Gats-1 in Permit Area WA-261-P	2004/1701	Not Controlled Action	Completed
Eagle-1 Exploration Drilling, North West Shelf, WA	2019/8578	Not Controlled Action	Completed
Echo A Development WA-23-L, WA-24-L	2005/2042	Not Controlled Action	Completed
Exploration drilling well WA-155-P(1)	2003/971	Not Controlled Action	Completed
Exploration of appraisal wells	2006/3065	Not Controlled Action	Completed
Exploration Well (Taunton-2)	2002/731	Not Controlled Action	Completed
Exploration Well in Permit Area WA-155-P(1)	2002/759	Not Controlled Action	Completed
Exploratory drilling in permit area WA-225-P	2001/490	Not Controlled Action	Completed
Extension of Simpson Oil Platforms & Wells	2002/685	Not Controlled Action	Completed
HCA05X Macedon Experimental Survey	2004/1926	Not Controlled Action	Completed
Hess Exploration Drilling Programme	2007/3566	Not Controlled Action	Completed
Improving rabbit biocontrol: releasing another strain of RHDV, sthrn two thirds of Australia	2015/7522	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
INDIGO West Submarine Telecommunications Cable, WA	2017/8126	Not Controlled Action	Completed
Infill Production Well (Griffin-9)	2001/417	Not Controlled Action	Completed
Jansz-2 and 3 Appraisal Wells	2002/754	Not Controlled Action	Completed
Klammer 2D Seismic Survey	2002/868	Not Controlled Action	Completed
Maia-Gaea Exploration wells	2000/17	Not Controlled Action	Completed
Manaslu - 1 and Huascaran - 1 Offshore Exploration Wells	2001/235	Not Controlled Action	Completed
Mermaid Marine Australia Desalination Project	2011/5916	Not Controlled Action	Completed
Montesa-1 and Bultaco-1 Exploration Wells	2000/102	Not Controlled Action	Completed
Murujuga archaeological excavation, collection and sampling, Dampier Archipelago, WA	2014/7160	Not Controlled Action	Completed
North Rankin B gas compression facility	2005/2500	Not Controlled Action	Completed
Onslow Power Infrastructure Upgrade Project, Onslow, WA	2014/7314	Not Controlled Action	Completed
Onslow Water Supply Infrastructure Upgrade Project, Onslow, WA	2014/7329	Not Controlled Action	Completed
Pipeline System Modifications Project	2000/3	Not Controlled Action	Completed
Port Expansion and Dredging	2003/1265	Not Controlled Action	Completed
Project Highclere Geophysical Survey	2021/9023	Not Controlled Action	Completed
Searipple gas and condensate field development	2000/89	Not Controlled Action	Completed
Spool Base Facility	2001/263	Not Controlled Action	Completed
Subsea Gas Pipeline From Stybarrow Field to Griffin Venture Gas Export Pipeline	2005/2033	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
sub-sea tieback of Perseus field wells	2004/1326	Not Controlled Action	Completed
Telstra North Rankin Spur Fibre Optic Cable	2016/7836	Not Controlled Action	Completed
Thevenard Island Retirement Project	2015/7423	Not Controlled Action	Completed
To construct and operate an offshore submarine fibre optic cable, WA	2014/7373	Not Controlled Action	Completed
WA-295-P Kerr-McGee Exploration Wells	2001/152	Not Controlled Action	Completed
Wanda Offshore Research Project, 80 km north-east of Exmouth, WA	2018/8293	Not Controlled Action	Completed
Western Flank Gas Development	2005/2464	Not Controlled Action	Completed
Wheatstone 3D seismic survey, 70km north of Barrow Island	2004/1761	Not Controlled Action	Completed
Not controlled action (particular manner)			
'Kate' 3D marine seismic survey, exploration permits WA-320-P and WA-345-P, 60km	2005/2037	Not Controlled Action (Particular Manner)	Post-Approval
'Tourmaline' 2D marine seismic survey, permit areas WA-323-P, WA-330-P and WA-32	2005/2282	Not Controlled Action (Particular Manner)	Post-Approval
"Leanne" offshore 3D seismic exploration, WA-356-P	2005/1938	Not Controlled Action (Particular Manner)	Post-Approval
2D and 3D seismic surveys	2005/2151	Not Controlled Action (Particular Manner)	Post-Approval
2D marine seismic survey	2012/6296	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey	2008/4493	Not Controlled Action (Particular Manner)	Post-Approval
2D Seismic Survey	2005/2146	Not Controlled Action	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		(Particular Manner)	
2D Seismic Survey Permit Area WA-352-P	2008/4628	Not Controlled Action (Particular Manner)	Post-Approval
2D seismic survey within permit WA-291	2007/3265	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey	2008/4281	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey (WA-482-P, WA-363-P), WA	2013/6761	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in Permit Areas WA-15-R, WA-18-R, WA-205-P, WA-253-P, WA-267-P and WA-268-P	2003/1271	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Survey in WA 457-P & WA 458-P, North West Shelf, offshore WA	2013/6862	Not Controlled Action (Particular Manner)	Post-Approval
3D marine seismic survey over petroleum title WA-268-P	2007/3458	Not Controlled Action (Particular Manner)	Post-Approval
3D Marine Seismic Surveys - Contos CT-13 & Supertubes CT-13, offshore WA	2013/6901	Not Controlled Action (Particular Manner)	Post-Approval
3D seismic survey	2006/2715	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey, WA	2008/4428	Not Controlled Action (Particular Manner)	Post-Approval
3D Seismic Survey in the Carnarvon Bsin on the North West Shelf	2002/778	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
3D sesmic survey	2006/2781	Not Controlled Action (Particular Manner)	Post-Approval
Acheron Non-Exclusive 2D Seismic Survey	2009/4968	Not Controlled Action (Particular Manner)	Post-Approval
Acheron Non-Exclusive 2D Seismic Survey	2008/4565	Not Controlled Action (Particular Manner)	Post-Approval
Agrippina 3D Seismic Marine Survey	2009/5212	Not Controlled Action (Particular Manner)	Post-Approval
Apache Northwest Shelf Van Gogh Field Appraisal Drilling Program	2007/3495	Not Controlled Action (Particular Manner)	Post-Approval
Aperio 3D Marine Seismic Survey, WA	2012/6648	Not Controlled Action (Particular Manner)	Post-Approval
Artemis-1 Drilling Program (WA-360-P)	2010/5432	Not Controlled Action (Particular Manner)	Post-Approval
Australia to Singapore Fibre Optic Submarine Cable System	2011/6127	Not Controlled Action (Particular Manner)	Post-Approval
Babylon 3D Marine Seismic Survey, Commonwealth Waters, nr Exmouth WA	2013/7081	Not Controlled Action (Particular Manner)	Post-Approval
Balnaves Condensate Field Development	2011/6188	Not Controlled Action (Particular Manner)	Post-Approval
Bonaventure 3D seismic survey	2006/2514	Not Controlled Action (Particular Manner)	Post-Approval
Cable Seismic Exploration Permit areas WA-323-P and WA-330-P	2008/4227	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Cerberus exploration drilling campaign, Carnarvon Basin, WA	2016/7645	Not Controlled Action (Particular Manner)	Post-Approval
CGGVERITAS 2010 2D Seismic Survey	2010/5714	Not Controlled Action (Particular Manner)	Post-Approval
Charon 3D Marine Seismic Survey	2007/3477	Not Controlled Action (Particular Manner)	Post-Approval
Consturction & operation of the Varanus Island kitchen & mess cyclone refuge building, compression p	2013/6952	Not Controlled Action (Particular Manner)	Post-Approval
Coverack Marine Seismic Survey	2001/399	Not Controlled Action (Particular Manner)	Post-Approval
Cue Seismic Survey within WA-359-P, WA-361-P and WA-360-P	2007/3647	Not Controlled Action (Particular Manner)	Post-Approval
CVG 3D Marine Seismic Survey	2012/6654	Not Controlled Action (Particular Manner)	Post-Approval
DAVROS MC 3D marine seismic survey northwaet of Dampier, WA	2013/7092	Not Controlled Action (Particular Manner)	Post-Approval
Decommissioning of the Legendre facilities	2010/5681	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Drilling Program	2010/5532	Not Controlled Action (Particular Manner)	Post-Approval
Deep Water Northwest Shelf 2D Seismic Survey	2007/3260	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Demeter 3D Seismic Survey, off Dampier, WA	2002/900	Not Controlled Action (Particular Manner)	Post-Approval
Diesel Fuel Bunker Operation	2012/6289	Not Controlled Action (Particular Manner)	Post-Approval
Draeck 3D Marine Seismic Survey, WA-205-P	2006/3067	Not Controlled Action (Particular Manner)	Post-Approval
Drilling 35-40 offshore exploration wells in deep water	2008/4461	Not Controlled Action (Particular Manner)	Post-Approval
Earthworks for kitchen/mess, cyclone refuge building & Compression Plant, Varanus Island	2013/6900	Not Controlled Action (Particular Manner)	Post-Approval
Eendracht Multi-Client 3D Marine Seismic Survey	2009/4749	Not Controlled Action (Particular Manner)	Post-Approval
Effect of marine seismic sounds to demersal fish and pearl oysters, north-west WA	2018/8169	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M3 & Vincent 4D Marine Seismic Surveys	2008/3981	Not Controlled Action (Particular Manner)	Completed
Enfield M3 4D, Vincent 4D & 4D Line Test Marine Seismic Surveys	2008/4122	Not Controlled Action (Particular Manner)	Post-Approval
Enfield M4 4D Marine Seismic Survey	2008/4558	Not Controlled Action (Particular Manner)	Post-Approval
Enfield oilfield 3D Seismic Survey	2006/3132	Not Controlled Action (Particular Manner)	Post-Approval
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Exploration drilling of Zeus-1 well	2008/4351	Not Controlled Action (Particular Manner)	Post-Approval
Fletcher-Finucane Development, WA26-L and WA191-P	2011/6123	Not Controlled Action (Particular Manner)	Post-Approval
Foxhound 3D Non-Exclusive Marine Seismic Survey	2009/4703	Not Controlled Action (Particular Manner)	Post-Approval
Gazelle 3D Marine Seismic Survey in WA-399-P and WA-42-L	2010/5570	Not Controlled Action (Particular Manner)	Post-Approval
Geco Eagle 3D Marine Seismic Survey	2008/3958	Not Controlled Action (Particular Manner)	Post-Approval
Glencoe 3D Marine Seismic Survey WA-390-P	2007/3684	Not Controlled Action (Particular Manner)	Post-Approval
Greater Western Flank Phase 1 gas Development	2011/5980	Not Controlled Action (Particular Manner)	Post-Approval
Grimalkin 3D Seismic Survey	2008/4523	Not Controlled Action (Particular Manner)	Post-Approval
Guacamole 2D Marine Seismic Survey	2008/4381	Not Controlled Action (Particular Manner)	Post-Approval
Harmony 3D Marine Seismic Survey	2012/6699	Not Controlled Action (Particular Manner)	Post-Approval
Harpy 1 exploration well	2001/183	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Honeycombs MC3D Marine Seismic Survey	2012/6368	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas MC3D Marine Seismic Survey (HZ-13) Carnarvon Basin, offshore WA	2013/7003	Not Controlled Action (Particular Manner)	Post-Approval
Huzzas phase 2 marine seismic survey, Exmouth Plateau, Northern Carnarvon Basin, WA	2013/7093	Not Controlled Action (Particular Manner)	Post-Approval
INDIGO Marine Cable Route Survey (INDIGO)	2017/7996	Not Controlled Action (Particular Manner)	Post-Approval
John Ross & Rosella Off Bottom Cable Seismic Exploration Program	2008/3966	Not Controlled Action (Particular Manner)	Post-Approval
Judo Marine 3D Seismic Survey within and adjacent to WA-412-P	2009/4801	Not Controlled Action (Particular Manner)	Post-Approval
Judo Marine 3D Seismic Survey within and adjacent to WA-412-P	2008/4630	Not Controlled Action (Particular Manner)	Post-Approval
Julimar Brunello Gas Development Project	2011/5936	Not Controlled Action (Particular Manner)	Post-Approval
Kingtree & Ironstone-1 Exploration Wells	2011/5935	Not Controlled Action (Particular Manner)	Post-Approval
Klimt 2D Marine Seismic Survey	2007/3856	Not Controlled Action (Particular Manner)	Post-Approval
Laverda 3D Marine Seismic Survey and Vincent M1 4D Marine Seismic Survey	2010/5415	Not Controlled Action (Particular Manner)	Post-Approval
Laying a submarine optical fibre telecommunications cable, Perth to Singapore and Jakarta	2014/7332	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Leopard 2D marine seismic survey	2005/2290	Not Controlled Action (Particular Manner)	Post-Approval
Lion 2D Marine Seismic Survey	2007/3777	Not Controlled Action (Particular Manner)	Post-Approval
Macedon Gas Field Development	2008/4605	Not Controlled Action (Particular Manner)	Post-Approval
Marine reconnaissance survey	2008/4466	Not Controlled Action (Particular Manner)	Post-Approval
Moosehead 2D seismic survey within permit WA-192-P	2005/2167	Not Controlled Action (Particular Manner)	Post-Approval
Munmorah 2D seismic survey within permits WA-308/9-P	2003/970	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Program, WA-264-P	2007/3844	Not Controlled Action (Particular Manner)	Post-Approval
Ocean Bottom Cable Seismic Survey	2005/2017	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Canning Multi Client 2D Marine Seismic Survey	2010/5393	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Drilling Campaign	2011/5830	Not Controlled Action (Particular Manner)	Post-Approval
Offshore Fibre Optic Cable Network Construction & Operation, Port Hedland WA to Darwin NT	2014/7223	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Onslow Seawater Desalination Plant Marine Geophysical Investigation	2020/8794	Not Controlled Action (Particular Manner)	Post-Approval
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular Manner)	Post-Approval
Osprey and Dionysus Marine Seismic Survey	2011/6215	Not Controlled Action (Particular Manner)	Post-Approval
Outer Canning exploration drilling program off NW coast of WA	2012/6618	Not Controlled Action (Particular Manner)	Post-Approval
Palta-1 exploration well in Petroleum Permit Area WA-384-P	2011/5871	Not Controlled Action (Particular Manner)	Post-Approval
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees 4D Marine Seismic Monitor Survey, HCA12A	2012/6579	Not Controlled Action (Particular Manner)	Post-Approval
Pyrenees-Macedon 3D marine seismic survey	2005/2325	Not Controlled Action (Particular Manner)	Post-Approval
Quiberon 2D Seismic Survey, permit area WA-385P, offshore of Carnarvon	2009/5077	Not Controlled Action (Particular Manner)	Post-Approval
Reindeer gas reservior development, Devil Creek, Carnarvon Basin - WA	2007/3917	Not Controlled Action (Particular Manner)	Post-Approval
Repsol 3d & 2D Marine Seismic Survey	2012/6658	Not Controlled Action (Particular Manner)	Post-Approval
Rose 3D Seismic Program	2008/4239	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Rydal-1 Petroleum Exploration Well, WA	2012/6522	Not Controlled Action (Particular Manner)	Post-Approval
Salsa 3D Marine Seismic Survey	2010/5629	Not Controlled Action (Particular Manner)	Post-Approval
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	Not Controlled Action (Particular Manner)	Post-Approval
Scarborough Development nearshore component, NWS, WA	2018/8362	Not Controlled Action (Particular Manner)	Post-Approval
Skorpion Marine Seismic Survey WA	2001/416	Not Controlled Action (Particular Manner)	Post-Approval
Sovereign 3D Marine Seismic Survey	2011/5861	Not Controlled Action (Particular Manner)	Post-Approval
Stag 4D & Reindeer MAZ Marine Seismic Surveys, WA	2013/7080	Not Controlled Action (Particular Manner)	Post-Approval
Stag Off-bottom Cable Seismic Survey	2007/3696	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow 4D Marine Seismic Survey	2011/5810	Not Controlled Action (Particular Manner)	Post-Approval
Stybarrow Baseline 4D marine seismic survey	2008/4530	Not Controlled Action (Particular Manner)	Post-Approval
Tantabiddi Boat Ramp Sand Bypassing	2015/7411	Not Controlled Action (Particular Manner)	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Tidepole Maz 3D Seismic Survey Campaign	2007/3706	Not Controlled Action (Particular Manner)	Post-Approval
Tortilla 2D Seismic Survey, WA	2011/6110	Not Controlled Action (Particular Manner)	Post-Approval
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a 3D marine seismic survey	2010/5695	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5715	Not Controlled Action (Particular Manner)	Post-Approval
Undertake a three dimensional marine seismic survey	2010/5679	Not Controlled Action (Particular Manner)	Post-Approval
Vincent M1 and Enfield M5 4D Marine Seismic Survey	2010/5720	Not Controlled Action (Particular Manner)	Post-Approval
Warramunga Non-Inclusive 3D Seismic Survey	2008/4553	Not Controlled Action (Particular Manner)	Post-Approval
West Anchor 3D Marine Seismic Survey	2008/4507	Not Controlled Action (Particular Manner)	Post-Approval
West Panaeus 3D seismic survey	2006/3141	Not Controlled Action (Particular Manner)	Post-Approval
Westralia SPAN Marine Seismic Survey, WA & NT	2012/6463	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone 3D MAZ Marine Seismic Survey	2011/6058	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Marine Seismic Survey in the offshore northwest Carnarvon Basin	2011/6175	Referral Decision	Completed
3D Seismic Survey	2008/4219	Referral Decision	Completed
Bianchi 3D Marine Seismic Survey, Carnavon Basin, WA	2013/7078	Referral Decision	Completed
CVG 3D Marine Seismic Survey	2012/6270	Referral Decision	Completed
Enfield 4D Marine Seismic Surveys, Production Permit WA-28-L	2005/2370	Referral Decision	Completed
Mardie Salt Project, Pilbara region, WA	2018/8183	Referral Decision	Completed
Rose 3D Seismic acquisition survey	2008/4220	Referral Decision	Completed
Stybarrow Baseline 4D Marine Seismic Survey (Permit Areas WA-255-P, WA-32-L, WA-	2008/4165	Referral Decision	Completed
Two Dimensional Transition Zone Seismic Survey - TP/7 (R1)	2010/5507	Referral Decision	Completed
Varanus Island Compression Project	2012/6698	Referral Decision	Completed

Key Ecological Features [Resource Information]

Key Ecological Features are the parts of the marine ecosystem that are considered to be important for the biodiversity or ecosystem functioning and integrity of the Commonwealth Marine Area.

Name	Region
Ancient coastline at 125 m depth contour	North-west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	North-west

Name	Region
Commonwealth waters adjacent to Ningaloo Reef	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west
Glomar Shoals	North-west
Mermaid Reef and Commonwealth waters surrounding Rowley Shoals	North-west
Western demersal slope and associated fish communities	South-west

Biologically Important Areas		
Scientific Name	Behaviour	Presence
Dugong		
Dugong dugon Dugong [28]	Breeding	Known to occur
Dugong dugon Dugong [28]	Calving	Known to occur
Dugong dugon Dugong [28]	Foraging (high density seagrass beds)	Known to occur
Dugong dugon Dugong [28]	Nursing	Known to occur
Marine Turtles		
Caretta caretta Loggerhead Turtle [1763]	Foraging	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Internesting buffer	Known to occur
Caretta caretta Loggerhead Turtle [1763]	Nesting	Known to occur
Chelonia mydas Green Turtle [1765]	Aggregation	Known to occur
Chelonia mydas Green Turtle [1765]	Basking	Known to occur

Scientific Name	Behaviour	Presence
Chelonia mydas Green Turtle [1765]	Foraging	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting	Known to occur
Chelonia mydas Green Turtle [1765]	Internesting buffer	Known to occur
Chelonia mydas Green Turtle [1765]	Mating	Known to occur
Chelonia mydas Green Turtle [1765]	Migration corridor	Known to occur
Chelonia mydas Green Turtle [1765]	Nesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Internesting buffer	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Mating	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Migration corridor	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Nesting	Known to occur
Natator depressus Flatback Turtle [59257]	Aggregation	Known to occur
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur

Scientific Name	Behaviour	Presence
Natator depressus Flatback Turtle [59257]	Internesting	Known to occur
Natator depressus Flatback Turtle [59257]	Internesting buffer	Known to occur
Natator depressus Flatback Turtle [59257]	Mating	Known to occur
Natator depressus Flatback Turtle [59257]	Migration corridor	Known to occur
Natator depressus Flatback Turtle [59257]	Nesting	Known to occur
River shark		
Pristis clavata Dwarf Sawfish [68447]	Foraging	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Nursing	Known to occur
Pristis clavata Dwarf Sawfish [68447]	Pupping	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Foraging	Known to occur
Pristis pristis Freshwater Sawfish [60756]	Pupping	Likely to occur
Pristis zijsron Green Sawfish [68442]	Nursing	Known to occur
Pristis zijsron Green Sawfish [68442]	Pupping	Known to occur
Seabirds		
Ardenna pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Ardenna pacifica Wedge-tailed Shearwater [84292]	Foraging (in high numbers)	Known to occur

Scientific Name	Behaviour	Presence
Fregata ariel Lesser Frigatebird [1012]	Breeding	Known to occur
Onychoprion anaethetus Bridled Tern [82845]	Foraging (in high numbers)	Known to occur
Onychoprion fuscata Sooty Tern [82847]	Foraging	Known to occur
Pelagodroma marina White-faced Storm petrel [1016]	Foraging (in high numbers)	Known to occur
Phaethon lepturus White-tailed Tropicbird [1014]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Resting	Known to occur
Sternula albifrons sinensis Little Tern [82850]	Resting	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur
Sula leucogaster Brown Booby [1022]	Breeding	Known to occur
Thalasseus bengalensis Lesser Crested Tern [66546]	Breeding	Known to occur
Sharks		
Rhincodon typus Whale Shark [66680]	Foraging	Known to occur
Rhincodon typus Whale Shark [66680]	Foraging (high density prey)	Known to occur
Whales		

Scientific Name	Behaviour	Presence
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Distribution	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Foraging	Known to occur
Balaenoptera musculus brevicauda Pygmy Blue Whale [81317]	Migration	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Migration (north and south)	Known to occur
Megaptera novaeangliae Humpback Whale [38]	Resting	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 D OIL SPILL PREPAREDNESS AND RESPONSE STRATEGY SELECTION AND EVALUATION

Oil Spill Preparedness and Response Mitigation Assessment for WA-34-L Pyxis Drilling and Subsea Installation Environment Plan

Corporate HSE

Hydrocarbon Spill Preparedness

June 2023

Revision 3

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FIGURES

TABLES

EXECUTIVE SUMMARY

Woodside Burrup Pty Ltd (Woodside) has developed its oil spill preparedness and response position for the WA-34-L Pyxis Drilling and Subsea Installation, hereafter known as the Petroleum Activities Program (PAP).

This document demonstrates 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 described in the Environment Plan (EP). This document then outlines 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 Scenarios	**Credible Scenario-01 (CS-01): Unplanned hydrocarbon release of Pluto Condensate – loss of well containment during drilling of development well PLA08** 75,928 m^3 release of Pluto Condensate over 60.1 days from PLA08 well (Lat: 19° 54' 42.003" S, Long: 115° 08' 2.424" E). 0.6% residual component of 471 m^3	Section 2.2
	Credible Scenario-02 (CS-02): A short-term surface release of marine diesel oil (MDO) within the Operational Area representing a loss of vessel fuel tank integrity after a collision Instantaneous release of 500 m^3. Residue of 25 m^3 (5%)[1]	
Hydrocarbon Properties	**Pluto Condensate** Pluto Condensate has high proportions of volatile and semi-volatile components, and very low residual components. In favourable environmental conditions, about 73% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 21% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 6% should evaporate over several days (265 °C < BP < 380 °C). Approximately 0.6% of the oil is shown to be persistent. The aromatic content of the oil is approximately 2.34%. **MDO** MDO is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 35% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 54% should evaporate over several days (265 °C < BP < 380 °C). Approximately 5% of the oil is shown to be persistent.	Section 0 Section 6.7 of the EP Appendix A of the First Strike Plan

[1] Modelling for a surface release of 2000 m^3 MDO was available within Montebello Marine Park, 33 km closer to shore than the Operational Area for this activity. It was originally undertaken in 2019 and reprocessed in 2021 using NOPSEMA's contemporary modelling thresholds. The largest tank of the vessel proposed for the activity is circa 500 m^3, 75% smaller than the modelled MDO volume (2000 m^3). Given that spill parameters and geographic location fall within the envelope of the existing MDO modelling, it is an appropriate surrogate and therefore additional modelling was not required.

<table>
<tr><td rowspan="9">Modelling Results</td><td colspan="3">Stochastic modelling
A quantitative, stochastic assessment has been undertaken for credible spill scenarios to help assess the environmental risk of a hydrocarbon spill.
A total of 100 replicate simulations were completed for the scenarios to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed using samples of metocean data that commenced within each calendar quarter (25 simulations per quarter).</td><td rowspan="9">Section 2.3</td></tr>
<tr><td colspan="3">Deterministic modelling
Deterministic modelling was then undertaken for scenarios CS-01 and CS-02 (Table 2-1) as the worst-case credible scenarios (WCCS) to establish the following for response planning purposes:
• Minimum time to commencement of oil accumulation at any shoreline receptor (at a threshold of 100 g/m^2)
• Maximum cumulative oil volume accumulated at any individual shoreline receptor (at concentrations in excess of 100 g/m^2)
• Maximum cumulative oil volume accumulated across all shoreline receptors (at concentrations in excess of 100 g/m^2):</td></tr>
<tr><td></td><td>CS-01: Hydrocarbon release caused by loss of well containment (75,928 m^3 of Pluto Condensate over 60.1 days)</td><td>CS-02: A short-term surface release of MDO representing loss of vessel fuel tank integrity after a collision (instantaneous release of 500 m^3 marine diesel)</td></tr>
<tr><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 threshold</td><td>1 hour at Montebello Marine Park</td></tr>
<tr><td>Minimum time to commencement of oil accumulation at any shoreline receptor (at a threshold of 100 g/m^2)</td><td>Model 3 Q4
8.9 days Barrow Island (8 m^3)</td><td>No contact at threshold</td></tr>
<tr><td>Maximum cumulative oil volume accumulated at any individual shoreline receptor (at concentrations in excess of 100 g/m^2)</td><td>Model 19, Q4
150 m^3 at Exmouth, Ningaloo Coast World Heritage, Ningaloo MP (day 56)</td><td>No contact at threshold</td></tr>
<tr><td>Maximum cumulative oil volume accumulated across all shoreline receptors (at concentrations in excess of 100 g/m^2)</td><td>Model 5, Q4
72 m^3 at Middle Pilbara - Islands and Shoreline (day 43)</td><td>No contact at threshold</td></tr>
</table>

	Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb)	185 hours at Montebello Marine Park	1 hour at Montebello Marine Park Contact of >100 ppb occurs up to 630 km from the spill site	
Net Environmental Benefit Assessment	Monitor and evaluate, source control via capping stack, source control via relief well drilling, source control (vessel), 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 risks and impacts presented in Section 2 and Section 3, including the implementation of considered additional, alternative or improved control measures.			Section 5 Section 6

1 INTRODUCTION

1.1 Overview

Woodside Burrup Pty Ltd (Woodside) has developed its oil spill preparedness and response position for the WA-34-L Pyxis Drilling and Subsea Installation, hereafter known as the Petroleum Activities Program (PAP). This document outlines 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, meet the requirements of the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Environment Regulations) relating to hydrocarbon spill response arrangements:

- the WA-34-L Pyxis Drilling and Subsea Installation EP
- Oil Pollution Emergency Arrangements (OPEA) (Australia)
- the WA-34-L Pyxis Drilling and Subsea Installation 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 evaluates response options to address the potential environmental risks and impacts resulting from an unplanned loss of hydrocarbon containment associated with the PAP described in the EP. It then outlines 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.

ANNEX A contains a pre-operational Net Environmental Benefit Analysis (NEBA) summary, outlining 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 FSP is underway. The IAP includes inputs from the monitor and evaluate operations and the operational NEBA (Section 4). Planning, coordination and resource management are initiated by the Incident Management Team (IMT). 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 ensure the response techniques implemented continue to result in a net environmental benefit (see Section 4). The response will continue as described in Section 5

until the response termination criteria have been met as set out in ANNEX B: Operational Monitoring Activation and Termination Criteria.

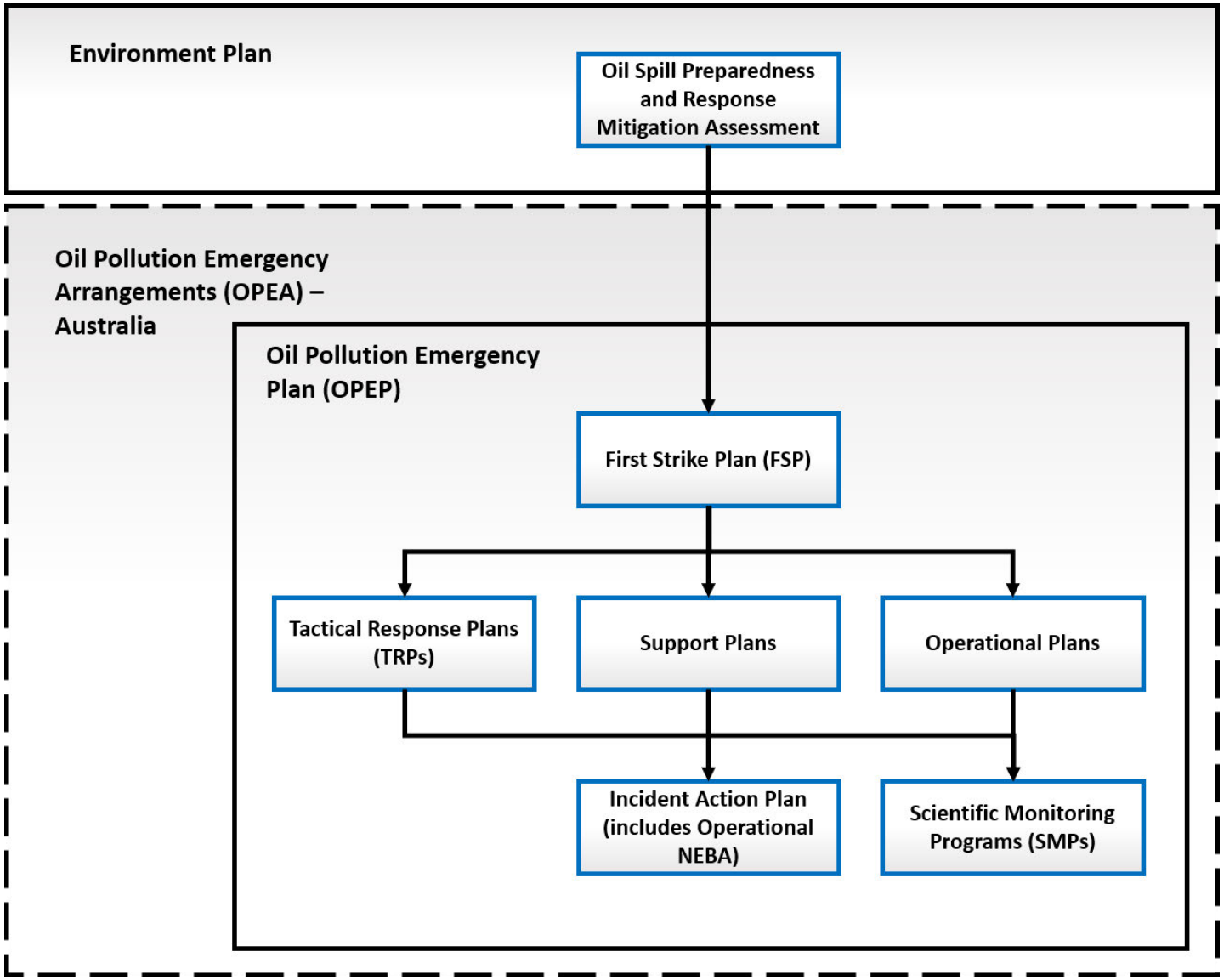

Figure 1-1: Woodside hydrocarbon spill document structure

Table 1-1: Hydrocarbon spill preparedness and response – document references

Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
WA-34-L Pyxis Drilling and Subsea Installation EP	Demonstrates that potential adverse impacts on the environment associated with the WA-34-L Pyxis Drilling and Subsea Installation (during both routine and non-routine operations) are mitigated and managed to ALARP and will be of an acceptable level.	NOPSEMA Woodside internal	EP Section 6 (Environmental Risk Assessment, Performance Outcomes, Standards and Measurement Criteria). EP Section 7 (Implementation strategy – including emergency preparedness and response). EP Section 7 (Reporting).	
OPEA Australia	Describes the arrangements and processes adopted by Woodside when responding to a hydrocarbon spill from a petroleum activity.	Regulatory agencies Woodside internal	All sections	
Oil Spill Preparedness and Response Mitigation Assessment for the WA-34-L Pyxis Drilling and Subsea Installation (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 Corporate Incident Management Team (CIMT): Control function in an ongoing spill response for activity-specific response information.	All performance outcomes, standards and measurement criteria related to hydrocarbon spill preparedness and response are included in this document.	
WA-34-L Pyxis Drilling and Subsea Installation Oil Pollution FSP	Facility specific document providing details and tasks required to mobilise a first strike response. Primarily applied to the first 24 hours of a response until a full IAP specific to the event is developed. Oil Pollution FSPs are intended to be the first document used to provide	Site-based IMT for initial response, activation and notification. CIMT for initial response, activation and notification. CIMT: Control function in an	Initial notifications and reporting required within the first 24 hours of a spill event. 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)
	immediate guidance to the responding IMT.	ongoing spill response for activity-specific response information.	Recommended pre-planned tactics. 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 required to activate, mobilise and deploy personnel and resources to commence response operations. 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. 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. CIMT: Planning Function to help inform the IAP on resources available.	Locations from where resources may be mobilised. How resources will be mobilised. Details of where resources may be mobilised to and what facilities are required once the resources arrive. Details on how to implement resources to undertake a response.	Operational Monitoring Plan Source Control Emergency Response Planning Guideline Protection and Deflection Shoreline Clean-up Oiled Wildlife Scientific Monitoring
Tactical Response Plans (TRPs)	Provides options for response techniques in selected Response Protection Areas (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 required.	Indicative response techniques. Access requirements and/or permissions. Relevant information for undertaking a response at that site.	Available TRPs are listed in ANNEX E: Tactical Response Plans

Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
			Where applicable, may include equipment deployment locations and site layouts.	
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.	Strategy for mobilising and managing additional resources outside of Woodside's immediate preparedness arrangements.	Marine Support Plan Logistics Support Plan People & Global Capability Surge Labour Requirement Plan Health & Safety Support Plan Aviation Support Plan IT (First Strike Response) IT (Extended Response) Communications Support Plan Stakeholder Engagement Support Plan Accommodation & Catering Support Plan – Australia Waste Management Support Plan - Australia Guidance for Oil Spill Claims Management Support Plan (Land Based) Security Support Plan Hydrocarbon Spill Responder Health Monitoring Guideline Transport Management Plan – Australia

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 outlines 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 WA-34-L PLA08 Drilling and Subsea Installation 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.

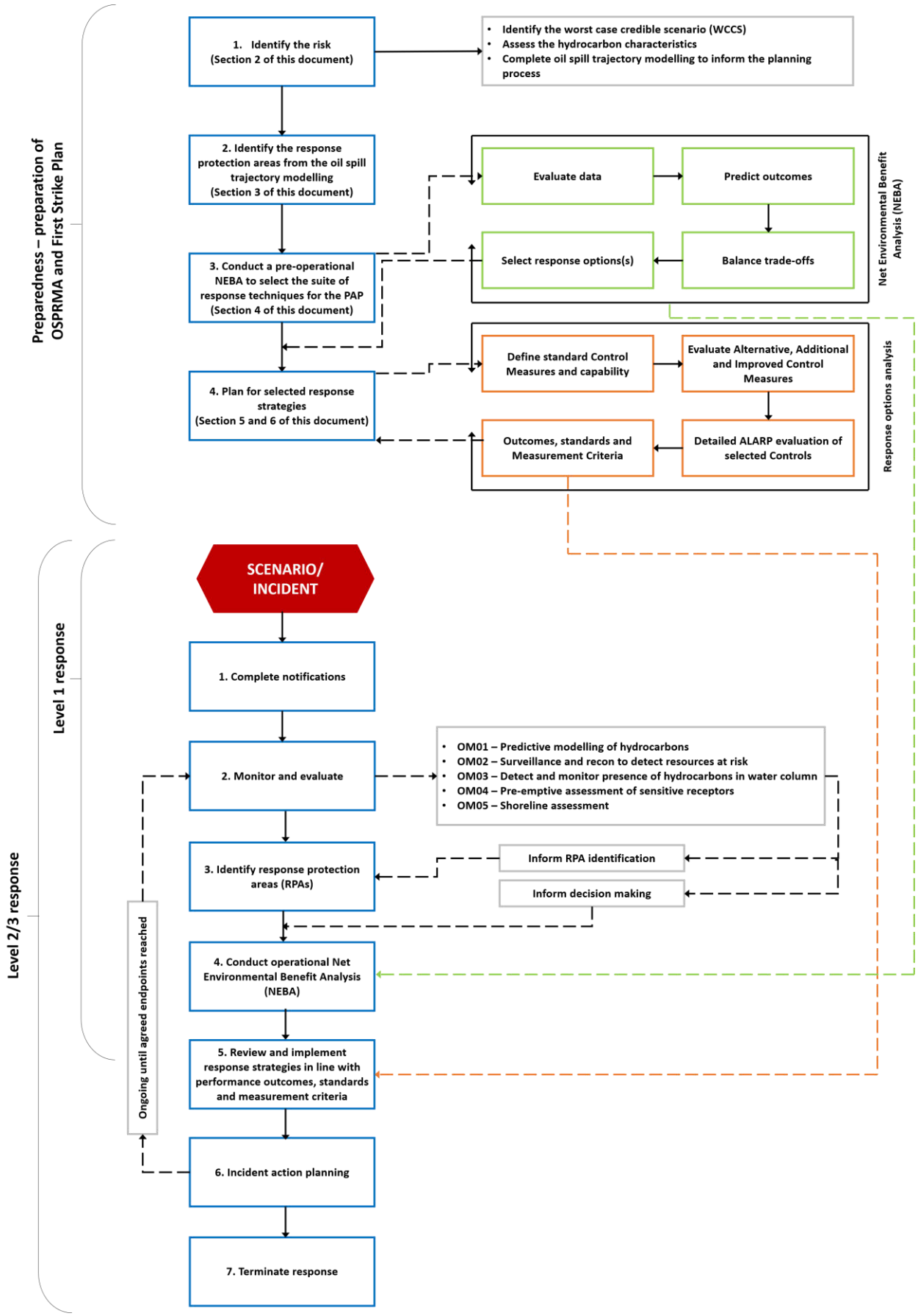

Figure 2-1: Response planning and selection process

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 >100g/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 ensure 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 the 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 – Timing, Resourcing and Effectiveness

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.

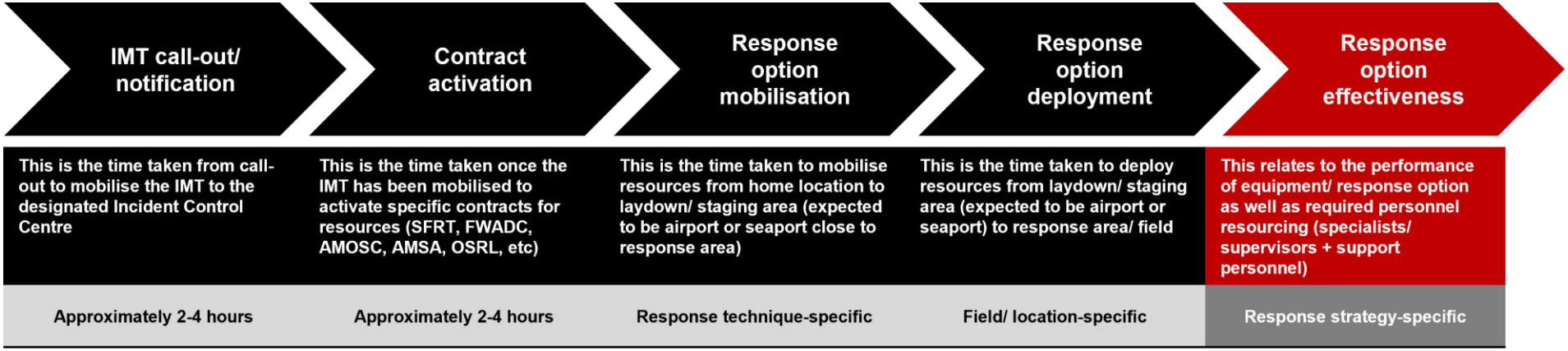

Figure 2-2: Response Planning Assumptions – Timing, Resourcing and Effectiveness

2.2 Environment plan risk assessment (credible spill scenarios)

Potential hydrocarbon release scenarios from the PAP have been identified during the risk assessment process (Section 6 of the EP). Further descriptions of risk, impacts and mitigation measures (which are not related to hydrocarbon preparedness and response) are provided in Section 6 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. One loss of well containment scenario (CS-01) was stochastically and deterministically modelled. For CS-02, stochastic and deterministic modelling of a 2000 m^3 surface release of MDO after a vessel collision was available within Montebello Marine Park, 33 km closer to shore than the Operational Area for this activity. It was originally undertaken in 2019 and reprocessed in 2021 using NOPSEMA's contemporary modelling thresholds. The largest tank of the vessel proposed for the activity is circa 500 m^3, 75% smaller than the modelling MDO volume (2000 m^3). Given that spill parameters and geographic location fall within the envelope of the existing MDO modelling, it is an appropriate surrogate and therefore additional modelling was not required.

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.

Table 2-1: Petroleum Activities Program credible spill scenarios

Scenario No.	Scenario selected for planning purposes	Scenario description	Maximum credible volume released (liquid m^3)[1]	Incident Level	Hydrocarbon type	Residual proportion	Residual volume (liquid m^3)
CS-01	Yes	Loss of well containment during drilling of PLA08 development well. A long-term (60.1 day) uncontrolled surface/subsurface release of Pluto Condensate representing worst-case loss of containment.	Surface: 1,832 m^3 Subsea: 74,095 m^3 Total: 75,928 m^3 over 60.1 days	3	Pluto Condensate	0.6%	471 m^3
CS-02[2]	Yes	A short-term surface release of MDO within the Operational Area representing loss of vessel fuel tank integrity after a collision	Surface: instantaneous release of 500 m^3 of marine diesel.	2	Marine diesel	5%	25 m^3

[2] Modelling for a surface release of 2000 m^3 MDO was available within Montebello Marine Park, 33 km closer to shore than the Operational Area for this activity. It was originally undertaken in 2019 and reprocessed in 2021 using NOPSEMA's contemporary modelling thresholds. The largest tank of the vessel proposed for the activity is circa 500 m^3, 75% smaller than the modelling MDO volume (2000 m^3). Given that spill parameters and geographic location fall within the envelope of the existing MDO modelling, it is an appropriate surrogate and therefore additional modelling was not required.

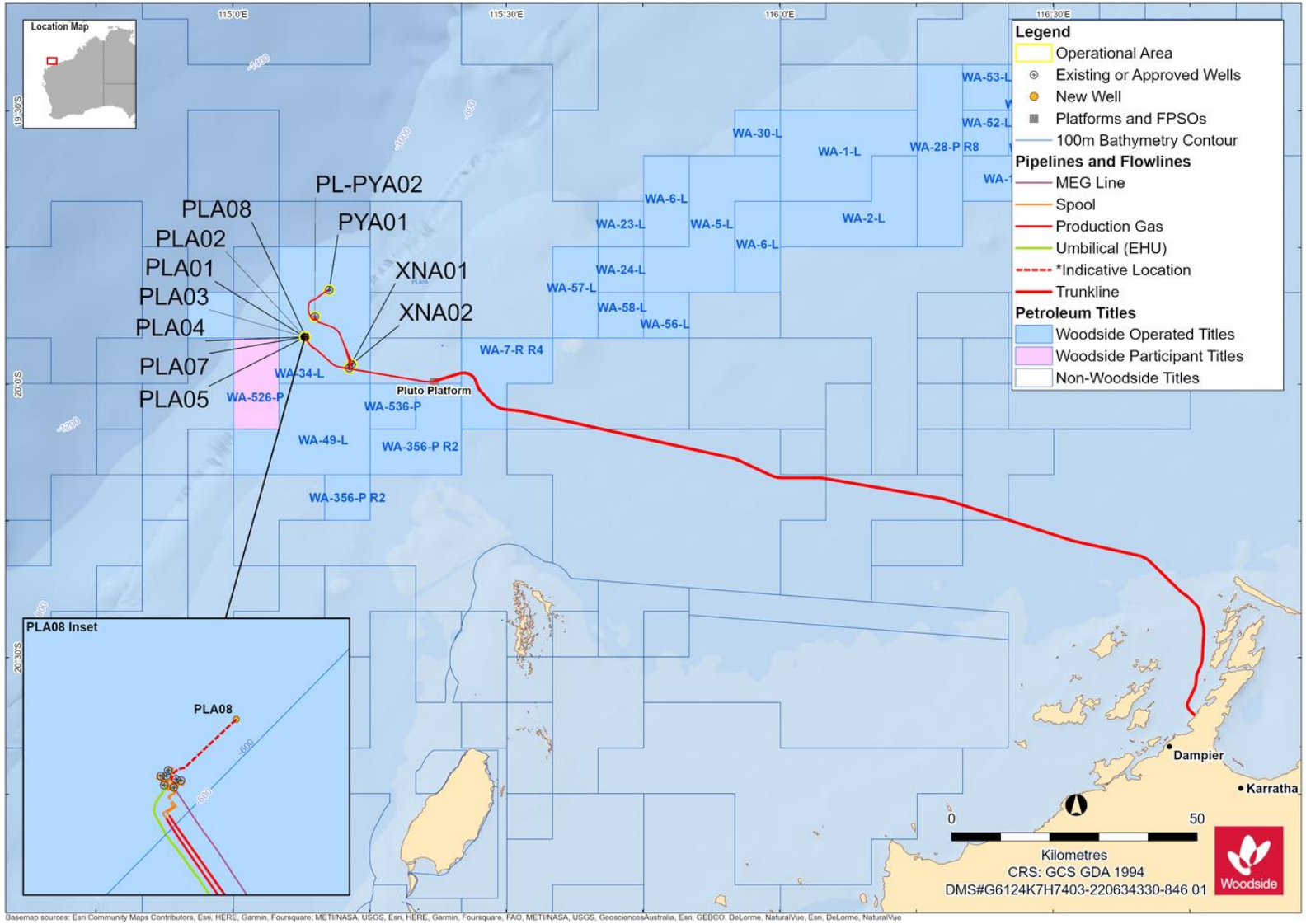

Figure 2-3: Location of WA-34-L Pyxis Drilling and Subsea Installation PAP

2.2.1 Hydrocarbon characteristics

More detailed hydrocarbon characteristics, including modelled weathering data and ecotoxicity, are included in Section 6 of the EP.

Pluto Condensate

Pluto Condensate has high proportions of volatile and semi-volatile components, and very low residual components. In favourable environmental conditions, about 73% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 21% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 6% should evaporate over several days (265 °C < BP < 380 °C). Approximately 0.6% of the oil is shown to be persistent. The aromatic content of the oil is approximately 2.34%.

The whole oil has a low asphaltene content (< 0.5%), indicating a low propensity for the mixture to take up water to form water-in-oil emulsion over the weathering cycle.

Soluble, aromatic hydrocarbons contribute approximately 2.4% by mass of the whole oil. Around 1.7% by mass is highly soluble and highly volatile. A further 0.5% by mass has semi-to-low volatility. These compounds dissolve more slowly but tend to persist in soluble form for longer. Discharge onto the water surface will favour the process of evaporation over dissolution under calm sea conditions, but increased entrainment of oil and dissolution of soluble compounds can be expected under breaking wave conditions.

Marine diesel

Marine diesel is a mixture of volatile and persistent hydrocarbons with low proportions of highly volatile and residual components. In general, about 6% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); a further 35% should evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 54% should evaporate over several days (265 °C < BP < 380 °C). Approximately 5% of the oil is shown to be persistent. The aromatic content of the oil is approximately 3%.

If released in the marine environment and in contact with the atmosphere (i.e. surface spill), approximately 41% by mass of this oil is predicted to evaporate over the first couple of days depending upon the prevailing conditions, with further evaporation slowing over time. The heavier (low volatility) components of the oil have a tendency to entrain into the upper water column due to wind-generated waves but can subsequently resurface if wind-waves abate. Therefore, the heavier components of this oil can remain entrained or on the sea surface for an extended period, with associated potential for dissolution of the soluble aromatic fraction.

2.3 Hydrocarbon spill modelling

Oil spill trajectory modelling (OSTM) tools are used for environmental impact assessment and during response planning to understand spatial scale and timeframes for response operations. Woodside recognises 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.

The Oil Spill Model and Response System (OILMAP) and Integrated Oil Spill Impact Model System (SIMAP) models are both used for stochastic and deterministic trajectory modelling. They have been developed over three decades of planning, exercises, actual responses, several peer reviews, and validation studies. OILMAP was originally derived from the United States Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Type A model (French et al. 1996), for assessing marine transport, biological impact and economic damage that was also used under the United States Oil Pollution Act 1990 Natural Resource Damage Assessment (NRDA) regulations. Notable spills where the model has been used and validated against actual field observations include, Exxon Valdez (French McCay 2004), North Cape Oil Spill (French McCay 2003), along with an assessment of 20 other spills (French McCay

and Rowe, 2004). In addition, test spills designed to verify fate, weathering and movement algorithms have been conducted regularly and in a range of climate conditions (French and Rines 1997; French et al. 1997; Payne et al. 2007; French McCay et al. 2007).

Further to this, the algorithms have been updated using the latest findings from the Macondo/Deepwater Horizon well blowout in the Gulf of Mexico and validated according to the Deepwater Horizon (DWH) oil spill in support of the NRDA (Spaulding et al. 2015; French McCay et al. 2015, 2016). Finally, the OILMAP and SIMAP models have been used extensively in Australia to prosecute pollution offences, predict discharge locations and likely spill volumes based on weathering and surveillance observations, and has been used as expert witness evidence in Australian court proceedings, aiding the prosecution to determine spill quantum estimates.

2.3.1 Stochastic modelling

Quantitative, stochastic assessments have been undertaken for the credible spill scenarios (refer to Table 2-1) to help assess the environmental consequences of a hydrocarbon spill.

A total of 100 replicate simulations were completed for each of the scenarios to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed using samples of metocean data that commenced within each calendar quarter (25 simulations per quarter). Further details relating to the assessments for the scenarios can be found in Section 6 of the EP.

2.3.1.1 Environmental impact thresholds – Environment that May Be Affected (EMBA) and hydrocarbon exposure

The outputs of the stochastic spill modelling are used to assess the potential environmental impact from the credible scenarios. 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 6 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 accumulation thresholds for impacts on the marine environment – is used to define the EMBA. These hydrocarbon thresholds are presented in Table 2-2 below and described in Section 6 of the EP.

Table 2-2: Summary of thresholds applied to the stochastic hydrocarbon spill modelling to determine the EMBA and environmental impacts

Hydrocarbon	Surface hydrocarbon (g/m^2)	Dissolved hydrocarbon (ppb)	Entrained hydrocarbon (ppb)	Accumulated hydrocarbon (g/m^2)
Condensate	10	50	100	100
Diesel	10	50	100	100

2.3.2 Deterministic modelling

Woodside uses deterministic modelling results to evaluate risks and impacts and response capability requirements. These results are provided in both shapefile and data table format with each row of the data table representing a 1 km^2 cell. This cell size has been used as it represents the approximate area a single containment and recovery operation or surface dispersant operation (single sortie or vessel spraying) can effectively treat in one ten (10) hour day. Smaller cell sizes have been considered but would not change the response need as the potential distance between cells would not allow multiple cells to be treated per day by response

operations. Additionally, a 1 km^2 cell is expected to allow averaging of threshold concentrations and mass across the spatial extent to represent a conservative approach (patches of oil and windrows) to response planning that simulates operational monitoring feedback in a real event.

Deterministic modelling was carried out on CS-01 and CS-02 as the WCCSs and used for response planning purposes. A sample of the deterministic results is provided below as an indication of the data format and content.

- Column A and B provide the latitude and longitude of the cell
- Column C is the elapsed time since the release occurred
- Column D represents the average concentration across the cell in g/m^2
- Column E represents the viscosity of the hydrocarbon in centistokes (cSt) at sea surface temperature
- Column F and G represents the mass of hydrocarbon across the entire cell in kg and tons respectively.

Table 2-3: Example Deterministic modelling data

Latitude	Longitude	Time_hour	Conc_gm^2	Visc_cSt	Mass_kg	Mass_tons
A	B	C	D	E	F	G
-19.711226	115.814366	6	6.413877	81.007389	6429.693282	6.413877
-19.702194	115.814366	6	1.740181	81.300190	1744.571745	1.740181
-19.720258	115.823922	6	1.869578	76.440503	1874.078751	1.869578
-19.711226	115.823922	6	51.471109	80.668490	51597.969472	51.471109
-19.702194	115.823922	6	4.734574	80.068396	4746.515274	4.734574
-19.720258	115.833477	6	4.879617	58.780817	4891.356945	4.879617
-19.711226	115.833477	6	36.161301	70.992921	36250.382543	36.161301

The deterministic modelling data provides an indication of the response need by displaying the potential surface area and volume treated or recovered by response operations. Existing capability is reviewed to approximate the surface area and volumes that can be treated or removed and a range of alternate, improved and additional options to reduce risks and impacts to ALARP are considered.

Woodside recognises no single response technique will treat all available subsea or surface oil and a combination of response techniques will be required for the identified scenario. Even with the significant resources available to Woodside through existing capability and third-party resources, the primary offshore response techniques of surface dispersant application and containment and recovery will only treat or recover a minor proportion (<30%) of the available surface hydrocarbons based on previous response experience.

Woodside is committed to a realistic, scalable response capability commensurate to the level of risk and able to be practically implemented and feasibly sustained.

2.3.3 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. The deterministic modelling is then used to assess the nature and scale of a response.

In the event of an actual response, existing deterministic modelling would be reviewed for suitability and additional modelling would be conducted using real-time data and field information to inform IMT decisions.

The deterministic spill 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/m^2) (Section 2.2). The thresholds used are derived from oil spill response planning literature and industry guidance and are summarised below.

2.3.3.1 Surface hydrocarbon concentrations

Table 2-4: Surface hydrocarbon thresholds for response planning

Surface hydrocarbon threshold (g/m^2)	Description	Bonn Agreement Oil Appearance Code	Mass per area (m^3/km^2)
>10	Predicted minimum threshold for commencing operational monitoring[3]	Code 3 – Dull metallic colours	5 to 50
50	Predicted minimum floating oil threshold for containment and recovery and surface dispersant application [4]	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
Shoreline hydrocarbon threshold (g/m^2)	**Description**	**National Plan Guidance on Oil Contaminated Foreshores**	**Mass per area (m^3/km^2)**
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

The surface thickness of oil at which dispersants are typically effective is approximately 100 g/m^2. However, substantial variations occur in the thickness of the oil within the slick, and most fresh crude oils spread within a few hours, so overall the average thickness is 0.1 mm (or approx. 100 g/m^2) (International Tanker Owners Pollution Federation [ITOPF] 2011). Additionally, the recommended rate of application for surface dispersant is typically 1-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.

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

[3] Operational monitoring will be undertaken from the outset of a spill whether or not 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 statutory authorities e.g. Western Australia Department of Transport (WA DoT) or AMSA.

[4] At 50 g/m^2, 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.

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 the Australian Maritime Safety Authority (AMSA, 2015) indicates 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 (10) fold increase in capability on day 2 to achieve the same level of performance.

Further guidance from the European Maritime Safety Authority (EMSA) states spraying the 'metallic' looking area of an oil slick (Bonn Agreement Oil Appearance Code [BAOAC] 3, approx. 5 – 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 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).

Guidance from NOAA in the United States is found in the document: *Characteristics of Response Strategies: 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 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 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, 2014).

Figure 2-4 below 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. Wind-rows, 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/m^2 was chosen as an average/equilibrium thickness for offshore response operations (50 g/m^2 is an average of 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 wind-rows).

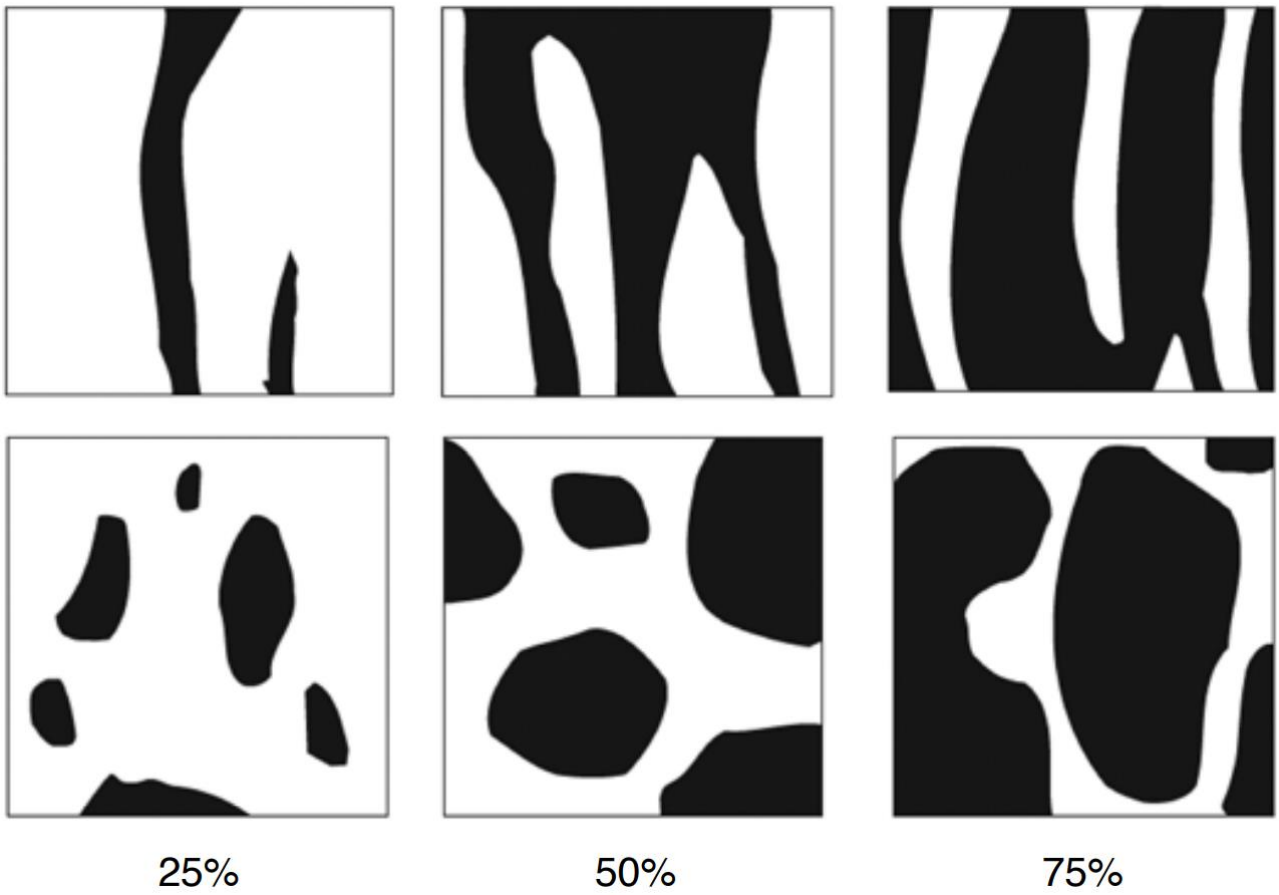

Figure 2-4: Proportion of total area coverage (AMSA, 2014)

Figure 2-5 illustrates the general relationships between on-water response techniques and slick thickness. Wind-rows, 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.

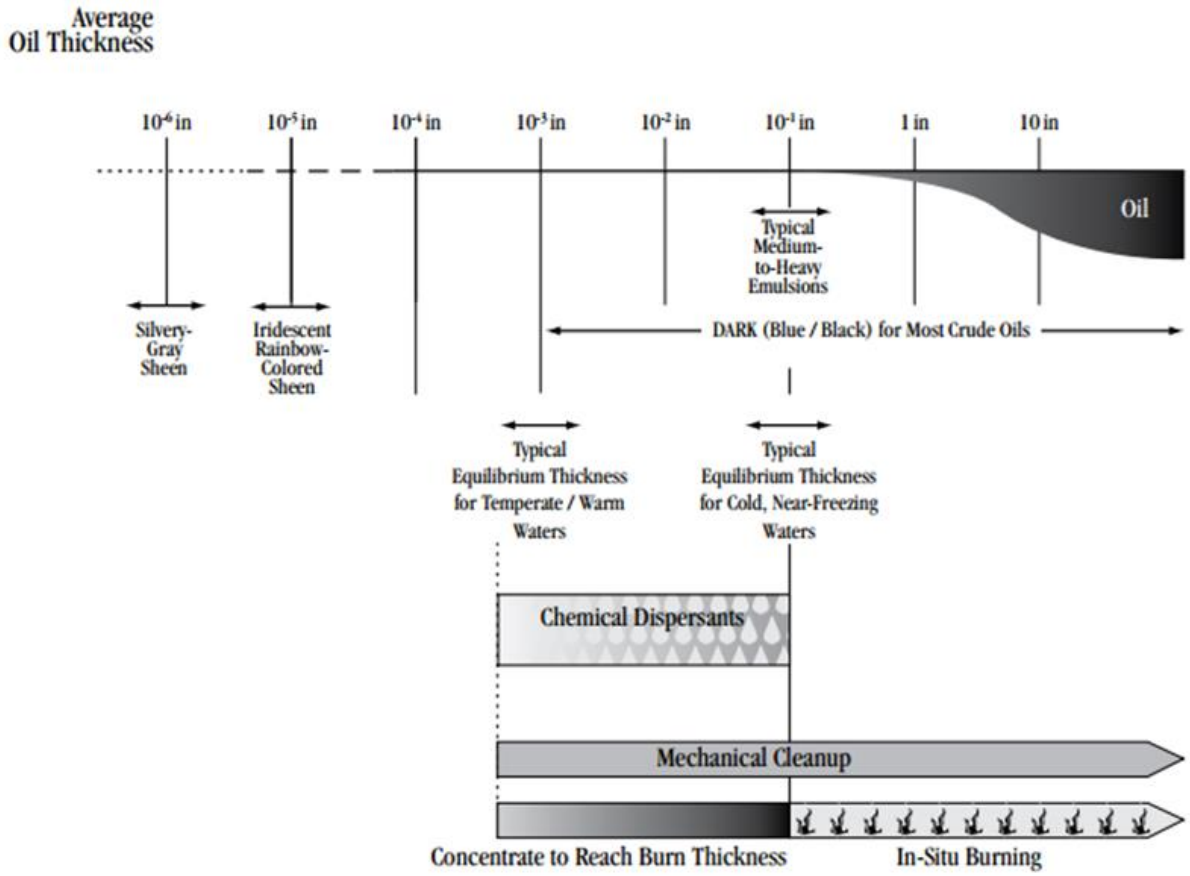

Figure 2-5: Oil thickness versus potential response options (from Allen & Dale 1996)

Wind and wave influence on the feasibility of response operations are also considered below (adapted from NOAA 2013):

- Mechanical Clean-up: Effectiveness drops significantly because of entrainment and/or splash-over as short period waves develop beyond 2–3 ft. (0.6–0.9m) in height. The ability to contain and recover oil decreases rapidly as the slick thickness becomes less than a thousandth of an inch (0.025 mm) (i.e., very low oil encounter rates). Waves and wind can also be limiting factors for the safe operation of vessels and aircraft.
- Dispersants: Effective dispersion requires a threshold amount of surface mixing energy (typically a few knots of wind and a light chop) to be effective. At higher wind and sea conditions, dispersant evaporation and wind-drift will limit chemical dispersion application effectiveness; and, there is a point (~25-kt winds, 10-ft waves) where natural dispersion forces become greater, particularly for light oils. Because of droplet size versus slick thickness constraints and application dose-rate limitations, dispersants work best on slick thicknesses of a few thousandths (approx. 50 g/m^2) to hundredths of an inch (approx. 250 g/m^2). Improved dispersants, higher dose rates, and multiple-pass techniques may extend the thickness limitation to 0.1 inch (2.5 mm) or more.

As offshore response operations (surface dispersant and containment and recovery) are intended to be undertaken at the thickest part of the slick, 50 g/m^2 and 100 g/m^2 (aligning with the lower limit of BAOAC 4 and midpoint of BAOAC 5) have been utilised by Woodside in deterministic modelling to identify the most likely locations for surface dispersant application and containment and recovery operations.

2.3.3.2 Surface hydrocarbon viscosity

Table 2-5: Surface hydrocarbon viscosity thresholds

Surface viscosity threshold (cSt)	Description	European Maritime Safety Authority (EMSA)	Viscosity at sea temperature (cSt)
5,000*	Predicted optimum viscosity for surface dispersant operations	Generally possible to disperse	500-5,000
15,000*	Predicted maximum viscosity for effective surface dispersant operations	Sometimes possible to disperse	5,000-15,000

*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 1,000 or 2,000 mPa (1,000 – 2,000 cSt) and then declining to a low level with an oil viscosity of 15,000 mPa (15,000 cSt). It was considered that some generally applicable viscosity limit, such as 2,000 or 5,000 mPa (2,000 – 5,000 cSt), could be applied to all oils."

However, modern oil spill dispersants are generally effective up to an oil viscosity of 5,000 mPa (5,000 cSt) or more, and their performance gradually decreases with increasing viscosity; oils with a viscosity of more than 15,000 cSt are in most cases, no longer dispersible. Guidance from CEDRE (EMSA, 2012) also indicates products with a range of 500 – 5,000 cSt at sea temperature are generally possible to disperse, while 5,000 – 15,000 cSt at sea temperature above pour point are sometimes possible to disperse, with products beyond 15,000 cSt at sea temperature below pour point are generally impossible to disperse.

To support decision making and response planning, a threshold of 15,000 cSt at sea temperature was chosen as a conservative estimate of maximum viscosity for surface dispersant spraying operations.

The thresholds described above are compared with the modelling results for the WCCS (Table 2-6).

2.3.4 Spill modelling results

The selected deterministic runs used to represent the WCCS are based on response thresholds:

- Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a threshold of 10 g/m^2).
- Minimum time to commencement of hydrocarbon accumulation at any shoreline receptor (at a threshold of 100 g/m^2).
- Maximum cumulative hydrocarbon volume accumulated at any individual shoreline receptor (at a threshold of 100 g/m^2).
- Maximum cumulative hydrocarbon volume accumulated across all shoreline receptors (at a threshold of 100 g/m^2).
- Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb).

The volumes as presented in Table 2-6 are the worst-case volumes resulting from the deterministic modelling and have been used to determine appropriate level of response.

Table 2-6: Worst case credible scenario modelling results

Scenario description	CS-01: Hydrocarbon release caused by loss of containment (PLA08)	CS-02: hydrocarbon release due to vessel collision
Total volume released (m^3 in days) Refer to Section 2.2.1 for detailed hydrocarbon characteristics	Surface (5 days): ~1,832 m^3 Subsea (55 days): ~74,095 m^3 Total Volume (60.1 days): ~75,928 m^3 of Pluto Condensate	Instantaneous release of 500 m^3 of marine diesel [5]
Maximum residual surface hydrocarbon after weathering	0.6% residual component of 471 m^3	5% residual component of 25 m^3
Location	Lat: 19° 54′ 42.003" S Long: 115° 08′ 2.424" E	Lat: 20° 03' 1.44" S Long: 115° 31' 35.04" E
Modelling results		
Surface area of hydrocarbons (>50 g/m^2)	*Nil*	*Nil*
Surface area of hydrocarbons (>50 g/m^2 and <15,000 cSt)		
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 threshold*	1 hour at Montebello Marine Park
Minimum time to commencement of hydrocarbon accumulation at any shoreline receptor (at a concentration of 100 g/m^2)	Model 3 Q4 8.9 days Barrow Island (8 m^3)	*No contact at threshold*
Maximum cumulative hydrocarbon volume accumulated at any individual shoreline receptor (at a concentration of 100 g/m^2).	Model 19, Q4 150 m^3 at Exmouth, Ningaloo Coast World Heritage, Ningaloo MP (day 56)	*No contact at threshold*
Maximum cumulative hydrocarbon volume accumulated across all shoreline receptors contacted by accumulated hydrocarbons (at a concentration of 100 g/m^2)	Model 5, Q4 72 m^3 at Middle Pilbara - Islands and Shoreline (day 43)	*No contact at threshold*
Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb)	185 hours at Montebello Marine Park	1 hour at Montebello Marine Park Contact of >100 ppb occurs up to 630 km from the spill site
The full list of response protection areas (RPAs) predicted from modelling is available in **Table 3-1**		

[5] Modelling for a surface release of 2000 m^3 MDO was available within Montebello Marine Park, 33 km closer to shore than the Operational Area for this activity. It was originally undertaken in 2019 and reprocessed in 2021 using NOPSEMA's contemporary modelling thresholds. The largest tank of the vessel proposed for the activity is circa 500 m^3, 75% smaller than the modelled MDO volume (2000 m^3). Given that spill parameters and geographic location fall within the envelope of the existing MDO modelling, it is an appropriate surrogate and therefore additional modelling was not required.

Spill modelling did not predict floating hydrocarbon concentrations to exceed 10 g/m^2 at any receptor for CS-01. As described in **Table 2-4**, the minimum floating oil threshold to commence effective surface response operations, including containment and recovery and/or surface dispersant application is >50 g/m^2.

Whilst modelling for CS-02 predicts that floating oil will reach the 50 g/m^2 threshold within Montebello Marine Park, offshore response techniques are not suitable for MDO spills for as described in

Table 4-2.

No offshore surface response techniques are therefore applicable for either scenario for the PAP.

3 IDENTIFY RESPONSE PROTECTION AREAS

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.

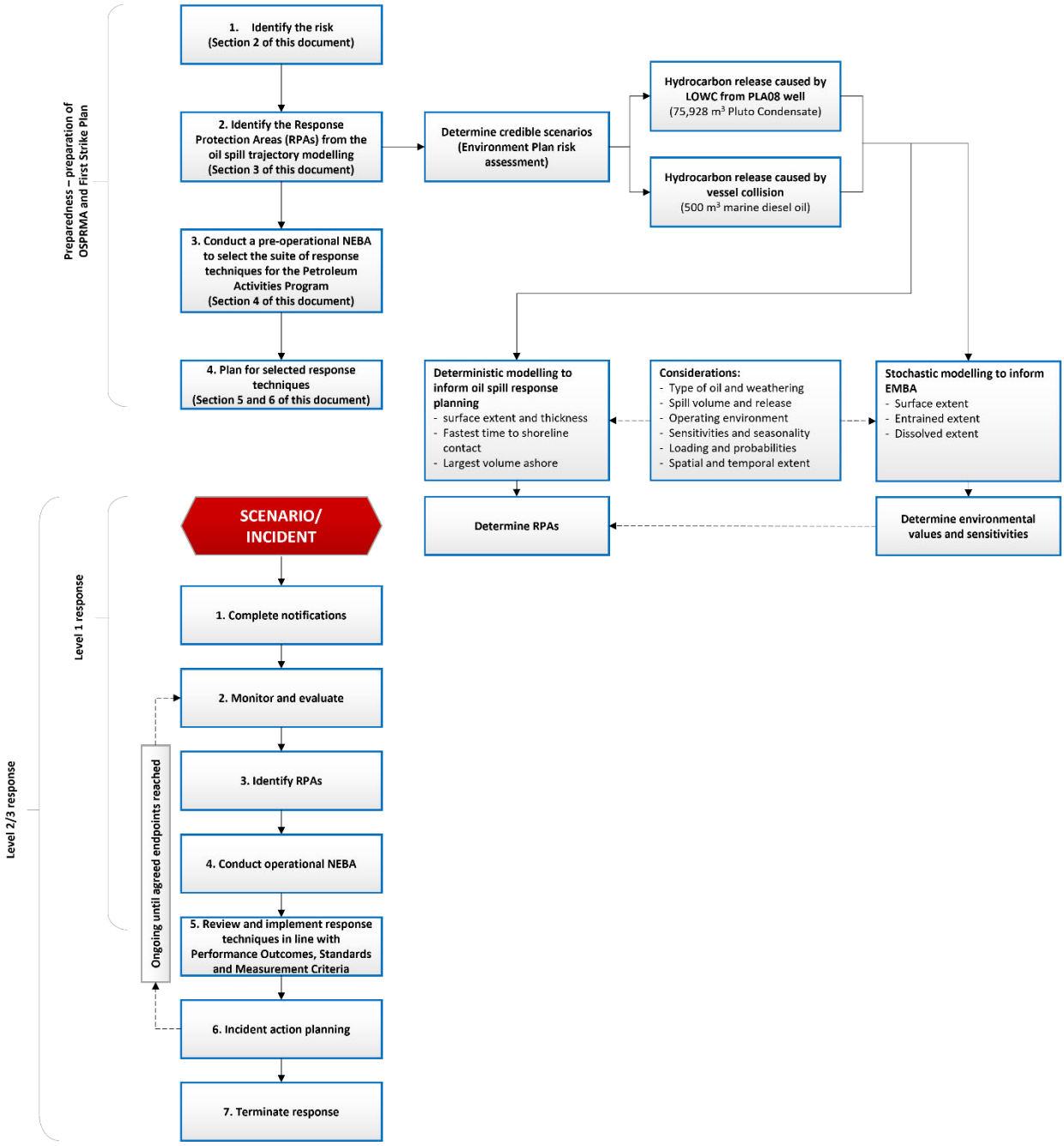

Figure 3-1: Identify Response Protection Areas flowchart

3.1 Identified sensitive receptor locations

Section 4 of the EP includes the list of sensitive receptor locations 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 the following:
  - a number of priority protection criteria/categories
  - International Union for 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 have been selected on the basis of 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 2.3.3**). It is important to note that the figures outlined in **Table 3-1** are the combined results of the individual worst-case runs and do not indicate a single WCCS (where the timings and volumes are all expected from one release).

From the identified sensitive receptors described in Section 4 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[6]) 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 RPAs potentially contacted from stochastic modelling (as per EMBA definition) (see Section 4 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 6 of the EP) for each respective spill scenario. The pre-operational NEBA (**Section 4**) considers the results from the stochastic modelling to ensure all feasible response techniques are considered 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.

[6] Operational monitoring will be undertaken from the outset of a spill whether or not 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/or control of the incident passes to statutory authorities e.g. WA DoT or AMSA.

Table 3-1: Response Protection Areas (RPAs) from deterministic modelling

Areas of coastline contacted	Conservation status	IUCN protection category	Minimum time to shoreline accumulation (above 100 g/m^2) in days [7]	Maximum shoreline accumulation (above 100 g/m^2) in m^3 [8]	Minimum time to shoreline accumulation (above 100 g/m^2) in days [9]	Maximum shoreline accumulation (above 100 g/m^2) in m^3 [10]
			CS-01		CS-02	
Barrow Island	Nature reserve, Marine Management Area, Marine Park	IUCN Ia – Strict Nature Reserve IUCN VI – Multiple Use Zone	8.9 days (10 m^3)	10 m^3 (8.9 days)	*No contact at threshold*	*No contact at threshold*
Lowendal Islands	Nature reserve	IUCN Ia – Strict Nature Reserve	39.8 days (7 m^3)	7 m^3 (39.8 days)	*No contact at threshold*	*No contact at threshold*
Southern Pilbara – Islands (Thevenard Island and NR)	Nature reserve	IUCN Ia – Strict Nature Reserve	39.8 days (34 m^3)	34 m^3 (39.8 days)	*No contact at threshold*	*No contact at threshold*
Airlie Island	Nature reserve	IUCN Ia – Strict Nature Reserve	40.8 days (12 m^3)	12 m^3 (40.8 days)	*No contact at threshold*	*No contact at threshold*
Dampier Archipelago and Enderby Island	Nature reserve and National Heritage Place	IUCN Ia – Strict Nature Reserve IUCN II – National Park IUCN IV – Habitat/Species Management Area IUCN VI – Multiple Use Zone	41.7 days (67 m^3)	67 m^3 (41.7 days)	*No contact at threshold*	*No contact at threshold*
Southern Pilbara – Shorelines (Ashburton)	Nature reserve	IUCN Ia – Strict Nature Reserve	41.9 days (25 m^3)	25 m^3 (41.9 days)	*No contact at threshold*	*No contact at threshold*
Direction Island	Nature reserve	IUCN Ia – Strict Nature Reserve	42.0 days (2 m^3)	2 m^3 (42.0 days)	*No contact at threshold*	*No contact at threshold*

[7] This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24 hour period.
[8] This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24 hour time period
[9] This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24 hour period.
[10] This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24 hour time period

Areas of coastline contacted	Conservation status	IUCN protection category	Minimum time to shoreline accumulation (above 100 g/m^2) in days [7]	Maximum shoreline accumulation (above 100 g/m^2) in m^3 [8]	Minimum time to shoreline accumulation (above 100 g/m^2) in days [9]	Maximum shoreline accumulation (above 100 g/m^2) in m^3 [10]
			CS-01		CS-02	
Twin Island	Nature reserve	IUCN Ia – Strict Nature Reserve	42.2 days (14 m^3)	14 m^3 (42.2 days)	*No contact at threshold*	*No contact at threshold*
Goodwyn Island	Nature reserve	IUCN Ia – Strict Nature Reserve	43.0 days (4 m^3)	4 m^3 (43.0 days)	*No contact at threshold*	*No contact at threshold*
Kendrew Island	Nature reserve	IUCN Ia – Strict Nature Reserve	43.0 days (11 m^3)	11 m^3 (43.0 days)	*No contact at threshold*	*No contact at threshold*
Middle Pilbara – Islands and Shoreline (Great Sandy Island NR and Mary Anne Group)	Nature reserve	IUCN Ia – Strict Nature Reserve	43.1 days (72 m^3)	72 m^3 43.1 days	*No contact at threshold*	*No contact at threshold*
Rosemary Island	Nature reserve	IUCN Ia – Strict Nature Reserve	43.2 days (18 m^3)	18 m^3 (43.2 days)	*No contact at threshold*	*No contact at threshold*
Malus Island	Nature reserve	IUCN Ia – Strict Nature Reserve	44.0 days (9 m^3)	9 m^3 (44.0 days)	*No contact at threshold*	*No contact at threshold*
Mangrove Islands	Nature reserve	IUCN Ia – Strict Nature Reserve	44.2 days (9 m^3)	9 m^3 (44.2 days)	*No contact at threshold*	*No contact at threshold*
Passage Islands	Nature reserve	IUCN Ia – Strict Nature Reserve	45.4 days (13 m^3)	13 m^3 (45.4 days)	*No contact at threshold*	*No contact at threshold*
Keast Island	Nature reserve	IUCN Ia – Strict Nature Reserve	45.4 days (2 m^3)	2 m^3 (45.4 days)	*No contact at threshold*	*No contact at threshold*
Karratha	Proposed marine reserve	N/A	46.5 days (15 m^3)	15 m^3 (46.5 days)	*No contact at threshold*	*No contact at threshold*
Karratha-Port Hedland	Proposed marine reserve	N/A	58.5 days (5 m^3)	5 m^3 (58.5 days)	*No contact at threshold*	*No contact at threshold*

Areas of coastline contacted	Conservation status	IUCN protection category	Minimum time to shoreline accumulation (above 100 g/m^2) in days [7]	Maximum shoreline accumulation (above 100 g/m^2) in m^3 [8]	Minimum time to shoreline accumulation (above 100 g/m^2) in days [9]	Maximum shoreline accumulation (above 100 g/m^2) in m^3 [10]
			CS-01		CS-02	
Hermite Island, Montebello Islands and Montebello Islands Marine Park	State Marine Park, Australian Marine Park and Conservation Park	IUCN Ia – Strict Nature Reserve IUCN II – National Park IUCN IV – Habitat/Species Management Area IUCN VI – Multiple Use Zone	29.4 days (15 m^3)	58 m^3 (59.3 days)	*No contact at threshold*	*No contact at threshold*
North Sandy Island NR	Nature reserve	IUCN Ia – Strict Nature Reserve	64.3 days (5 m^3)	5 m^3 (64.3 days)	*No contact at threshold*	*No contact at threshold*
Northern Pilbara - Islands and Shoreline	Nature reserve	IUCN Ia – Strict Nature Reserve	68.6 days (5 m^3)	5 m^3 (68.6 days)	*No contact at threshold*	*No contact at threshold*
Cohen Island	Nature reserve	IUCN Ia – Strict Nature Reserve	80.6 days (6 m^3)	6 m^3 (80.6 days)	*No contact at threshold*	*No contact at threshold*
Legendre Island	Nature reserve	IUCN Ia – Strict Nature Reserve	80.9 days (5 m^3)	5 m^3 (80.9 days)	*No contact at threshold*	*No contact at threshold*
Angel and Gidley Islands	Nature reserve	IUCN Ia – Strict Nature Reserve	84.7 days (2 m^3)	2 m^3 (84.7 days)	*No contact at threshold*	*No contact at threshold*

4 NET ENVIRONMENTAL BENEFIT ANALYSIS

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.

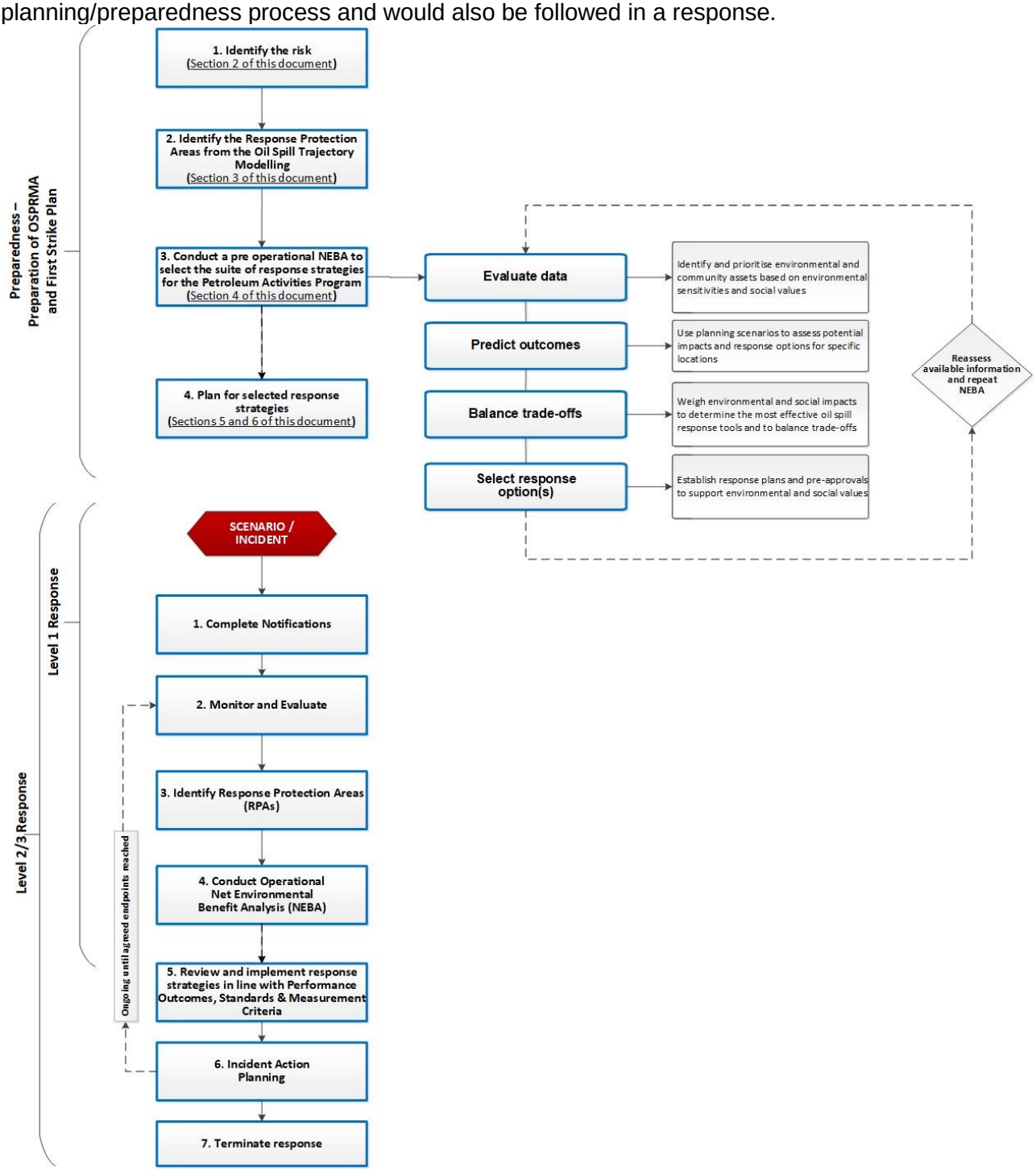

Figure 4-1: Net Environmental Benefit Analysis (NEBA) flowchart

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 (**Section 2.3.3**) and the surface concentrations (Section 2.3.3.1) from the deterministic 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 through the use of 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 activities.

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 2-6** and **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 effectiveness/feasibility 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 effectiveness/feasibility of the response to select the response techniques carried forward to the ALARP assessment (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 on the vessel
- 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.

Support functions may include:

- waste management
- post spill monitoring/ scientific monitoring.

Table 4 3 and Table 4 4 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 – Pluto Condensate release from loss of well containment (CS-01)

Response technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: Pluto Condensate				
Monitor and evaluate	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: • OM01 Predictive modelling of hydrocarbons – used throughout spill. 'Ground-truthed' using the outputs of all other monitoring techniques. • OM02 Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill. • OM03 Monitoring of hydrocarbon presence, properties, behaviour and weathering in water – from outset of spill. • OM04 Pre-emptive assessment of sensitive receptors at risk – triggered once OM01, OM02 and OM03 inform likely RPAs at risk. • OM05 Shoreline assessment – once OM02, OM03 and OM04 inform which RPAs have been impacted.	Monitoring of a Pluto 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 including AMSA and Western Australia Department of Transport (WA DoT).	**Yes**	Monitoring the spill will be necessary to: • validate trajectory and weathering models • determine the behaviour of the oil in water • determine the location and state of the slick • provide forecasts of spill trajectory • determine appropriate response techniques • determine effectiveness of response techniques • confirm impact pathways to receptors • provide regulatory agencies with required information.
Source control via blowout preventer (BOP) intervention	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.	Woodside will have an activity specific source control emergency response plan for the PLA08 Drilling and Subsea Installation activity. Capping the PLA08 well is considered feasible based on worst-case discharge rates. Though all capping stack deployment technologies are unproven, in the event of a loss of well containment, the use of a proven subsea deployment method such as a heavy lift vessel, which is more commonly used in industry, is a more reliable and, in turn, ALARP approach. If environmental conditions permit (wind speed, wave height, current and plume radius), deployment of a capping stack would be attempted with a heavy lift vessel. Woodside maintains several frame agreements with various vessel service providers and maintains the ability to call off services with a capping stack and debris clearance agreement. The location of suitable vessels for capping stack deployment are monitored monthly. The supply arrangements and reliability to achieve the required mobilisation time will be revalidated prior to spud. Consideration to mobilise the capping stack from the supplier on a suitable vessel but then hand over to another vessel to conduct the capping activity will also be made to meet response time frames. A site-specific landing force analysis through computational fluid dynamic (CFD) modelling confirms the ability to land the capping stack on either a Xmas tree or BOP.	**Yes**	Conventional/vertical capping stack deployment with a heavy lift vessel will be attempted 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 60.1 days. Relief well drilling is one of the options to stop the release.	For a spill from the PLA08 well, 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 a feasible technique employed to control a loss of well containment event should the direct BOP intervention or capping stack be unsuccessful.
Subsea Dispersant Injection (SSDI)	Application of subsea dispersant may reduce the scale and extent of hydrocarbons reaching the surface and thus may reduce spill volumes contacting predicted RPAs.	The goal of SSDI is to decrease the volume of oil that rises to the water surface and to reduce exposure to floating and entrained/dissolved oil. Based on the deterministic modelling analysis, it is predicted that 10 m^3 of shoreline accumulation would potentially occur 8.9 days after the LOWC	**No**	Due to the minimal surface and shoreline exposure predicted at RPAs, together with this technique not being required to facilitate other source control techniques, the use of SSDI is not deemed appropriate. The application of

Response technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: Pluto Condensate				
	SSDI can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons. Entrained oil could potentially impact on sensitive shallow-water receptors e.g. corals and fish, which may be otherwise unaffected. Entrained oil plume likely to be increased resulting in greater spatial extent of entrained oil.	occurred in the deterministic run with the shortest timeframe to shoreline accumulation, and no accumulation is predicted at any receptor until day 39.8 (7 m^3) in the deterministic run with the greatest spread of accumulation. The use of SSDI would not be required in order to deploy a capping stack. Unnecessary use of SSDI would increase the complexity of SIMOPS operations around the wellhead. Given the preceding information and that there is conflicting evidence on the efficacy of SSDI, despite the considerable amount of research and experimental work completed since the Deepwater Horizon spill (Quigg et al. 2021), the use of SSDI is considered unwarranted and would not provide net environmental or safety benefits.		subsea dispersant would unnecessarily introduce additional chemical substances to the marine environment and further increase exposure of subsea ecosystems to entrained hydrocarbons.
Surface dispersant application	Application of surface dispersant would likely reduce the volumes of hydrocarbons contacting sensitive surface receptors. Dispersant can also enhance biodegradation and may reduce VOCs in some circumstances therefore reducing potential health and safety risk to responders. Dispersant can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons. Subsurface oil plume likely to increase in size resulting in greater spatial extent of entrained oil. Entrained oil could potentially impact on sensitive shallow-water receptors e.g. corals, which otherwise may have been unaffected.	Surface dispersants are not generally considered a feasible response technique when applied to thin surface films such as condensate and MDO, as the dispersant droplets tend to pass through the surface films without binding to the hydrocarbon. EMSA (2010) recommends thin layers of spilled hydrocarbons should not be treated with surface dispersant, including surface slicks with Bonn Agreement Oil Appearance Codes (BAOAC) 1-3 (Table 2-4). Modelling of a Pluto Condensate spill for the PLA08 drilling project predicts that floating oil will be prone to rapid spreading and evaporation and will not reach the required threshold (>50 g/m^2) for surface dispersant to be effective within any RPA. The volatile nature of Pluto 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**	Pluto Condensate and MDO will rapidly evaporate and disperse, resulting in spill thicknesses too thin to effectively treat with surface dispersant. 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. The volatile nature of the oil likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon. 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. 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. 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 has 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	Modelling of a Pluto Condensate spill for the PLA08 drilling project predicts that floating oil will be prone to rapid spreading and evaporation and will not reach the required threshold (>50 g/m^2) for containment and recovery to be feasible within any RPA.	**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.

Response technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: Pluto Condensate				
	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.	The volatile nature of Pluto Condensate and MDO are likely to lead to unsafe conditions near release location.		
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.	If real-time Operational Monitoring activities (OM01, OM02 and OM03) indicate surface hydrocarbons are moving toward shorelines, 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 WA DoT (for Level 2/3 spills). For CS-01, deterministic modelling predicts first shoreline accumulation from floating surface hydrocarbon will occur on day 8.9 (10 m^3 at Barrow Island) allowing adequate time to deploy this technique. Protection strategies can be used for targeted protection of sensitive resources. 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. If RPAs are deemed to be at risk, based on real-time modelling during a spill event, shoreline protection and deflection techniques will be employed to minimise hydrocarbon accumulation 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.	If real-time Operational Monitoring activities (OM01, OM02 and OM03) indicate hydrocarbons will contact shorelines, pre-emptive assessments of sensitive receptors at risk (OM04), shoreline assessments (OM05) and existing TRPs will be utilised to guide shoreline protection and deflection operations, in agreement with WA DoT (for Level 2/3 spills). For CS-01, deterministic modelling predicts first shoreline accumulation from floating surface hydrocarbon will occur on day 8.9 (10 m^3 at Barrow Island) allowing adequate time to deploy this technique. Can reduce or prevent impact on sensitive receptors in most cases. Must ensure, through shoreline assessment, 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. If RPAs are at risk, based on real-time modelling during a spill event, shoreline clean-up techniques will be deployed to expedite clean-up of the impacted sites. Removal of hydrocarbons will help shorten the recovery window unless shoreline type is of a sensitive nature. 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.	In the event wildlife are at risk of contamination, oiled wildlife response will be undertaken in accordance with the Wildlife Response Operational Plan as and where required. In addition, any rehabilitation could only be undertaken by trained specialists. Due to the likely volatile atmospheric conditions surrounding a Pluto Condensate spill, response options may be limited to hazing to ensure the safety of response personnel.	**Yes**	This technique may prevent impact to and/or treat oiled wildlife providing net environmental benefit.

Table 4-2: Response technique evaluation – marine diesel release from vessel collision (CS-02)

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: Marine Diesel				
Monitor and evaluate	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: • OM01 Predictive modelling of hydrocarbons – used throughout spill. 'Ground-truthed' using the outputs of all other monitoring techniques. • OM02 Surveillance and reconnaissance to detect hydrocarbons and resources at risk – from outset of spill. • OM03 Monitoring of hydrocarbon presence, properties, behaviour and weathering in water – from outset of spill. • OM04 Pre-emptive assessment of sensitive receptors at risk – triggered once OM01, OM02 and OM03 inform likely RPAs at risk. • OM05 Shoreline assessment – once OM02, OM03 and OM04 inform if any RPAs have been impacted.	Monitoring of a marine diesel spill is a feasible response technique and outputs will be used to guide decision making on the use of other monitoring/response techniques and providing information to regulatory agencies including AMSA and WA DoT. Practicable techniques that could be used for this scenario include predictive modelling (OM01), surveillance and reconnaissance OM02) and monitoring of hydrocarbon presence in water (OM03). Modelling does not predict impact of any shoreline receptors at threshold, however, pre-emptive assessment of sensitive receptors at risk (OM04) and monitoring of contaminated resources (OM05) would be utilised if any sensitive shoreline receptors are deemed to be at risk of impact.	**Yes**	Monitoring the spill will be necessary to: • validate trajectory and weathering models • determine the behaviour of the oil in water • determine the location and state of the slick • provide forecasts of spill trajectory • determine appropriate response techniques • determine effectiveness of response techniques • confirm impact pathways to receptors • 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 or not 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. Dispersant can also enhance biodegradation and may reduce VOCs in some circumstances therefore reducing potential health and safety risk to responders. Dispersant can increase dispersed/entrained hydrocarbons which can potentially have higher toxicity to biota in shallow water than naturally dispersed hydrocarbons. Subsurface oil plume likely to increase in size resulting in greater spatial extent of entrained oil. 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 Montebello Marine Park, this technique is not suitable for MDO spills as this hydrocarbon is prone to rapid spreading and evaporation and are not considered 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. 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. The volatile nature of the oil likely to lead to unsafe conditions in the vicinity of fresh hydrocarbon. 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. 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.	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.	**No**	Diesel characteristics are not appropriate for the use of in-situ burning and would unnecessarily cause an increase the release of atmospheric pollutants.

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: Marine Diesel				
		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. 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.		
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 Montebello Marine Park, this technique is not suitable for MDO spills as it is prone to rapid spreading and evaporation and is deemed unsuitable for effective containment and recovery operations. 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 at-risk areas.	A marine diesel spill would be prone to rapid spreading and evaporation and modelling predicts that no shoreline receptors will be contacted at threshold. Furthermore, the volatile nature of marine diesel is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon. Operational monitoring will, however, be deployed from the outset of a spill to track the spill location and fate in real-time.	**No**	In addition to safety issues and the rapid spreading and evaporation of the diesel, the modelling undertaken predicts that no shoreline receptors would be contacted by floating oil concentrations at any of the assessed thresholds.
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.	A marine diesel spill would be prone to rapid spreading and evaporation and the modelling predicts that no shoreline receptors will be contacted at threshold – any minor contact is significantly below any threshold concentration that would allow a response to be feasible. Furthermore, the volatile nature of marine diesel is also likely to lead to unsafe conditions in the vicinity of the hydrocarbon. Operational monitoring will, however, be deployed from the outset of a spill to track the spill location and fate in real-time.	**No**	In addition to safety issues, the modelling undertaken predicts that no shoreline receptors would be contacted by floating oil concentrations at a recoverable threshold and a spill of marine diesel is unlikely to accumulate at concentrations appropriate for shoreline clean-up techniques.
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.	Due to the likely volatile atmospheric conditions surrounding a diesel spill, response options may be limited to hazing to ensure the safety of response personnel. The modelling undertaken predicts that no sensitive areas will be impacted thus it is unlikely that this technique would be required. Monitor and evaluate will, however, be deployed from the outset of a spill to track the spill location and fate in real-time. Thus, in the event wildlife are at risk of contamination, oiled wildlife response will be undertaken in accordance with the Wildlife Response Operational Plan as and where required. In addition, any rehabilitation could only be undertaken by trained specialists.	**Yes**	The modelling undertaken predicts that no sensitive areas will be impacted thus it is unlikely that this technique would be required. However, in the event that wildlife are at risk of contamination, oiled wildlife response will be undertaken as and where required.

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, 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 (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
    - 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 clearly 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 purpose of 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: Net Environmental Benefit Analysis detailed outcomes.

5.1 Monitor and Evaluate (including operational monitoring)

Monitor and evaluate 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 operational 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 IMT to mobilise resources depending on the nature and scale of the spill.

The proximity of Karratha/Dampier to the spill event location means that multiple logistical options are available to monitor the spill in relatively short timeframes.

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:

- Operational monitoring will be undertaken from the outset of a spill. This is needed to assess the nature of the spill and track its location. The data collected from initial operational monitoring will inform the need for any additional operational monitoring, deployment of response techniques and may assist post-spill scientific monitoring. It also informs when the spill has entered State Waters and control of the incident passes to WA DoT.
- Surface hydrocarbons at >10 g/m^2 are predicted in open ocean up to 2 km from the PLA08 well for CS-01 but are not predicted at any RPA for the duration of the spill. For CS-02, floating hydrocarbons at >10 g/m^2 are predicted at Montebello Marine Park within 1 hour.
- The minimum timeframe for the commencement of hydrocarbon accumulation at >100 g/m^2 is predicted to be 8.9 days at Barrow Island (10 m^3) (CS-01). No shoreline contact is predicted at threshold concentrations for CS-02.
- Fastest time to entrained contact at 100 ppb is predicted at Montebello Marine Park at 185 hours (7.7 days) for CS-01 and at 1 hour for CS-02.
- 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 be up to 60.1 days (CS-01).

- The location, trajectory and fate of the spill will be verified by real-time spill tracking via modelling, direct observation and remote sensing (OM01, OM02, OM03, OM04 and OM05).

5.1.2 Environmental performance based on need

Table 5-2: Environmental Performance – Monitor and Evaluate

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/vessel and ready for deployment 24/7.	1, 3A, 3C, 4
		2.2	Deploy tracking buoy from facility 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 monitor and evaluate strategies.	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 monitor and evaluate strategies.	1, 3B, 4
		3.6	Satellite Imagery services available and employed during response.	1, 3C, 4
4	Aerial surveillance	4.1	2 trained aerial observers available to be deployed by day 1 from resource pool.	1, 2, 3B, 3C, 4
		4.2	1 aircraft available for 2 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 IMT within 2 hours of landing after each sortie.	1, 2, 3B, 4
		4.4	Unmanned Aerial Vehicles/Systems (UAV/UASs) to support Shoreline Clean-up Assessment Technique (SCAT), containment and recovery and surface dispersal and pre-emptive assessments as contingency if required.	1, 2

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)**
5	Hydrocarbon detections in water	5.1	Activate 3rd party service provider as per First Strike plan. Deploy resources within 3 days: 3 specialists in water quality monitoring 2 monitoring systems and ancillaries 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 IMT to validate modelling and monitor presence/absence of entrained hydrocarbons.	
		5.5	Use of Autonomous Underwater Vehicles (AUVs) for hydrocarbon presence and detection may be used as a contingency if the operational SIMA confirms conventional methods are unsafe or not possible.	1, 2, 3C, 4
6	Pre-emptive assessment of sensitive receptors	6.1	10 days prior to any predicted impact, in agreement with WA DoT (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 IMT 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	10 days prior to any predicted impact, in agreement with WA DoT (for Level 2/3 incidents), deployment of 1 specialist(s) 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 IMT 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 Monitor and Evaluate activities up to and including the identified WCCS. This is demonstrated by the following:

- Woodside has a documented, structured and tested capability for Monitor and Evaluate 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 ensure there is 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.
- 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 clearly disproportionate to the environmental benefit gained and/or not reasonably practicable for this PAP.

5.2 Source control and well intervention

The worst-case credible scenario for a loss of well containment is considered to be loss of well control during drilling operations. This scenario would result in an uncontrolled flow from the well as outlined in the EP. In the event of a loss of well containment, the primary response would be source control and well intervention.

The Woodside activity specific Source Control Emergency Response Plan (SCERP) includes the process for the IMT to mobilise resources for BOP intervention, Subsea First Response Toolkit (SFRT) support, and capping support and relief well drilling. Woodside has pre-identified vessel specifications and contracts required for SFRT debris clearance work and monitors the availability and location of these vessels.

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 loss of well containment incident were to occur. The MoU commits the signatories to share MODUs, equipment, personnel and services to assist another operator in need. Dynamically positioned (DP) and moored MODUs are suitable for the PAP. A moored MODU, for the relief well construction, has been used as the basis for the analysis within this document.

Source control operations cannot be implemented if the safety of response personnel cannot be guaranteed. 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 (>1.5m waves) and high ambient temperatures.

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 to ensure 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 or Xmas tree
  - a capping stack is in place.
  - a relief well is drilled and first attempt at well kill within 60.1 days.
- Arrangements for support organisations who provide specialist services or resources will be tested regularly.
- Plans, procedures and support documents need to be in place for Operational and Support functions. These will be reviewed and updated regularly.
- The duration of the spill may be up to 60.1 days with response operations completing in month 4-5 based on the predicted time to complete shoreline clean-up operations.

In addition, a number of 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: • hydrocarbon gas and/or liquid exposure • high winds, waves and/or sea states

	• high ambient temperatures.
Feasibility considerations	Woodside's source control options include ROV intervention, capping stack and relief well drilling for the PLA08 Drilling and Subsea Installation project. The following approaches outline Woodside's hierarchy for selecting a MODU for relief well drilling; • Primary option – review internal drilling programs and MODU availability to source an appropriate MODU operating within Australia with an approved Safety Case; • Alternate option – source and contract a MODU through APPEA MOU operating within Australia with an approved Safety Case; • Contingency option – 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 IMT 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.	1, 3B, 3C
		9.2	Source control vessel will have the following minimum specifications: • active heave compensated crane, rated to at least 150 T in shallower water and 250 T in deeper water. • at least 90 m in length • deck has water/electricity supply • deck capacity to hold at least 110 T of capping stack.	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 for conventional capping.	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 11 days.	1, 3B, 3C
		9.6	Capping stack on suitable vessel mobilised to site within 16 days. Deployment and well intervention attempt will be made once plume size is acceptable and safety and metocean conditions are suitable.	1, 3C
		9.7	Wild Well Control Inc (WWCI) staff available all year round to assist with the mobilisation, deployment, and operation of the capping stack and well intervention equipment.	1, 3B, 3C
		9.8	MODU mobilised to site for relief well drilling within 21 days.	1, 3C
		9.9	First well kill attempt completed within 60.1 days	1, 3B, 3C
		9.10	Open communication line(s) to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
		9.11	Well Delivery Process includes screening and identification of suitable MODU(s) with in-force Australian safety cases for relief well drilling.	1, 3C
		9.12	Monthly monitoring of the availability of MODUs through existing market intelligence including current	3C

Environmental Performance Outcome		To stop the flow of hydrocarbons into the marine environment.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
			Safety Case history, to meet specifications for relief well drilling. Titleholders of suitable MODUs notified.	
10	Support vessels	10.1	Monthly monitoring of availability of larger vessels through existing Frame Agreements and market intelligence to meet specifications for source control.	3C
		10.2	Frame agreements for Infield Support Vessels (ISVs) require vessels 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 if 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
12	Management of Environmental Impact of the response risks	12.1	Seabed disturbance from MODU mooring limited to that required to ensure adequate MODU station-holding capacity.	1

The resulting source control capability has been assessed against the WCCS. The range of techniques provide a feasible and viable approach to well intervention 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 clearly 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[11], by the Vessel Master under the 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.

Its 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 MDO 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 6.7.3 of the EP. The vessel master's roles and responsibilities are described in EP Section 7.3.

Performance standards for each contracted PAP vessel are detailed in the vessel's specific SOPEP.

These standards ensure sufficient resources are available and are adequately tested to ensure implementation of the SOPEP in the event of a hydrocarbon spill.

[11] Marpol 73/78 Annex I entry into force in Australia, 2 Oct 1983

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 accumulating 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 accumulation 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 permit safe deployment of protection and deflection measures.
- Oil trajectory has been identified as heading towards identified RPAs.

5.4.1 Response need based on predicted consequence parameters

PLA08 loss of well containment (CS-01)

The following statements identify the key parameters upon which the response need can be based:

- The shortest timeframe shoreline contact from floating oil above threshold is predicted to be 8.9 days at Barrow Island (10 m^3).
- Pre-emptive assessment and shoreline assessments (OM04 and OM05) will be mobilised prior to shoreline contact which is predicted to occur on day 8.9 at Barrow Island (10 m^3).
- The duration of the spill may be up to 60.1 days with response operations extending up to month 4-5 based on the predicted time to complete shoreline clean-up operations.

Marine diesel spill caused by vessel collision (CS-02)

- There is no shoreline impact predicted at response threshold of >100 g/m^2. The maximum accumulation on shorelines is 11 g/m^2 at Barrow Island.

All scenarios

- Predictive modelling (OM01), direct observation/surveillance (OM02) and, where appropriate, hydrocarbon detection in water (OM03), will be employed from the outset of a spill to track the oil, assess where and when appropriate response techniques can be deployed and to identify when the spill enters State Waters. When RPAs at threat of impact can be accurately deduced, this will trigger the undertaking of pre-emptive assessments of sensitive receptors at risk (OM04), to direct any protection and deflection operations. OM04 would be undertaken in liaison with WA DoT (if a Level 2/3 incident and within State Waters).
- Following pre-emptive assessments of sensitive receptors at risk, and in agreement of prioritisation with WA DoT (if a Level 2/3 incident and within State Waters), protection and deflection operations would commence until agreed termination criteria are reached.
- Arrangements for support organisations who provide specialist services (trained personnel, protection and deflection equipment) and/or resources should be tested regularly; and
- TRPs for 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.

In addition, a number of 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: • hydrocarbon gas and/or liquid exposure • safe for deployment and conditions within range of vessels • high ambient temperatures.
Shoreline Protection and Deflection	• 1 x Shoreline Protection and Deflection operation may include; – Quantity of shoreline sealing boom (as outlined in TRP) – Quantity of fence or curtain boom (as outlined in TRP) – 1-2 x trained supervisors – 8-10 x personnel / labour hire Specific details of each operation would be tailored to the TRP 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)**
13	Response teams	13.1	In liaison with WA DoT (for Level 2/3 incidents), relevant Tactical Response Plans (TRPs) will be identified in the First Strike plan for activation 10 days prior to a predicted impact.	1, 3A, 3C, 4
		13.2	In liaison with WA DoT (for Level 2/3 incidents), mobilise teams to RPAs 5 days prior to predicted impact. Teams to contaminated RPAs comprised of: • 1-2 trained specialists per operation • 8-10 personnel/labour hire • Personnel sourced through resource pool.	1, 2, 3B, 3C, 4
		13.3	In liaison with WA DoT (for Level 2/3 incidents), 1 operation mobilised 5 days prior to predicted impact for each identified RPA. Expected to be 1 RPA within 12 days (operation as detailed above) for CS-01.	1, 3A, 3B, 4
		13.4	12 trained personnel available (2 supervisors plus 10 additional personnel) 5 days prior to predicted impact for each identified RPA. Sourced through resource pool.	1, 2, 3A, 3B, 3C, 4
		13.5	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
		13.6	The safety of shoreline response operations will be considered and appropriately managed. During shoreline operations: • All personnel in a response will receive an operational/safety briefing before commencing operations • 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
14	Response equipment	14.1	Equipment mobilised from closest stockpile 5 days prior to predicted impact.	1, 3A, 3C, 4
		14.2	Supplementary equipment mobilised from State, AMOSC, AMSA stockpiles 5 days prior to predicted impact.	1, 3C, 3D, 4
		14.3	Supplementary equipment mobilised from OSRL 5 days prior to predicted impact.	
		14.4	Woodside maintains integrated fleet of vessels. Additional vessels can be sourced through existing contracts/frame agreements	1, 3A, 3C, 4
15	Management of Environmental Impact of the response risks	15.1	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

Environmental Performance Outcome		To stop hydrocarbons encountering particularly sensitive areas		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
		15.2	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 exceeds the need identified. It indicates that the shoreline protection and deflection capability have the following expected performance:

- Existing capability allows for mobilisation and deployment of shoreline protection operations by day 2 (if required). Given that no shoreline accumulation is predicted at threshold (>100 g/m^2) until day 8.9 (CS-01), the existing capability is considered sufficient to mobilise and deploy protection at RPAs prior to hydrocarbon accumulation, guided by the ongoing operational monitoring.
- TRPs have been developed for identified RPAs that are predicted to be impacted except in international locations.
- 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.
- 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 Cleanup 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. It includes the process for the IMT 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 accumulation at response thresholds.

Shoreline clean-up consists of different manual and mechanical recovery techniques to remove hydrocarbons and contaminated debris from a shoreline; this is 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

PLA08 loss of well containment (CS-01)

The following statements identify the key parameters upon which the response need can be based:

- The shortest timeframe that shoreline accumulation above response threshold (>100 g/m^2) is predicted to be 8.9 days at Barrow Island (10 m^3).
- Pre-emptive assessment and shoreline assessments (OM04 and OM05) will be mobilised prior to shoreline contact which is predicted to occur on day 8.9 at Barrow Island (10 m^3).
- The duration of the spill may be up to 60.1 days with response operations extending up to month 4-5 based on the predicted time to complete shoreline clean-up operations.

Marine diesel spill caused by vessel collision (CS-02)

- There is no shoreline impact predicted at response threshold of >100 g/m^2. The maximum accumulation on shorelines is 11 g/m^2 at Barrow Island.

All scenarios

- Predictive modelling (OM01), direct observation/surveillance (OM02) and, where appropriate, hydrocarbon detection in water (OM03), will be employed from the outset of a spill to track the oil, assess where and when appropriate response techniques can be deployed and when the spill enters State Waters. When RPAs at threat of impact can be accurately deduced, this will trigger the undertaking of pre-emptive assessments of sensitive receptors at risk (OM04) and, subsequently, shoreline assessments (OM05) to

establish the extent and distribution of oiling and thus direct any shoreline clean-up operations. OM04 and OM05 would be undertaken in liaison with WA DoT (if a Level 2/3 incident and within State Waters).

- Following Shoreline Assessment, and agreement of prioritisation with WA DoT (if a Level 2/3 event), clean-up operations would commence until agreed termination criteria are reached.
- Prior to predicted impact, and in line with the relevant TRP and in agreement with WA DoT (if a Level 2/3 event), rubbish removal and segregation will be undertaken along the shoreline to minimise additional oiled waste volumes.
- Arrangements for support organisations who provide specialist services (trained personnel, labour hire, shoreline clean-up, and site management equipment) and/or resources and should be tested regularly.
- TRPs for RPAs along with other relevant plans, procedures and support documents should be in developed and in place for Operational and Support functions. These should be reviewed and updated regularly.

In addition, a number of 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: • hydrocarbon gas and/or liquid exposure • waves and/or sea states, tidal cycle and intertidal zone limits • presence of wildlife • high ambient temperatures.
Manual shoreline clean-up operation (Phase 2)	1 x manual shoreline clean-up operation (Phase 2) may include: • 1–2 x trained supervisor • 8–10 x personnel/labour hire • Supporting equipment for manual clean-up including rakes, shovels, buckets, plastic bags etc.
Physical properties	**Surface Threshold for Response Planning** • Lower – 100 g/m^2 – 100% coverage of 'stain' – cannot be scratched off easily on coarse sediments or bedrock • Optimum – 250 g/m^2 – 25% coverage of 'coat' – can be scratched off with a fingernail on coarse sediments • In the event of a real incident, operational monitoring will be undertaken from the outset of a spill whether or not these thresholds have been reached.
Efficiency (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 hr day is based on moderate to high coverage of oil (100 g/m^2–1,000 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. Other clean-up techniques may cause more damage than allowing the shoreline to naturally recover. Natural recovery may be recommended for areas with mangroves and coral reefs due to their sensitivity to disturbance from other shoreline clean-up techniques. 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. 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. Use of this form of clean-up is based on type of shoreline.	Areas where shorelines may not be accessible by vehicles or machinery and personnel can recover hydrocarbons manually. Where hydrocarbons have formed semi-solid to solid masses that can be picked up manually. 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. 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. 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. 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. Sorbents will create more solid waste compared with manual clean-up, so will be limited to clean, 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. 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. Flushing and vacuum may be useful for rocky substrate. Medium- to high-energy shorelines where natural removal rates are moderate to high. 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. Shorelines with limited access. Flushing and washing not recommended for loose sediments. 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. Recommended for pebble/cobble shoreline types. 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. 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. Where oiling is restricted to fringing vegetation.	Access in bird-nesting areas should be restricted during nesting seasons. Areas of slow-growing vegetation.	May be used on shorelines where vegetation can be safely cleared to reduce oiling.
Cleaning agents (National Plan registered Oil Spill Cleaning Agent – '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		**Performance Standard**		**Measurement Criteria (Section 5.10)**
16	Shoreline responders	16.1	In liaison with WA DoT (for Level 2/3 incidents), deployment of 1 shoreline clean-up team to each contaminated RPA comprised of: 1-2 trained specialists per operation 8-10 personnel/labour hire Personnel sourced through resource pool 5 days prior to predicted impact upon request from the IMT.	1, 2, 3A, 3B, 3C, 4
		16.2	Relevant TRPs will be identified in the first strike plan for activation 5 days prior to operational monitoring predicting impacts.	1, 3A, 3C, 4
		16.3	Relevant TRPs available for shoreline contacted 5 days prior to operational monitoring predicting impacts.	1, 3A, 3C, 4
		16.4	Clean-up operations for shorelines in line with results and recommendations from SCAT outputs.	1, 3A, 3B
		16.5	All shorelines zoned and marked before clean-up operations commence to prevent secondary contamination and minimise the mixing of clean and oiled sediment and shoreline substrates.	
		16.6	In liaison with WA DoT (for Level 2/3 incidents), mobilise and deploy 1 shoreline clean-up operation to each site where operational monitoring predicts an accumulation 5 days prior to impact.	1, 2, 3A, 3C, 4
		16.7	The safety of shoreline response operations will be considered and appropriately managed. During shoreline clean-up operations: All personnel in a response will receive an operational/safety briefing before commencing operations 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
		16.8	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
17	Shoreline clean-up equipment	17.1	Contract in place with 3rd party providers to access equipment.	1, 3A, 3C, 4
		17.2	Equipment mobilised from closest stockpile 5 days prior to predicted impact.	
		17.3	Supplementary equipment mobilised from State, AMOSC, AMSA stockpiles 5 days prior to predicted impact.	1, 3C, 3D, 4
		17.4	Supplementary equipment mobilised from OSRL 5 days prior to predicted impact.	
18	Management of	18.1	If vessels are required for access, anchoring locations will be selected to minimise disturbance to	1

Environmental Performance Outcome	To remove bulk and stranded hydrocarbons from shorelines and facilitate shoreline amenity habitat recovery.		
Control measure	**Performance Standard**		**Measurement Criteria (Section 5.10)**
Environmental Impact of the response risks		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.	
	18.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines.	
	18.3	Vehicular access will be restricted on dunes, turtle nesting beaches an in mangroves.	
	18.4	Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations.	
	18.5	Removal of vegetation will be limited to moderately or heavily oiled vegetation.	
	18.6	Oversight by trained personnel who are aware of the risks.	
	18.7	Trained unit leaders 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 and thus meets the need identified for this activity. The shoreline clean-up capability has the following expected performance (if required during a response):

- Existing capability allows for mobilisation and deployment of shoreline clean-up operations by day 2 (if required). Given that no shoreline accumulation is predicted at threshold (>100 g/m^2) until day 8.9 (CS-01), the existing capability is considered sufficient to mobilise and deploy protection at RPAs prior to hydrocarbon contact, guided by the ongoing operational monitoring.
- Woodside has the capacity to mobilise and deploy up to 15–20 shoreline clean-up teams (approx. 150–200 responders in total) by week one using existing labour hire contracts with Woodside, AMOSC, Core Group, AMSA, WA DoT 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 the end of month 4-5.
- 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 accommodation and transport of personnel in the Exmouth to Port Hedland region and management of response generated waste. From previous assessment of accommodation in this region, Woodside estimates that current accommodation can cater for a range of 500-700 personnel per day for an ongoing operation.

- TRPs have been developed for identified RPAs that are predicted to be impacted except in international locations.
- 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

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 is required to take the role of Control Agency and will be responsible for the wildlife response. In such circumstances, Woodside would implement a response in accordance with the *Oiled Wildlife Operational Plan*, the WA Oiled Wildlife Response Plan (WAOWRP) (DBCA, 2022a) and the WA OWR Manual (DBCA, 2022b). The *Oiled Wildlife Operational Plan* includes the process for the IMT to mobilise resources depending on the nature and scale of the spill. Oiled wildlife operations would be implemented with advice and assistance from the Oiled Wildlife Advisor from the Department of Biodiveristy, Conservation and Attractions (DBCA).

The key plan for OWR in WA is the WAOWRP (DBCA, 2022a). The WAOWRP establishes the framework for preparing and responding to potential or actual wildlife impacts during a spill and sets out the management arrangements for implementing an OWR in conjunction with the DoT *State Hazard Plan – Maritime Environmental Emergencies* (SHP-MEE). It is the responsibility of DBCA to administer the WAOWRP under the direction of the DoT.

The WA OWR Manual (DBCA, 2022b) supports, and should be used in conjunction with, the WAOWRP. The purpose of the WA OWR Manual is to standardise the operating procedures, protocols and processes for an OWR during a spill event in WA waters, and to create alignment between the wildlife response processes and the overall incident response (DBCA, 2022b).

If a spill occurs in WA State waters or enters State waters, DBCA is the Jurisdictional Authority for wildlife, and for level 2/3 spills, will also lead the oiled wildlife response under the control of the DoT. DBCA is the State Government agency responsible for administering the *Biodiversity Conservation Act 2016 (BC Act)*, which has provisions for authorising activities that affect wildlife.

For level 1 spills in State waters, Woodside is required to take the role of Control Agency, including for wildlife response. It is, however, also an expectation that for level 2/3 petroleum activity spills, Woodside will conduct the initial first-strike response actions for wildlife response and continue to manage those operations until DBCA is activated as the lead agency for wildlife response and formal handover occurs. Following formal handover, Woodside will function as a support organisation for the OWR and will be expected to continue to provide planning and resources as required.

Woodside retains specialist personnel to support and manage oiled wildlife operations, including trained and competent responders for deployment in Exmouth and Dampier. 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

Table 5-10 outlines the wildlife response priority areas for this activity. At the time of a spill, identification and allocation of wildlife response priority areas should also take into consideration any key biological activities. Additional detail regarding species and their key biological activities within the vicinity of the PAP are described in Section 4 of the *WA-34-L Pyxis Drilling and Subsea Installation Environment Plan*.

For WA, the Pilbara and Kimberley Regional Oiled Wildlife Plans (DBCA [formerly Department of Parks and Wildlife), 2014) provide useful information relating to wildlife priority response areas in their respective regions.

Table 5-10: Key at-risk species potentially in Priority Protection Areas and open ocean

Species	Barrow Island	Lowendal Islands	Southern Pilbara – Islands (Thevenard Island and NR)	Airlie Island	Dampier Archipelago and Enderby Island	Southern Pilbara – Shorelines (Ashburton)	Direction Island	Twin Island	Goodwyn Island	Kendrew Island	Middle Pilbara – Islands and Shoreline (Great Sandy Island NR and Mary Anne Group)	Rosemary Island	Malus Island	Mangrove Islands	Passage Islands	Keast Island	Karratha	Karratha-Port Hedland	Hermite Island, Montebello Islands and Montebello Islands Marine Park	North Sandy Island NR	Northern Pilbara - Islands and Shoreline	Cohen Island	Legendre Island	Angel and Gidley Islands	Montebello Marine Park	Open ocean
Marine turtles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Whale sharks	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Seabirds and/or migratory shorebirds	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cetaceans – migratory whales	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Cetaceans – dolphins and porpoises	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Dugongs	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
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 Montebello Marine Park within 1 hour 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 to be 8.9 days at Barrow Island (10 m^3). There is no shoreline impact predicted at response thresholds for CS-02.
- 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. At sea, continued wildlife reconnaissance, carcass recovery, sampling of carcasses that cannot be retrieved and scientific monitoring are more likely to be the focus of response efforts.
- As the surface oil approaches shorelines and as oil accumulates on the shoreline, potential for oiled wildlife impacts are likely to increase as well as opportunities to rescue wildlife.
- It is estimated that the wildlife impact would be between medium and high, as defined in the WAOWRP (DBCA, 2022a) (**Error! Reference source not found.**).

Table 5-11: WAOWRP Guide for rating wildlife impact of an oil spill (DBCA, 2022)

Wildlife Impact Rating	Low	Medium	High
What is the likely duration of the wildlife response?	<3 days	3-10 days	>10 days
What is the likely total intake of animals?	<10	11-25	>25
What is the likely daily intake of animals?	0-2	2-5	>5
Are threatened species, or species protected by treaty, likely to be impacted, either directly or by pollution of habitat or breeding areas?	No	Yes – possible	Yes – likely
Is there likely to be a requirement for building primary care facility for treatment, cleaning and rehabilitation?	No	Yes – possible	Yes – likely

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, Woodside will conduct the initial first-strike response actions for wildlife and continue to manage those operations until DBCA is activated as the lead agency for wildlife response and formal handover occurs. Following formal handover, Woodside will function as a support organisation for the OWR and will be expected to continue to provide planning and resources as required.

If a protracted response is likely, requiring preventative actions and/or wildlife rescue, and formal hand over to the Control Agency (in State waters) has not yet occurred, the Wildlife Division will be responsible for the development of the Wildlife Division portion of the IAP. Preventative

actions, such as hazing, along with capture, intake and treatment require a higher degree of planning, approval (licenses) and skills and will be planned for and carried out under the IAP as outlined in the *Oiled Wildlife Operational Plan* and in accordance with the WAOWRP (DBCA, 2022a) and WA OWR Manual (DBAC, 20022b).

The oiled wildlife response technique targets key wildlife populations at risk within Commonwealth open waters and the nearshore waters as described in **Section 4** of the EP.

5.6.2 Environmental performance based on need

Table 5-12: Environmental Performance – Oiled Wildlife Response

Environmental Performance Outcome		Oiled Wildlife Response is conducted in accordance with the Western Australian Oiled Wildlife Response Plan (WAOWRP, 2022) to ensure it is conducted in accordance with legislative requirements to house, release or euthanise wildlife under the *Biodiversity Conservation Act 2016*.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
19	Wildlife response arrangements	19.1	Oiled Wildlife Operational Plan in place and utilised during a response to plan, coordinate, implement and terminate operations	1, 3A, 4
		19.2	Initiate a wildlife first strike response 5 days prior to confirmed or imminent wildlife contact as directed by relevant Operational Monitoring techniques (OM01-05) and in liaison with DBCA	1
20	Wildlife response equipment	20.1	Maintain contract with AMOSC for immediate access to oiled wildlife response equipment.	1, 3C, 3D, 4
		20.2	Maintain contract with OSRL to access additional oiled wildlife response equipment.	1, 3C, 3D, 4
21	Wildlife responders	21.1	Two Oiled Wildlife Team Members to supervise the oiled wildlife operations who have completed an Oiled Wildlife Response Management course.	1, 2, 3B
		21.2	Maintain contract with AMOSC for immediate access to trained oiled wildlife response specialists	1, 3B, 3C
		21.3	Maintain contract with OSRL to access additional trained oiled wildlife response specialists	1, 3B, 3C
		21.4	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
22	Management of environmental impacts of response risks	22.1	Oiled wildlife operations (including hazing) would be implemented with advice and assistance from the Oiled Wildlife Advisor from the DBCA, and in accordance with the processes and methodologies described in the WA OWRP and the relevant regional plan.	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:

- 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.

Woodside would establish a wildlife collection point at each contacted RPA for identified oiled wildlife collection and sorting. From these locations, recovered wildlife would be transported to a central treatment location at Dampier or Exmouth.

5.7 Waste Management

Waste management is considered a support technique to shoreline clean-up and wildlife response. Waste generated and collected during the response that will require handling, management and disposal may consist of:

- Liquids (hydrocarbons and contaminated liquids) collected during shoreline clean-up and wildlife response, and/or
- Solids/semi-solids (oily solids, garbage, contaminated materials) and debris (e.g. seaweed, sand, woods, and plastics) collected during shoreline clean-up and wildlife response.

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 ensure continuous response operations can be maintained.

All waste management activities will follow the *Environment Protection (Controlled Waste) Regulations 2004* 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 (Veolia Waste Management) to manage waste volumes generated from response activities.

5.7.1 Response need based on predicted consequence parameters

Table 5-13: Response Planning Assumptions – Waste Management

Response planning assumptions: Waste management	
Waste loading per m^3 oil recovered (multiplier)	Shoreline clean-up (manual) – approx. 5-10x multiplier for oily solid and liquid wastes generated by manual clean-up.
	Oiled wildlife response – approx. $1m^3$ of oily liquid waste generated for each wildlife unit cleaned.

5.7.2 Environmental performance based on need

Table 5-14: 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)**
23	Waste Management	23.1	Contract with waste management services for transport, removal, treatment and disposal of waste.	1, 3A, 3B, 3C, 4
		23.2	Access to at least 100 m^3 of solid and liquid waste storage available within 8 days upon activation of 3rd party contract, if required.	
		23.3	Access to 3234 m^3 waste storage capacity in month 2 (CS-01).	
		23.4	Recovered hydrocarbons and wastes will be transferred to licensed treatment facility for reprocessing or disposal.	
		23.5	Teams will segregate liquid and solid wastes at the earliest opportunity.	
		23.6	Waste management provider support staff available year-round to assist in the event of an incident with waste management as detailed in contract.	
		23.7	Open communication line to be maintained between IMT and waste management services to ensure the reliable flow of accurate information between parties.	1, 3A, 3B
		23.8	Waste management to be conducted in accordance with Australian laws and regulations.	1, 3A, 3B, 3C, 4
		23.9	Waste management services available and employed during response.	

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.

It indicates the waste management capability has the following expected performance:

- The largest shoreline waste volumes predicted for CS-01 are 100 m^3 on day 8, peaking at 3234 m^3 in weeks 5-6 with a maximum of 5502 m^3 of waste expected across all shoreline protection and clean-up operations during the response. The capability available exceeds the need identified.
- Veolia has the capacity to treat up to 120,000 m^3 overall waste volumes. The waste management requirements are therefore within Woodside's and its service providers existing capacity.
- 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 6.7.

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 Environment that Maybe Affected (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 operational activities (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 2.3.1.1**). 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) defines the EMBA and is the basis of the SMP approach presented in this section.

It should be noted the resulting SMP receptor locations may differ from the Response Protection Areas (RPAs) 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 Monitor and Evaluate) for the 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 below 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 the NOPSEMA Bulletin #1 Oil Spill Modelling (2019), and for this activity is shown in **Figure 5-1**:

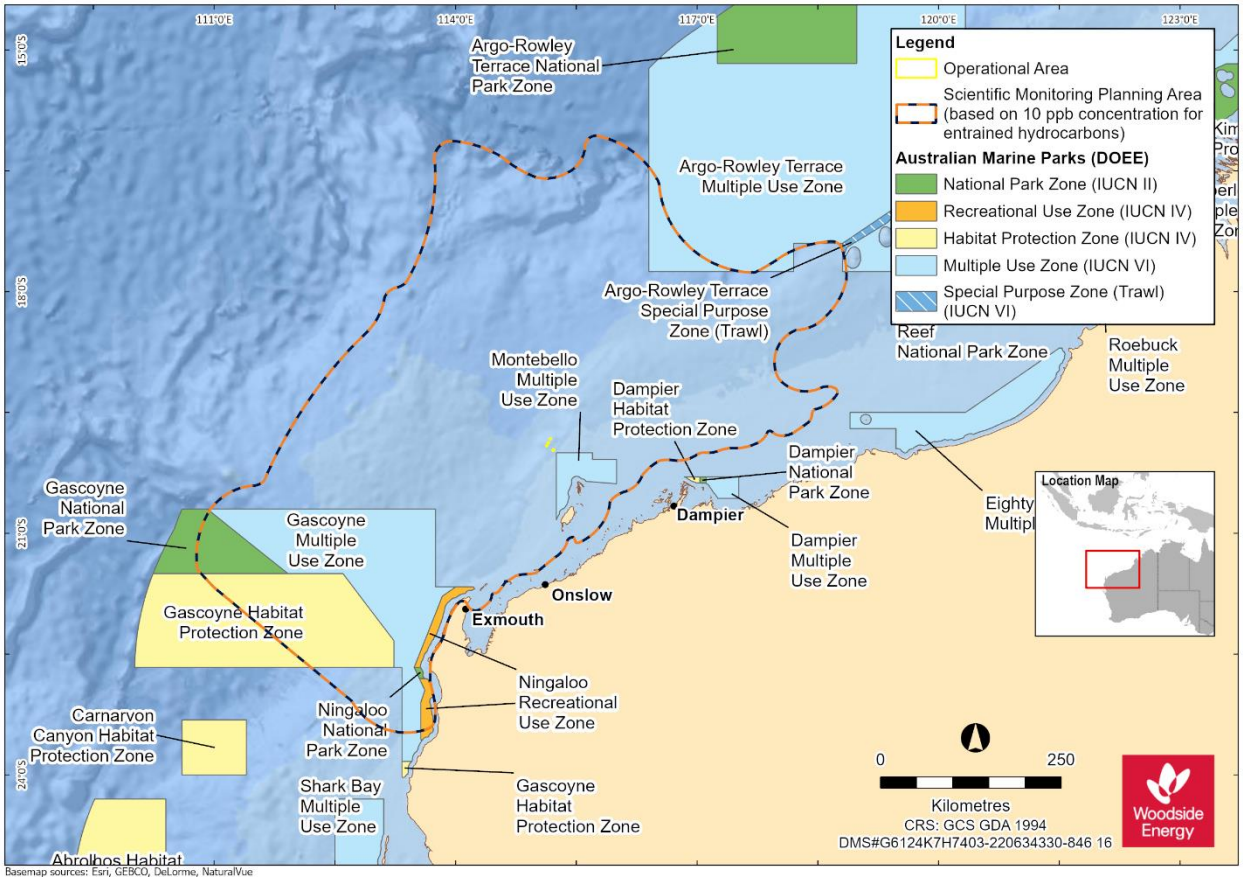

Figure 5-1: The planning area for scientific monitoring based on the area potentially contacted by the low (below ecological impact) entrained hydrocarbon threshold of 10 ppb in the event of the worst-case credible spill scenarios CS-01 and CS-02)

Please note that Figure 5-1 represents the overall combined extent of the oil spill model outputs based on a total of 100 replicate simulations over an annual period for Loss of Well Containment (LOWC) and marine diesel release and therefore represents the largest spatial boundaries of 100 CS-01 hydrocarbon spill combinations, not the spatial extent of a single CS-01 hydrocarbon spill trajectory.

5.8.1 Scientific Monitoring Deployment Considerations

Table 5-15: 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: • PBAs within the predicted <10-day hydrocarbon contact time prediction: As part of this assessment, a desktop review was conducted of available and appropriate baseline data for key receptors for locations (if any) that are potentially impacted within 10 days of a spill (based on the EMBA). Furthermore, the need to conduct baseline data collection to address data gaps and demonstrate spill response preparedness is assessed (refer to Annex D). In the scenario, that baseline data needs are identified, planning for baseline data acquisition is typically commenced pre-PAP and the execution of studies undertaken considers: receptor type, seasonality and temporal assessment requirements and location conditions. • PBAs predicted >10 days to hydrocarbon contact: As part of this assessment, a desktop review is conducted of available and appropriate baseline data for key receptors for locations (if any) that are potentially impacted >10 days' time of a hydrocarbon spill event and documented (refer to **Section 5.8.2**). In the event of a spill, the SMP activation (as per the WA-34-L Pyxis Drilling and Subsea Installation Oil Pollution First Strike Plan) directs the SMP team to follow the steps outlined in the SMP Operational Plan. The steps include: the review of availability and type of existing baseline data, with particular reference to any Pre-emptive Baseline Areas (PBAs) identified as >10 days to hydrocarbon contact as predicted by forecast modelling trajectories. 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 in order to collect baseline data at sensitive receptor locations with predicted hydrocarbon contact time >10 days (refer to **Section 5.8.2**) and the process 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 are the identified limits for implementing SMPs: • Waves <1 m for nearshore systems • Waves <1.5 m for offshore systems • Winds <20 knots • Daylight operations only 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

Table 5-16: Scientific monitoring response planning assumptions

Response Planning Assumptions	
PBAs	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: • PBAs for which baseline data are planned for and data collection may commence pre-PAP (≤ 10 days minimum time to contact), where identified as a gap.

	• 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. 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 the activity. The PBAs for PAP are identified and listed in ANNEX D, Table D-1. The listed PBAs, together with the situational awareness (provided by the operational monitoring) are the basis for the response phase SMP planning and implementation.
Pre-Spill	Activity: WA-34-L Pyxis Drilling and Subsea Installation A review of existing baseline data for receptor locations (refer to Annex D, Table D-1) with potential to be contacted by surface, dissolved or entrained hydrocarbons at environmental thresholds ≤10 days, relating to the worse case credible scenario hydrocarbon release for the activity has identified the following: • Commonwealth marine environment – offshore open ocean • Montebello State Marine Park • Barrow, Montebello and Lowendal Island Groups • Ningaloo Coast [12] • Muiron Islands [13] • Rankin Bank • Southern Pilbara Island Group Refer to ANNEX D, Table D-2 – baseline data available. Australian Marine Parks (AMPs) potentially affected includes: • Montebello AMP • Ningaloo AMP All the Australian Marine Parks (AMPs) are located in offshore waters where hydrocarbon exposure is possible from floating hydrocarbons (on surface waters) and in the upper water column (0-20 m depth range, approximately).
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 of receptor locations is presented in Annex D, based on the PAP worse-case credible spill scenarios (CS-01 and CS-02) (Table 2-1). To address the initial focus in a response phase SMP planning situation, receptor locations predicted to be contacted between >10 days have been identified as follows: • Glomar Shoal Refer to ANNEX D, Table D-2 – baseline data available. Australian Marine Parks (AMPs) potentially affected includes: • Argo-Rowley Terrace AMP • Gascoyne AMP • Shark Bay AMP

[12] Ningaloo Coast includes the WHA, State Marine Park
[13] Muiron Islands includes the WHA and State Marine Management Area

	The unfolding spill affected area predictions and confirmation of appropriate baseline data will determine the selection of receptor locations and SMPs to be activated in order to gather pre-emptive (pre-hydrocarbon contact) data. Refer to ANNEX C for further details on the process for 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. In the event key receptors within geographic locations potentially impacted after 10 days (following a spill event or commencement of the spill), a response phase SMP effort to collect baseline data would be addressed. SMP planning would assess where adequate and appropriate baseline data are not available and a response phase effort to collect baseline data for the following purposes: • 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). With reference to the WA-34-L Pyxis Drilling and Subsea Installation, priority would be focused on the Ningaloo Coast, south of the predicted minimum time to contact locations. • Highly sensitive and/or valued habitats and communities in coastal waters will be prioritised for pre-emptive baseline surveys over open water areas of AMPs. • Collection of 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 (PAP) worse case credible spill scenarios CS-01 and CS-02 is presented in WA-34-L Pyxis Drilling and Subsea Installation EP (Section 7). • The key receptors at risk by location and corresponding SMPs based on the EMBA for the PAP are presented in ANNEX D, Table D-1, as per the worst case credible spill event scenarios. This matrix maps the receptors at risk with their location and the applicable SMPs that may be triggered in the event of a Level two or three 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. • The status of baseline studies relevant to the PAP are tracked by Woodside through the maintenance of a SMP Environmental Baseline Database (managed by the Woodside Environmental Science team), as well as accessing external databases such as the Department of Water and Environmental Regulation (WA) Index of Marine Surveys for Assessment (IMSA)[1] (refer to ANNEX C).

5.8.3 Summary – scientific monitoring

The resulting scientific monitoring capability has been assessed against the PAP worst case credible spill scenarios, CS-01 and CS-02. The SMP assessment provides for a range of strategies and an ongoing approach to monitoring the response and 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 Standby SMP contractor have been

[1] https://biocollect.ala.org.au/imsa#max%3D20%26sort%3DdateCreatedSort

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 Plan.

Scope of SMP Operations in the event of a hydrocarbon spill

Receptor locations of interest for the SMP during the response phase are:

- Montebello AMP
- Barrow, Montebello and Lowendal Island groups (including State Marine Parks and management areas)
- Ningaloo Coast
- Muiron Islands
- Rankin Bank
- Glomar Shoal

Documented baseline studies are available for certain sensitive receptor locations including the Montebello AMP, Rankin Bank and Glomar Shoal, Ningaloo Coast and Muiron Islands (ANNEX D, Table D-2). The SMP approach in the response phase would still deploy SMP teams to maximise the opportunity to collect pre-emptive baseline data at sensitive receptor locations, i.e., the sections of the Ningaloo Coast not immediately contacted to hydrocarbons. As 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 option analysis in **Section 6.8** considers ways to reduce the gap by considering alternate, additional, and/or improved control measures on each selected response strategy.

5.8.5 Environmental performance based on need

Table 5-17: Environment Performance – 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 Environmental Science Team and additional Environment Advisers within the HSE 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 • Training attendance registers • 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 has a contracted SMP service provider to supply scientific personnel and equipment to implement the SMPs. The service will resource a base capability of one team per SMP (SM01-SM10), see Table C-2, ANNEX C and as detailed in Woodside's SMP standby contractor Implementation Plan. The availability of relevant personnel is reported to Woodside on a monthly basis via a simple report on the base-loading availability of suitable people for each of the SMPs comprising field work for data collection (SMP resourcing report register). • In the event of a spill and the SMP is activated, the base-loading availability of scientific personnel will be provided by the SMP standby contractor for the individual SMPs and where gaps in resources are identified, the SMP standby contractor and 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): • Personnel are sourced through the existing standby contract with SMP standby contractor, as detailed within the SMP Implementation Plan. • Scientific Monitoring Program Implementation Plan describes the process for standing up and implementing the scientific monitoring programs. • SMP team stand up personnel receive training regarding the stand up, activation	• Hydrocarbon Spill Preparedness (HSP) Internal Control Environment tracks the quarterly review of the Oil Spill Contracts. • SMP resource report of personnel availability provided by SMP contractor on monthly basis (SMP resourcing report register). • Training materials • Training attendance registers

			and implementation of the SMP on an annual basis	• Competency criteria for SMP roles • 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 response. • SMP Team structure, interface with SMP standby contractor (standby SMP contractor) and linkage to the CIMT is presented in Figure C-1, ANNEX C • Woodside has a defined Command, Control and Coordination structure for Incident and Emergency Management that is based on the AIIMS framework utilised in Australia. • 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. • SMP activated via the First Strike Plan (FSP) • Step by step process to activation of individual SMPs provided in the SMP Operational Plan • All decisions made regarding SMP logged in the online IMIS (SMP team members trained in using Woodside's online Incident Management System) • 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 • Woodside Environmental 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. • Woodside Environmental Science Team provide awareness training on the activation and stand-up of the Scientific	26.1	• Woodside has established an SMP organisational structure and processes to stand up and deliver the SMP.	• SMP Oil Spill Scientific Monitoring Operational Plan • SMP Implementation Plan • SMP annual arrangement testing and reporting

	Monitoring Programme (SMP) for the SMP standby contractor. • Woodside Environmental Science Team co-ordinates an annual SMP arrangement testing exercise which the SMP standby contractor.			
27	• Chartered and mutual aid vessels. • 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. • 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). • 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. • 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 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 company and one analytical laboratory (SMP resourcing report register). • 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	27.1	Woodside maintains standby SMP capability to mobilise equipment required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08): • Equipment is sourced through the existing standby contract with SMP standby contractor as detailed within the SMP Implementation Plan.	• HSP Internal Control Environment tracks the quarterly review of the Oil Spill Contracts • SMP standby monthly resource reports of equipment availability provided by SMP contractor (SMP resourcing report register). • SMP annual arrangement testing and reporting

	support meeting the response objective of 'to acquire, where practicable, the environmental baseline data prior to hydrocarbon contact required to support the post-response SMP'.			
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. Woodside maintains knowledge of Environmental Baseline data through: • Documentation annual reviews of the Woodside SMP Baseline Environmental Studies Database, and specific activity baseline gap analyses. • Accessing external databases such as the Department of Water and Environmental Regulation (WA) Index of Marine Surveys for Assessment (IMSA) (refer to ANNEX C: Oil Spill Scientific Monitoring Program).	28.1	• Annual reviews of environmental baseline data • PAP specific Pre-emptive Baseline Area baseline gap analysis	• Annual review/update of Woodside Baseline Environmental Studies Database • Desktop review to assess the environmental baseline study gaps completed prior to EP submission • Accessing baseline knowledge via the SMP annual arrangement testing

Environmental Performance Outcome		SMP plan to acquire response phase monitoring targeting pre-emptive data achieved.		
Control measure		**Performance Standard**		**Measurement Criteria**
29	Woodside's SMP approach addresses: • Scientific data acquisition for PBAs >10 days to hydrocarbon contact and activated in the response phase and • Transition into post-response SMP monitoring.	29.1	**Pre-emptive Baseline Area (PBA) baseline data acquisition in the response phase** 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. 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 • Woodside's online Incident Management System records • SMP component of the Incident Action Plan.
		29.2	**Post Spill contact** 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 • SMP Decision Log • Incident Action Plans (IAPs)

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. • SMP supporting documentation: (1) Oil Spill Scientific Monitoring Operational Plan; (2) SMP Implementation Plan and (3) SMP Process and Methodologies Guideline. • 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. • The SMP standby contractor holds a Woodside SMP implementation plan detailing 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** 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: • Documentation as per requirements of the SMP Operational Plan • Woodside's online Incident Management System Records. • SMP component of the IAP • SMP data records from field
		30.2	**Implementation of SM02-SM10** 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: • Documentation as per requirements of the SMP Operational Plan • Woodside's online Incident Management System Records. • SMP component of the IAP • SMP Data records from field

		30.3	**Termination of SMP plans** The Scientific Monitoring Program will be terminated in accordance with termination triggers for the SMPs 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: • 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 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 persons/ organisations and government agencies as required. Depending on the type and scale of the incident either the CIMT Duty Manager (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 ensure techniques to control the incident are appropriate to the situation at the time.

5.9.2 Operational NEBA process

In the event of a response Woodside will confirm the response techniques adopted at the time of EP/OPEP acceptance remain appropriate to reduce the consequences of the spill. This process verifies 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 OPEA. 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 ensure persons/ organisations are engaged 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 FSP). This includes notification to mariners to communicate navigational hazards introduced through response equipment and personnel.
- Identify and engage with relevant persons/ organisations and continually assess and review.

5.9.4 Environmental performance based on need

Table 5-18: 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 strategies 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.	
		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: • Woodside Crisis Management Functional Support Team Guideline – Reputation • External Communication and Continuous Disclosure Procedure • External Stakeholder Engagement Procedure	
33	Personnel required to support any response	33.1	Action planning is an ongoing process that involves continual review to ensure strategies to control the incident are appropriate to the situation at the time.	1, 3B
		33.2	A duty roster of trained and competent people will be maintained to ensure that minimum manning requirements are met all year round.	3C
		33.3	Immediately activate the IMT with personnel filling one or more of the following roles: • Operations Duty Manager • Operations Coordinator • Deputy Operations Coordinator • Planning Coordinator • Logistics (materials, aviation, marine and support positions) • Management Support • Health and Safety Advisor • Environment Duty Manage • People Coordinator • Public Information Coordinator • Intelligence Coordinator • Finance Coordinator.	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 IMT, develop an IAP and assist with the execution of that plan.	
		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.	

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)**
		33.7	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 Duty Manager.	1, 2, 3B, 3C, 4

5.10 Measurement criteria for all response techniques

Woodside ensures compliance with environmental performance outcomes and standards through four primary mechanisms. The performance tables aforementioned 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 & 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 & 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 IAP process formally documents and communicates the:

- incident objectives;
- status of assets;
- operational period objectives;
- response techniques (defined during response planning); and
- 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 Security & Emergency Management Competency Dashboard*

The Security & Emergency Management (S&EM) competency dashboard records the number of trained and competent responders available across Woodside, and some external providers, to participate in a response.

This number varies depending 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
- AMOSC core group
- AMOSC
- OSRL
- Marine Spill Response Corporation (MSRC)
- AMSA
- Woodside contracted workforce

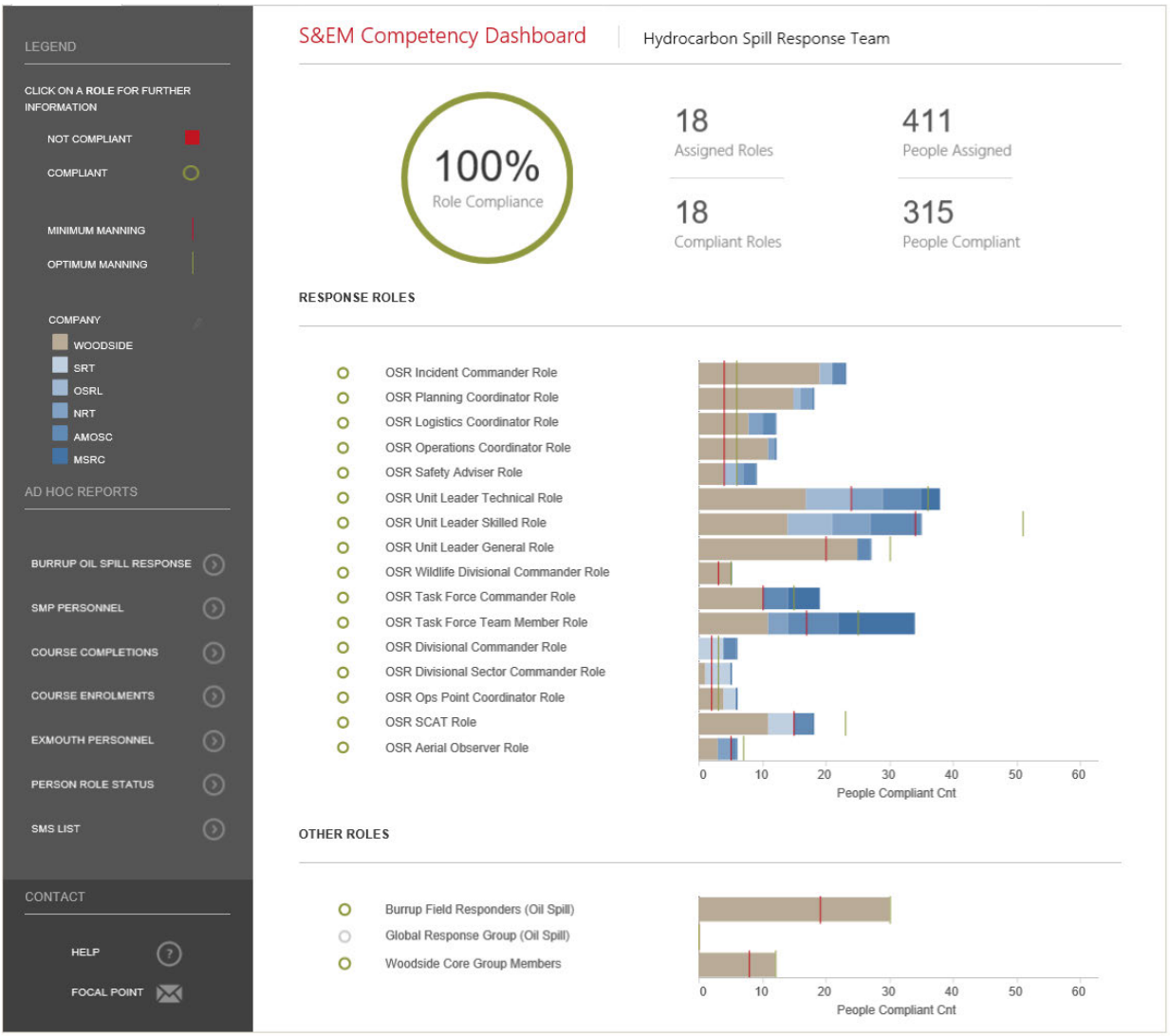

Figure 5-2: Example screen shot of the Hydrocarbon Spill Preparedness competency dashboard

The Dashboard is one of Woodside's key means of monitoring its readiness to respond. It also shows Woodside can meet the requirements of the environmental performance standard related to filling certain response roles.

Figure 5-3 shows deeper dive into the Operations Point Coordinator role and the training modules required to show competence.

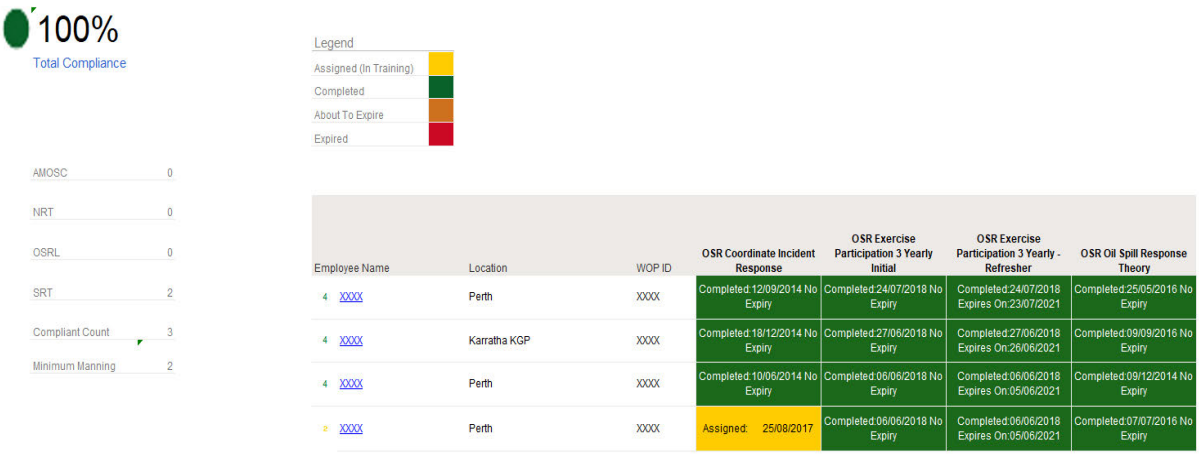

Figure 5-3: Example screen shot for the Operations Point Coordinator role

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** – Ensures all plans (including: OPEA, FSPs, operational plans, support plans and TRPs) are current and in line with regulatory and internal requirements.

b) **Competency** – Ensures 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 but not limited to: integrated fleet[14] vessel schedule, dispersant availability, rig/vessels monitoring, equipment stockpiles, tracking buoy locations and the CIMT duty roster.

d) **Compliance & Assurance** – Ensures all regulator inspection outcomes are actioned and closed out, the global legislation register is up to date and 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 to ensure ongoing compliance monitoring. The level of compliance can be reviewed in real time and is reported on a monthly basis 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 & 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. (Note, this procedure does not apply to scenarios relating to gas releases in the marine environment).

This procedure details the:

- Requirement for an 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; and
  - Maintaining access to identified equipment and personnel.
- Planning for hydrocarbon spill response preparedness
- Accountabilities for hydrocarbon spill response preparedness
- Spill training requirements

[14] 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

- 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.
- 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 Monitor and Evaluate – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5 with 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 clearly 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 Monitor and Evaluate – Control Measure Options Analysis

6.1.1.1 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**
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 approx. A$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 *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.	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 approx. A$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 Woodside owned stocks in King Bay Support Base (KBSB) and Exmouth or can be provided by service provider.	Cost for an additional satellite tracking buoy would be A$200 per day or A$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.	Woodside has access to a pool of trained, competent observers at strategic locations to ensure timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL.	Aviation standards and guidelines ensure all aircraft crews are competent for their roles. Woodside 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 ensure training and competency is maintained.	Cost for additional trained aerial observers would be A$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

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**
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 A$50,000 for 24hr access plus an initial A$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

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*					
Night time 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. 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. Shortening the timeframes for vessel availability would require dedicated response vessels on standby in KBSB. 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 approx. A$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. Dedicated equipment and personnel, living locally and on short notice to mobilise. The cost would be approx. A$1 m 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 initiated concurrently:

- direct ROV intervention on BOP or Xmas tree
- debris clearance and/or removal
- capping stack
- relief well drilling.

6.2.1 ROV Intervention

Following confirmation of an emergency event, Woodside would mobilise inspection class ROVs to assess the status of the wellhead. The ROV available on the MODU can be deployed for this purpose within 48 hours. Work class ROVs for well intervention are also available through the existing frame agreements and are available for deployment within seven days (Table 6-1). It is not expected any additional regulatory approvals would be required as inspection, maintenance and repair is within the scope of activities for the *Woodside Energy Ltd Well Construction Campaign (2023-2024) Safety Case* as well as the scope of activities for contracted Frame Agreement 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 PLA08 (days)
Source and mobilise vessel with work class ROV	2 days
Liaise with Regulator regarding risks and impacts*	4 days
Undertake ROV Inspection	1 day
TOTAL	**7 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 Safety Case considerations

Woodside has assessed against the NOPSEMA safety case guidance (NOPSEMA N-09000-GN1661), confirming 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 as a prerequisite to deployment of the capping stack. The AMOSC SFRT would be mobilised from Fremantle. The mobilisation of the SFRT would take place in parallel with mobilisation of the capping stack to ensure initial ROV surveys and debris clearance have commenced before the arrival of the capping stack. 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 Safety Case considerations

Woodside has assessed against the NOPSEMA safety case guidance (NOPSEMA N-09000-GN1661) and can confirm 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 Capping stack

The PLA08 Activity SCERP details the mobilisation and resource requirements for implementing this strategy. A capping stack is designed to be installed on a subsea well and provides a temporary means of sealing the well, until a permanent well kill can be performed through either a relief well or well re-entry.

In the event of a loss of well containment, the use of a subsea deployment method such as a heavy lift vessel, which is more commonly used in industry, is a more reliable and, in turn, ALARP approach. If environmental conditions permit (wind speed, wave height, current and plume radius), deployment of a capping stack with a heavy lift vessel with a 150 T crane capacity in shallower waters or 250 T crane in deeper waters could be feasible.

Woodside assumes sourcing conventional capping stack deployment vessels would be per the Activity SCERP. This plan has pre-identified vessel specifications for the capping stack deployment and Woodside monitors the availability and location of these vessels on a monthly basis. Woodside maintain several frame agreements with various vessel service providers and maintains the ability to call off services with a capping stack and debris clearance agreement. Consideration to mobilise the capping stack from the supplier on a suitable vessel but then hand over to another vessel to conduct the capping activity will also be made to meet response time frames.

A capping stack will be mobilised to site within 16 days. Woodside will monitor the conditions around the wellsite and deployment for well intervention attempt will be undertaken at the discretion of the vessel master on the day, giving due regard to the safety of the vessel and crew.

6.2.3.1 Safety Case considerations

Woodside has assessed against the NOPSEMA safety case guidance (NOPSEMA N-09000-GN1661) and can confirm vessels conducting capping stack are not classified as an “associated offshore place” but as a facility and therefore require the appropriate Safety Case arrangements in place.

The 16-day timeframe to mobilise the vessel is based on the following assumptions:

- existing frame agreement vessel, located outside the region with approved Australian Safety Case
- a safety case revision and scope of validation is required
- vessel meets the technical requirements for deploying capping stack as per the Source Control Emergency Response Planning Guideline
- vessel has an active heave compensated crane, rated to at least 150 T for shallow waters or 250 T in deeper waters and at least 90 m in length and a deck capacity to hold at least 110 T of capping stack.

Timeframes for capping stack deployment detailed in Figure 6-2 would be implemented concurrently with the actions required for the Safety Case revision development scenarios detailed in Figure 6-3 and Table 6-3. To reduce uncertainty in regulatory approval timeframe, Woodside is collaborating with The Drilling Industry Steering Committee (DISC) and a contracted ISV Vessel Operator to develop a generic Safety Case Revision that contemplates a capping stack deployment. This Safety Case Revision will be used to reduce uncertainty in permissioning timeframes in the event a capping stack deployment is required. Woodside will execute the capping stack response in the fastest possible timeframe, provided the required safety and metocean conditions allow. Woodside has considered a broad range of alternate, additional, and improved options as outlined later in Section 6.2.5.

6.2.4 Relief Well drilling

The options analysis detailed in this section considers options to source, contract and mobilise a MODU and ensure necessary regulatory approvals are in place to meet timelines for relief well drilling. The screening for relief well drilling MODUs is based on the following and the process used for PLA08 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 within 21 days.
- Alternate – source and contract a MODU through APPEA MOU operating within Australia with an approved Safety Case within 21 days.
- Contingency – Source and contract a MODU outside Australia with an approved Australian Safety Case.

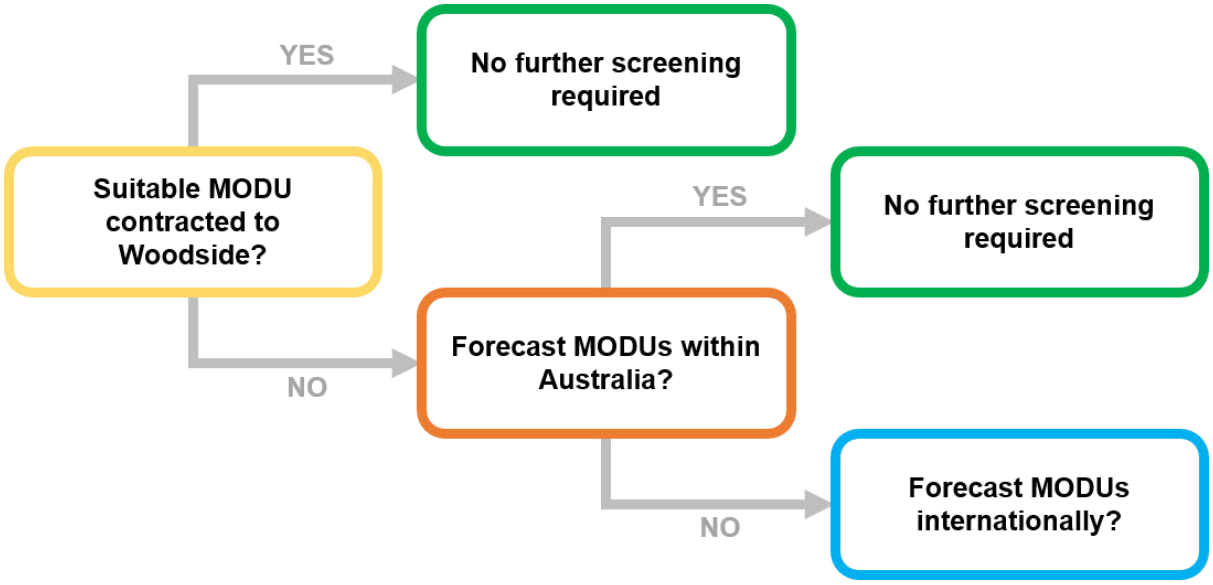

Figure 6-1: PLA08 process for sourcing relief well MODU

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 suitable relief well MODUs is undertaken and presented at a well design stage peer assessment and captured in the activity SCERP. The capability, location and Australian Safety Case status is assessed for each Woodside contracted MODU. In the event the Woodside contracted MODUs are unsuitable, screening is extended to all MODUs operating in Australian Waters. Though the APPEA 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 the 21-day period.

The internal and external availability of moored MODUs, plus MODU activities of registered operators and MODUs with approved safety cases, are tracked by Woodside on a monthly basis to ensure 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 APPEA 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 aforementioned lookahead timeframe would allow two years' warning of any potential gap. Woodside will execute relief well drilling in the fastest possible timeframe.

The detail of these arrangements demonstrates the risks have been reduced to ALARP and Acceptable levels through the control measures and performance standards outlined in Section 5.2.

6.2.4.1 Relief Well drilling timings

The duration of a blowout (from initiation to a successful kill) is assessed as 60.1 days for PLA08 PAP.

Details on the steps and time required to drill a relief well is shown in Table 6-2. DP and moored MODUs are suitable for the PLA08 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 APPEA 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	Moored Days	
Rig Mobilisation		
Secure and suspend well. Complete Relief well design. Secure relief well materials.	8.0	21 days
Transit to location based on mobilisation from within the region	2.0	
Backload and loadout bulks and equipment, complete internal assurance of relief well design.	2.0	
Contingency for unforeseen event	9.0	
Mooring activities and relief well construction operations	25.1	
Intersection & well kill comprising the following stages:		
Drill out shoe, conduct formation integrity test and drill towards intersection point	1.5	14 days
Execute well-specific ranging plan to accurately intersect wellbore in minimum timeframe	9.5	
Pump kill weight drilling fluid per the relief well plan. Confirm well is static with no further flow	0.5	
Contingency for unforeseen technical issues	2.5	
Total Discharge Duration	**60.1**	

The above timings assume a dynamically positioned MODU is not available.

Woodside has considered a broad range of alternate, additional, and improved options as outlined in Section 6.2.5.

Intersect and kill duration is estimated at 14 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 on the first attempt and thus will reduce the overall time to kill the well. During the Montara incident, it took five attempts to achieve a successful intersect.

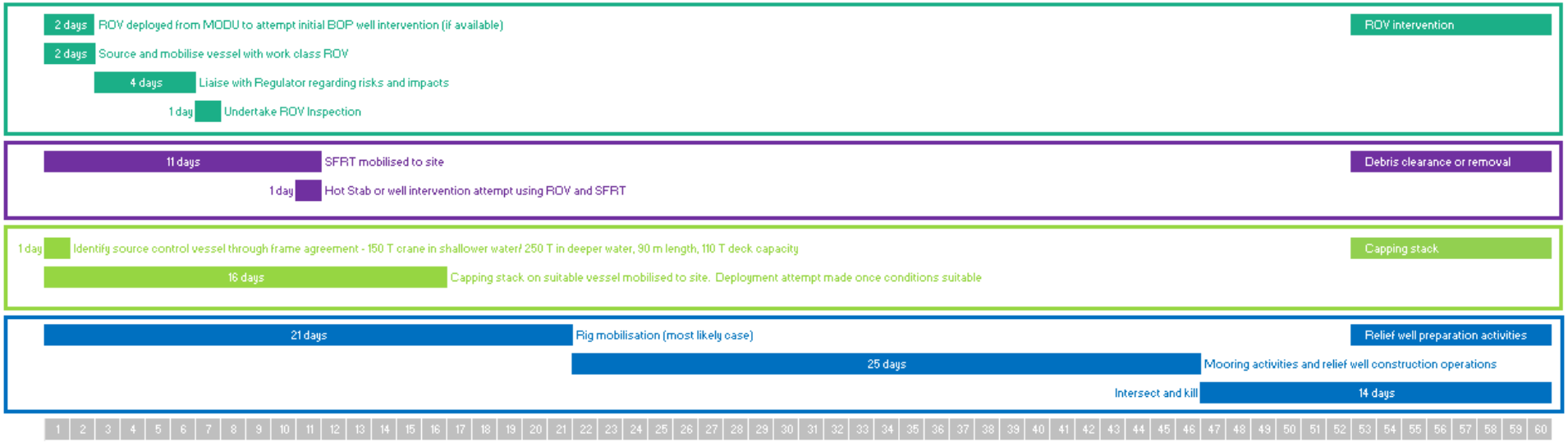

Figure 6-2: Source control and well intervention response strategy deployment timeframes for Pyxis (PLA08 well)

6.2.4.2 Safety Case considerations

Woodside recognises it will not be the Operator or holder of the Safety Case for the MODU and/or vessels involved in relief well activities. In the event a revision to the Operator's Safety Case is required for relief well drilling, Woodside has identified measures to ensure 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 on a monthly basis, 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 APPEA 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 the PLA08 Drilling and Subsea Installation, 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.

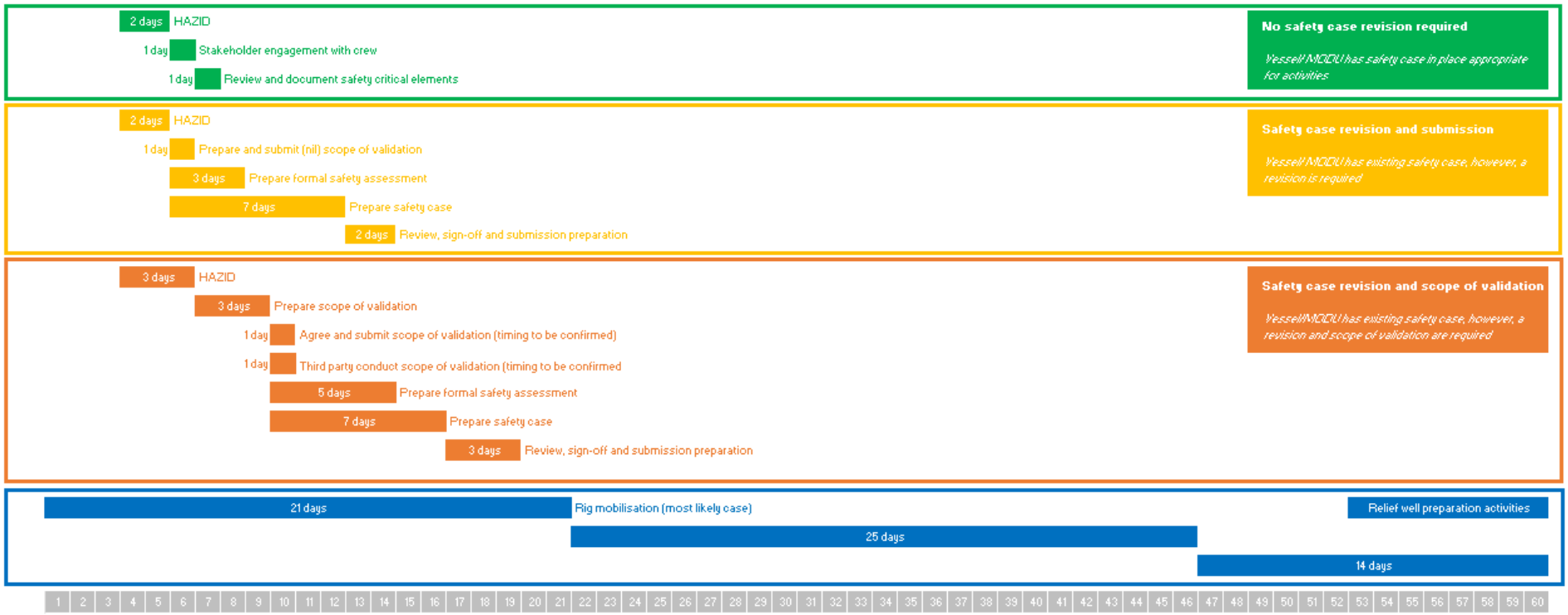

Figure 6-3: Timeline showing safety case revision timings alongside other relief well preparation activity timings for Pyxis (PLA08 well)

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.

6.2.5 Source Control – Control Measure Options Analysis

The assessments described in Sections 6.2.1, 6.2.2, 6.2.3 and 6.2.4 outline the primary and alternate approaches Woodside would implement for source control. In Sections 6.2.6 and 6.2.7, Woodside has outlined the options considered against the activation/mobilisation (alternative, additional and improved options) and deployment (additional and improved options) processes as described in Section 2.1.1. This assessment 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 with those that have been selected for implementation highlighted in green. Items highlighted in red have been considered and rejected on the basis they are not feasible, the costs are clearly 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.

6.2.6 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 clearly grossly disproportionate compared to the environmental benefit.

6.2.6.1 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	**Feasibility**	**Environmental benefits/impacts**	**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-day sourcing, contracting and mobilisation time by up to 10 days (to 11 days). This would reduce the volume and duration of release and may reduce impacts on receptors and sensitivities.	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 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$219 m per annum, A$1.95 b 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 Petroleum Activities Program are disproportionate to the environmental benefit gained above finding a MODU through the MOU agreement for all spill scenarios.	No
Standby MODU shared across APPEA MOU Titleholder	A standby MODU shared across all titleholders who are signatories to the APPEA MOU is likely to provide a minor environmental benefit as it may reduce the 21-day sourcing, contracting and mobilisation time by up to seven days (to 14 days). This would reduce the volume and duration of release and may reduce impacts on receptors and sensitivities.	This option is not considered feasible for a number of 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

6.2.6.2 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	**Feasibility**	**Environmental benefits/impacts**	**Approximate cost**	**Assessment conclusions**	**Implemented**
Implement and maintain minimum standards for Safety Case development	Woodside's contingency planning consideration would be to source a MODU from outside Australia with an existing Safety Case. This would require development and approval of a safety case revision for the MODU 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 it would provide.	Yes

6.2.6.3 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	**Feasibility**	**Environmental benefits/impacts**	**Approximate cost**	**Assessment conclusions**	**Implemented**

Monitor internal drilling programs for MODU availability	Woodside may be conducting other campaigns that overlap with the Petroleum Activities Program, potentially providing availability of a relief well drilling MODU within Woodside. The environmental benefit of monitoring other drilling programs internally is that Woodside would be in a position to understand which other MODUs might 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 MODUs and explore MODU 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 MODU availability	The environmental benefit achieved by monitoring drilling programs and MODU movements across industry provides the potential for increased availability of suitable MODUs for relief well drilling. Additional discussions with other Petroleum Titleholders may be undertaken to potentially gain faster access to a MODU and reduce the time taken to kill the well and therefore volume of hydrocarbons released.	Woodside will source a relief well drilling MODU in accordance with the APPEA MOU on MODU sharing in the unlikely event this is required. Commercial and operational provisions do not allow Woodside to discuss current and potential drilling programs in detail with other Petroleum 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 MODUs and explore MODU 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 MODUs	Woodside can monitor the status of Registered Operators for MODUs operating within Australia (and therefore safety case status) on a monthly basis. This allows for a prioritised selection of MODUs in the event of a response with priority given to those with an existing safety case.	The environmental benefit of monitoring other drilling programs internally is that Woodside would be in a position to understand which other MODUs might 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

6.2.7 Deployment – Control Measure Options Analysis

6.2.7.1 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**
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, deployment of an offset capping deployment in the water depths at the PLA08 well (820 m) is not deemed feasible – maximum safe water depths are stated by OSRL to be 600 m. The water depth, coupled with mobilisation lead times for both the cap and required vessels/ support equipment, makes this technique unfeasible.	Technical feasibility: • The base case considerations for OIE requires a coordinated response by 4 to 7 vessels working simultaneously outside of the 500m exclusion zone. • Water depth is also a key consideration as buoyancy modules have not been proven for use in these depths or with the expected worst-case gas blowout rates. Other factors: • 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. • Screening indicates 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. • The March 2019 OSRL exercise in Europe tested deployment of the OIE and highlighted it will require a 600+MT crane vessel for deployment to ensure there is useable hook height for the crane to conduct the lift of the carrier. Vessels with such capability and a current Australian vessel safety case are not locally or readily available.	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. 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 Pyxis location. 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. As such the primary source control response and ALARP position remains drilling a relief well.	No
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, 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. Furthermore, 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 60.1 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 >90 days which is longer than the expected 60.1 days for 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 approx. A$555,000 per day over the PAP based on 2-4 days of top-hole drilling (plus standby time) for the well as the worst-case scenario.	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 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 WWCI and Oceaneering	Woodside has an agreement in place with WWCI and Oceaneering to provide trained personnel in the event of an incident. This will ensure competent personnel are available in the shortest possible timeframe.	Having contracts in place to access trained, competent personnel in the event of an incident would reduce mobilisation times. This option is considered reasonably practicable.	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 disproportionate to any environmental benefit that might be realised.	Yes

6.2.7.2 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**
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 MODU.	The capital cost of Woodside purchasing relevant drilling supplies is expected to be approximately A$600,000 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

6.2.8 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 WWCI 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 with 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 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**	**Approx. Cost**	**Implemented**
No reasonably practical alternative control measures identified				N/A

6.3.2 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**	**Approx. Cost**	**Implemented**
No reasonably practical additional control measures identified				N/A

6.3.3 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**	**Approx. Cost**	**Implemented**
No reasonably practical improved control measures identified				N/A

6.3.4 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 & Deflection – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5 with 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 clearly 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, re-fuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.4.2 Response Planning: Pyxis (CS-01) loss of well containment – 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 deterministic modelling results provided from specific scenarios. The full list of RPAs predicted to be contacted by oil is 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 is at Barrow Island on 8.9 days (10 m^3) for CS-01. There is no shoreline impact predicted at threshold for CS-02. The existing capability is, therefore, considered sufficient to mobilise and deploy protection at RPAs prior to hydrocarbon accumulation, guided by predictive modelling, direct observation/ surveillance and remote sensing methods (OM01, OM02 and OM03) employed from the outset of a spill to track the oil and assess receptors at risk. This will then trigger the undertaking of pre-emptive assessments of sensitive receptors at risk (OM04) if required. OM04 would only be undertaken in liaison with WA DoT. Tactical response plans exist for many of the RPAs identified.

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.

Table 6-4: Response Planning – Shoreline Protection and Deflection

	Shoreline Protection & Deflection (SPD)	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
A	**Capability Required**													
A1	**RPAs impacted by maximum accumulated volume – PLA08 (CS-01)**	0	0	0	0	0	0	0	1	0	0	17	7	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	330
B2	**SPD operations available – per day (upper)**	1	2	3	4	6	8	10	84	84	84	336	336	336
C	**Capability Gap (operations per day)**													
C1	**SPD operations gap – per day (lower)**	0	0	0	0	0	0	0	0	0	0	0	0	0
C2	**SPD operations gap – per day (upper)**	0	0	0	0	0	0	0	0	0	0	0	0	0

A1 – the number of Response Protection Areas contacted at the maximum accumulated volume.
B1 and B2 – the upper and lower number of shoreline protection and deflection operations available (based on response planning assumptions in Section 5.3).
C1 and C2 – the gap between the upper and lower number of shoreline protection and deflection operations required in A1 compared to the operations available in B1 and B2

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 and additional TRPs drafted only when operational monitoring (OM02 and OM03) and modelling (OM01) indicate that contact could occur at RPA(s) within 14 days. The outputs from the monitoring will inform the need for and/or direct any additional response techniques and, additionally, if/when the spill enters State Waters and control of the incident passes to WA DoT.

6.4.3 Shoreline Protection and Deflection – Control Measure Options Analysis

6.4.3.1 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**
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. Furthermore, these options would conflict with the mutual aid philosophy being adopted under the selected delivery options. 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 approx. 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 *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. 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. Furthermore, these options would conflict with the mutual aid philosophy being adopted under the selected delivery options. 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 approx. A$455,000 per package.	This option is not adopted as the existing capability meets the need.	No
Additional trained personnel	The level of training and competency of the response personnel ensures 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 & Global Capability Surge Labour Requirement Plan*. Additional personnel sourced from contracted OSRO's (OSRL/AMOSC) to manage other responders.	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

		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.			

6.4.3.3 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/ mobilisation time	Given modelling does not predict floating or shoreline impacts at threshold until day 8.9 (CS-01) Woodside considers that there is sufficient time for deployment of protection and deflection operations prior to impact.	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. Additional equipment from existing stockpiles and oil spill response service providers can be on scene within days. Hydrocarbons are not predicted to accumulate at threshold until day 8.9 at Barrow Island (CS-01) therefore allowing enough time to re-locate existing equipment, personnel and other resources to the most appropriate areas.	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 with 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 clearly 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 existing level of capability is based on internal and third-party resources that are available 24 hours per day, 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, re-fuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.5.2 Response planning: PLA08 – 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.

Deterministic modelling scenarios indicate that first shoreline impact is at Barrow Island on day 8.9 (10 m^3) for CS-01. There is no shoreline impact predicted at threshold for CS-02. The largest volumes predicted to accumulate ashore are at Middle Pilbara – Islands and Shoreline (Great Sandy Island NR and Mary Anne Group) with approximately 72 m^3 predicted on day 43.1 (CS-01) and Dampier Archipelago and Enderby Island with approximately 67 m^3 predicted on day 41.7 (CS-01). The full list of RPAs predicted to be contacted by oil is detailed in **Table 3-1**.

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 lesser volumes, demonstration of capability against this need will ensure Woodside can meet requirements for any other outcome. Woodside is satisfied that the current capability is managing risks and impacts to ALARP.

In the event of a real spill, predictive modelling, direct observation/surveillance and remote sensing methods (OM01, OM02 and OM03) will be employed from the outset of a spill to track the oil real-time and assess receptors at risk of impact. This will then trigger the undertaking of pre-emptive assessments of sensitive receptors at risk (OM04) and shoreline assessments (OM05) to establish the extent and distribution of oiling and thus direct any shoreline clean-up operations. OM04 and OM05 would only be undertaken in liaison with WA DoT.

Due to the timeframe of predicted accumulation for 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. The most significant constraint is accommodation and transport of personnel in the Dampier region to undertake clean-up operations and to manage wastes generated during the response effort. From previous assessment of facilities in the Dampier region, Woodside estimates that current accommodation can cater for a range of 500-700 personnel per day.

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 6-5: 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	Month 5
	Oil on shoreline (from deterministic modelling) m^3														
	Shoreline accumulation (above 100 g/m^2) - m^3	0	0	0	0	0	0	0	10	0	0	314	86	0	0
	Oil remaining following response operations - m^3	0	0	0	0	0	0	0	0	4	0	0	126	0	1
A	**Capability Required (number of operations)**														
A1	**Shoreline clean-up operations required (lower)**	0	0	0	0	0	0	0	1	0	0	31	21	0	3
A2	**Shoreline clean-up operations required (upper)**	0	0	0	0	0	0	0	1	1	0	63	42	0	5
B	**Capability Available (number of operations)**														
B1	**Shoreline clean-up operations available - Stage 2 - Manual (lower)**	0	1	3	5	8	12	15	105	105	105	560	560	560	560
B2	**Shoreline clean-up operations available - Stage 2 - Manual (upper)**	0	2	5	8	10	15	20	140	140	140	560	560	560	560
C	**Capability Gap**														
C1	**Shoreline clean-up operations gap (lower)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C2	**Shoreline clean-up operations gap (upper)**	0	0	0	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 *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 *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 ensures the shoreline clean-up 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 & Global Capability Surge Labour Requirement Plan*. Additional personnel sourced from contracted OSROs (OSRL/AMOSC) to manage other responders 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. This will ensure there is no 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. Personnel on site will include members with the appropriate specialties to ensure an efficient shoreline clean-up. 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 *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	Given modelling does not predict floating or shoreline impacts at threshold until day 8.9 (CS-01) Woodside considers that there is sufficient time for deployment of clean-up operations prior to impact.	Response teams, trained personnel, contracted oil spill response service providers, government agencies and the associated mitigation equipment required to enact an initial protection	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

		and deflection response will be available for mobilisation within 24-48 hrs of activation. Additional equipment from existing stockpiles and oil spill response service providers can be on scene within days. Hydrocarbons are not predicted to accumulate at threshold until day 8.9 at Barrow Island (CS-01) therefore allowing enough time to re-locate existing equipment, personnel and other resources to the most appropriate areas.			

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 Oiled Wildlife Response – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5 with 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 clearly 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 exiting level of capability is based on internal and third-party resources that are available 24 hours per day, 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 Oiled Wildlife Response – Control Measure Options Analysis

6.6.2.1 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**
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 *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 ensure that these resources can 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. Provides response equipment and personnel by Day 3. The additional cost in having a dedicated oiled wildlife response (equipment and personnel) in place is disproportionate to environmental benefit. 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. Current capability meets the needs required and there is no additional environmental benefit in adopting the improvements.	Although hydrocarbon contact above wildlife response threshold concentrations (>10 g/m^2) with offshore waters is expected from day one (CS-01), given the low likelihood of such an event occurring and that the current capability meets the need, the cost of implementing measures to reduce the mobilisation time is considered disproportionate to the benefit. Additionally, the remote offshore location of the release site, with an earliest impact on day 12, provides sufficient opportunity for the ongoing monitoring and surveillance operations to inform the scale of the response. Numbers of oiled wildlife are expected to be low in the remote offshore setting of the oiled wildlife response, given the distance from known aggregation areas. Oiled wildlife response capacity would be addressed for open Commonwealth waters through the AMOSC arrangements, as informed by operational monitoring. 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 in the remote offshore setting of the oiled wildlife response, given the distance from known aggregation areas. The potential environmental benefit of training additional personnel is expected to be low.	Current numbers meet the needs required and additional personnel are available through existing contracts with oil spill response organisations and environmental panel contractors.	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 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 *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 first shoreline contact. 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. 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 as outlined above, 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 with 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 clearly 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 per day, 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/restocking 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 Veolia's storage options provides the resources required to store and transport sufficient waste to meet the need. Access to waste contractors 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 OSRL. Existing arrangements meet identified need for the PAP.	Cost for increased waste disposal capability would be approx. A$1,300 per m^3. Cost for increased onshore temporary waste storage capability would be approx. A$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 Veolia waste 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. Bulk transport to Veolia's licensed waste management facilities would be undertaken via controlled-waste-licensed vehicles and in accordance with Environmental Protection (Controlled Waste) Regulations 2004. 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. 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.	Woodside already maintains an equipment stockpile in Exmouth to enable shorter response times to incidents. This stockpile includes temporary waste storage equipment. Woodside has access to stockpiles of waste storage and equipment in Dampier and Exmouth 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

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 5.8** with 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 clearly 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, re-fuelling/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 facilities in Karratha 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 of an unplanned	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. • Woodside rely on existing environmental baseline for receptors which have predicted	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**

hydrocarbon release		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. • Ensure there is appropriate baseline for key receptors for all geographic locations that are potentially impacted <10 days of spill event. • Address resourcing needs to collect pre-emptive baseline as spill expands in the event of a spill from the PAP activities. • 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 *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 6-6**.

Table 6-6: Scientific monitoring program operational plan actions

Responsibility	Action
Activation	
CIMT Planning (CIMT Planning – Environment Unit)	Mobilises SMP Lead/Manager and SMP Coordinator to the CIMT Planning function.
CIMT Planning (CIMT Planning – Environment Unit) (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. Review baseline data for receptors at risk.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager and SMP Coordinator)	SMP co-ordinator stands up SMP Standby contractor. Stands up subject matter experts, if required.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP Standby contractor)	Establish if, and where, pre-contact baseline data acquisition is required. Determines practicable baseline acquisition program based on predicted timescales to contact and anticipated SMP mobilisation times. Determines scope for preliminary post-contact surveys during the Response Phase. Determines which SMP activities are required at each location based on the identified receptor sensitivities.
CIMT Planning (CIMT Planning – Environment Unit) (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 IMT.
CIMT Planning (CIMT Planning – Environment Unit) (SMP Lead/Manager, SMP Coordinator, SMP Standby contractor)	SMP standby contractor, to prepare the Field Implementation Plan. Prepare and obtain sign-off of the Response Phase SMP work plan and Field Implementation Plan. Update the IAP.
CIMT Planning (CIMT Planning – Environment Unit) (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. Engage with SMP standby contractor, SMP Manager and CIMT Logistics to establish mobilisation plan, secure logistics resources and establish ongoing logistical support operations, including: • Vessels, vehicles and other logistics resources • Vessel fit-out specifications (as • Detailed in the Scientific Monitoring Program Operational Plan

Responsibility	Action
	• Equipment storage and pick-up locations • Personnel pick-up/airport departure locations • Ports of departure • Land based operational centres and forward operations bases, Accommodation and food requirements.
CIMT Planning (CIMT Planning – Environment Unit) (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 Jacob's SMP Manager. 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		All known reasonably practicable control measures have been adopted
	X	Determine baseline data needs and activate SMPs for any identified PBAs in the event of an unplanned hydrocarbon release
		No reasonably practical additional, alternative, and/or improved control measure exists
	The resulting scientific monitoring capability has been assessed against the worse case credible spill scenarios (CS-01 and CS-02). The range of SMP strategies 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 considered Medium. The SMP's main objectives can be met.	
Acceptability Summary	• The control measures selected for implementation manage the potential impacts and risks to ALARP. • 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. • Throughout the PAP, relevant Australian standards and codes of practice will be followed to evaluate the impacts from a loss of marine diesel due to vessel collision. • 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 the worse case credible case scenario, and uncertainty has not been used as a reason for postponing control measures.	
On the basis of 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.

Additional impacts and risks associated with the control measures not included within the scope of the EP include:

- drill cuttings and drilling fluids environmental impact assessment for relief well drilling
- disturbance to seabed
- vessel operations and anchoring
- presence of personnel on the shoreline
- vegetation cutting
- additional stress or injury caused to wildlife
- waste generation.

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 & groundwater	Marine sediment quality	Water quality	Air quality	Ecosystems/ habitat	Species	Socio-economic
Monitor and evaluate		✓	✓		✓	✓	
Source control		✓	✓	✓	✓	✓	✓
Shoreline protection and deflection	✓	✓	✓		✓	✓	✓
Shoreline clean-up	✓	✓	✓		✓	✓	✓
Oiled wildlife response					✓	✓	
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).

A number of 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
- 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 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) (i.e. 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 in close proximity to 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 EP. Modelling results indicating 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 water based muds (WBM) and non-water based muds (NWBMs), there being no bulk discharges of NWBM and the highly localised nature and scale of predicted physical impacts to seabed biota, indicate any localised impact would likely be of a slight magnitude (especially when considering the broader consequence of the loss of well containment event a relief well drilling activity would be responding to).

Disturbance to seabed

If relief well drilling is required via moored MODU, seabed disturbance will result from the MODU anchor mooring system and anchor hold testing, including placement of anchors and chain/wire on the seabed, potential dragging during tensioning, and recovery of anchors. Mooring may require an 8 to 12-point pre-laid mooring system at the well location, depending on the time of year. Suction piling may be required for installing the anchors.

Although the exact anchoring configurations are currently unknown, a semi-submersible MODU with an 8 to 12-point anchoring system could disturb up to 0.013 km^2 for one well (13,000 m^2), allowing for anchor footprint and disturbance from anchor chains (NERA, 2018).

Relief well drilling activities may result in intermittent or discontinuous direct physical or mechanical disturbance to the seabed up to an approximate 100 m radial distance around the well location due to the installation of the BOP and conductor.

Vessel operations and anchoring

During the implementation of response techniques, where water depths allow, it is possible response vessels will be required to anchor (e.g. during shoreline 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 personnel may have minimal, localised impacts on habitats, wildlife and coastlines. The impacts associated with human presence on shorelines during shoreline surveys and response operations may include:

- damage to vegetation/habitat, especially in sensitive locations such as mangroves and turtle nesting beaches, 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)
- excessive removal of substrate causing erosion and instability of localised areas of the shoreline
- compaction of sediments.

Any impacts are expected to be localised with full recovery expected.

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 ensure that further injury and the removal of water proofing feathers are managed and mitigated. Finally, during the release phase it's important that wildlife is not released back into a contaminated environment.

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), recovered from shoreline clean-up operations
- semi-solids/solids (oily solids), collected during shoreline clean-up operations
- debris (e.g. seaweed, sand, woods, plastics), collected during shoreline clean-up operations and oiled wildlife response.

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 prior to impact could minimise the amount of contaminated organic material and thus reduce the amount of oiled/hazardous waste to be handled. However, removal of vegetation also allows more extensive penetration of oil into the substrate and may lead to habitat loss. Any impacts are expected to be localised with full recovery expected.

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 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, TRPs, and/or the FSP.

Disturbance to seabed

- Seabed disturbance from MODU mooring limited to that required to ensure adequate MODU station-holding capacity (Performance Standard (PS) 12.1).

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 15.1, PS 18.1).
- Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines (PS 15.2, PS 18.2).

Presence of personnel on the shoreline

- Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves (PS 18.3).
- Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations (PS 18.4).
- Oversight by trained personnel who are aware of the risks (PS 18.6).
- Trained unit leaders brief personnel prior to operations of the environmental risks of presence of personnel on the shoreline (PS 18.7).

Additional stress or injury caused to wildlife

- Vessels used in hazing/pre-emptive capture will approach wildlife at slow speeds to ensure animals are not directed towards the hydrocarbons (PS 22.1).
- Oiled wildlife operations (including hazing) would be implemented with advice and assistance from the Oiled Wildlife Advisor from the DBCA and in accordance with the processes and methodologies described in the WA OWRP and the relevant regional plan (PS 22.2).

Waste generation

- All shorelines 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 16.5).
- Removal of vegetation will be limited to moderately or heavily oiled vegetation (PS 18.5).

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 has been determined to be clearly 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:
    - 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 scenarios 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 considers the hydrocarbon spill risks and impacts to have been reduced to an acceptable level by meeting all of 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 (external persons/ organisations) and 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. International Convention for the Prevention of Pollution from Ships (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 & 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 is capable of performing 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 in order 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.
Major Environment Event	The events with potential environment, reputation, social or cultural consequences of category C or higher (as per Woodside's operational risk matrix) which are evaluated against credible worst-case scenarios which may occur when all controls are absent or have failed.
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. A statement of the key requirements (indicators) that the control measure has to achieve in order to perform as intended in relation to its functionality, availability, reliability, survivability and dependencies.
Preparedness	Measures taken before an incident in order 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. (Judgement: 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.

Term	Description / Definition
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.
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 OPEA 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 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.
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
AIIMS	Australasian Inter-Service Incident Management System
AHV	Anchor Handling Vessel
ALARP	As low as reasonably practicable
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
APASA	Asia Pacific Applied Science Associates
APPEA	Australian Petroleum Production and Exploration Association
AUV	Autonomous Underwater Vehicle
BAOAC	Bonn Agreement Oil Appearance Code
BOP	Blowout Preventer
CEDRE	Centre for Documentation, Research and Experimentation on Accidental Water Pollution
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (US)
CFD	Computational Fluid Dynamic
CIMT	Corporate Incident Management Team
CMT	Crisis Management Team
cSt	Centistokes
DBCA	Western Australia Department of Biodiversity, Conservation and Attractions (former Western Australian Department of Parks and Wildlife)
DM	Duty Manager
DOR	Dispersant to Oil Ratio
EMBA	Environment that May Be Affected
EMSA	European Maritime Safety Agency
Environment Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
EP	Environment Plan
EPBC Act	Environment Protection and Biodiversity Conservation Act 1999
ESI	Environmental Sensitivity Index
ESD	Environmentally Sustainable Development
ESP	Environmental Services Panel
FPSO	Floating Production Storage Offloading
FSP	First Strike Plan
FWADC	Fixed Wing Aerial Dispersant Contract
GDS	Global Dispersant Stockpile (service from OSRL)
GIS	Geographic Information System
GRN	Global Response Network

Abbreviation	Meaning
HAZID	Hazard Identification
HSEQ	Health Safety Environment and Quality
IAP	Incident Action Plan
ICE	Incident Control Environment
IGEM	Industry-Government Environmental Meta-database
IMS	Incident Management System
IMSA	Index of Marine Surveys for Assessment
IMT	Incident Management Team
IOGP	International Association of Oil and Gas Producers
IPIECA	International Petroleum Industry Environment Conservation Association
ISV	Infield support vessel
IT	Information Technology
ITOPF	International Tanker Owners Pollution Federation
IUCN	International Union for Conservation of Nature
KBSF	King Bay Support Facility
LEL	Lower Explosive Limit
LOWC	Loss of Well Containment
MARPOL	International Convention for the Prevention of Pollution from Ships
MMA	Marine Management Area
MODU	Mobile Offshore Drilling Unit
MOU	Memorandum of Understanding
MSRC	Marine Spill Response Corporation
NATA	National Association of Testing Authorities (Australia)
NEBA	Net Environmental Benefit Analysis
NOAA	National Oceanic and Atmospheric Administration
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NRDA	Natural Resource Damage Assessment
NWBM	Non-Water Based Muds
OIE	Offset Installation Equipment
OILMAP	Oil Spill Model and Response System
OM	Operational Monitoring
OPEA	Oil Pollution Emergency Arrangements
OPEP	Oil Pollution Emergency Plan
OPGGS(E)	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
OSCA	Oil Spill Cleaning Agent (registered for use within the National Plan)
OSPRMA	Oil Spill Preparedness and Response Mitigation Assessment

Abbreviation	Meaning
OSRL	Oil Spill Response Limited
OSRO	Oil Spill Response Organisation
OSTM	Oil Spill Trajectory Modelling
OWRP	Oiled Wildlife Response Plan
OWROP	Regional Oiled Wildlife Response Operational Plan
PAP	Petroleum Activities Program
PBA	Pre-emptive Baseline Areas
PPB	Parts per billion
PPM	Parts per million
PS	Performance Standard
QA/QC	Quality Assurance/ Quality Control
ROV	Remotely Operated Vehicle(s)
RPA	Response Protection Area
S&EM	Security & Emergency Management
SCAT	Shoreline Clean-up Assessment Technique
SDA	Surface Dispersant Application
SFRT	Subsea First Response Toolkit
SHP-MEE	State Hazard Plan - Maritime Environmental Emergencies
SIMA	Spill Impact Mitigation Assessment
SIMAP	Integrated Oil Spill Impact Model System
SIMOPs	Simultaneous Operations
SM	Scientific Monitoring
SME	Subject Matter Expert
SMP	Scientific Monitoring Program
SOPEP	Shipboard Oil Pollution Emergency Plan
SPD	Shoreline Protection and Deflection
SSDI	Subsea Dispersant Injection
TRP	Tactical Response Plan
TRSV	Tubing Retrievable Safety Valve
TSS	Total Suspended Solids
UAS	Unmanned Aerial Systems
UAV	Unmanned Aerial Vehicles
VOC	Volatile Organic Compound
WA DoT	Western Australia Department of Transport
WBM	Water Based Muds
WCCS	Worst Case Credible Scenario
WHA	World Heritage Area

Abbreviation	Meaning
WiRCS	Woodside Integrated Risk & Compliance System
Woodside	Woodside Energy Limited
WWCI	Wild Well Control Inc
ZoA	Zone of Application

ANNEX A: NET ENVIRONMENTAL BENEFIT ANALYSIS DETAILED OUTCOMES

Pre-operational NEBAs have 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 a loss of well containment of Pluto Condensate from the PLA08 well (CS-01) and a spill of marine diesel from a vessel collision (CS-02). The complete list of potential receptor locations within the EMBA within the PAP is included in Section 6 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. The Pyxis Drilling and Subsea Installation project preoperational NEBAs contains the full assessments.

Table A-1: NEBA assessment technique recommendations for Pyxis Drilling and Subsea Installation – LOWC (CS-01)

	Monitor and evaluate	Source control and well intervention	Source control (vessel)	Dispersant application: sub-sea	Dispersant application: > 20 m water depth and > 10 km from shore/reefs	Mechanical dispersion	In situ burning	Containment and recovery	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response
Open water*	Yes	Yes	N/A	No	No	No	No	No	No	No	No	No	Yes
Barrow Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Lowendal Islands	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Southern Pilbara – Islands (Thevenard Island and NR)	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Airlie Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Dampier Archipelago and Enderby Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Southern Pilbara – Shorelines (Ashburton)	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Direction Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Twin Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Goodwyn Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Kendrew Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Middle Pilbara – Islands and Shoreline (Great Sandy Island NR and Mary Anne Group)	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Rosemary Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Malus Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Mangrove Islands	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Passage Islands	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Keast Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Karratha	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Karratha-Port Hedland	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Hermite Island, Montebello Islands and	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes

Montebello Islands Marine Park													
North Sandy Island NR	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Northern Pilbara - Islands and Shoreline	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Cohen Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Legendre Island	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Angel and Gidley Islands	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
Montebello MP*	Yes	Yes	N/A	No	No	No	No	No	No	No	No	No	Yes

**Submerged or open water location*

Overall assessment

Sensitive receptor (sites identified in EP)	Monitor and evaluate	Source control and well intervention	Source control (vessel)	Dispersant application: sub-sea	Dispersant application: > 20 m water depth and > 10 km from shore/reefs	Mechanical dispersion	In situ burning	Containment and recovery	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response
Is this response Practicable?	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes
NEBA identifies response potentially of net environmental benefit?	Yes	Yes	N/A	No	No	No	No	No	Yes	Yes	Yes	No	Yes

Table A-2: NEBA assessment technique recommendations for Pyxis Drilling and Subsea Installation – MDO (CS-02)

Receptor	Monitor and evaluate	Source control and well intervention	Source control (vessel)	Dispersant application: sub-sea	Dispersant application: > 20 m water depth and > 10 km from shore/reefs	Mechanical dispersion	In situ burning	Containment and recovery	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response
Open water*	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Barrow Island	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Montebello Islands	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Montebello MP*	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Montebello State Marine Park	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Muiron Islands & MMA	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Ningaloo Coast North & WHA	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Ningaloo RUZ*	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Pilbara Islands - Southern Islands Group	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Rankin Bank*	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Lowendal Islands	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
Gascoyne MP*	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes

Submerged or open water location

Overall assessment

Sensitive receptor (sites identified in EP)	Monitor and evaluate	Source control and well intervention	Source control (vessel)	Dispersant application: sub-sea	Dispersant application: > 20 m water depth and > 10 km from shore/reefs	Mechanical dispersion	In situ burning	Containment and recovery	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response
Is this response Practicable?	Yes	N/A	Yes	N/A	No	No	No	No	No	No	No	No	Yes
NEBA identifies response potentially of net environmental benefit?	Yes	N/A	Yes	N/A	No	No	No	No	No	No	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	Potential duration of impact	Equivalent Woodside Corporate Risk Matrix Consequence Level
Positive	**3P**	**Major**	Likely to prevent: • behavioural impact to biological receptors • 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: • significant impact to a single phase of reproductive cycle of biological receptors • 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:
			• significant proportion of population or breeding stages of biological receptors
			• socio-economic receptors such as:
			  ○ significant impact to the sensitivity of protective designation; or
			  ○ 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: • behavioural impact to biological receptors • 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. **[Note 1]**	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: • significant impact to a single phase of reproductive cycle for biological receptors; or • 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:
			• significant proportion of population or breeding stages of biological receptors
			• socio-economic receptors resulting in either:
			  ○ significant impact to the sensitivity of protective designation; or
			  ○ 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))

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 1 (OM01) 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. The objectives of OM01 are to: • Provide forecasting of the movement and weathering of spilled hydrocarbons • Identify resources that are potentially at risk of contamination • 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 in order 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: • The hydrocarbon discharge has ceased and no further surface oil is visible • Response activities have ceased • 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 2 (OM02) 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. The objectives of OM02 are: • Verify spill modelling results and recalibrate spill trajectory models (OM01). • Understand the behaviour, weathering and fate of surface hydrocarbons. • Identify environmental receptors and locations at risk or contaminated by hydrocarbons. • Inform ongoing Net Environmental Benefit Analysis (NEBA) and continually assess the efficacy of available response options in order to reduce risks to ALARP. • 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: • 72 hours has elapsed since the last confirmed observation of surface hydrocarbons. • Latest hydrocarbon spill modelling results (OM01) do not predict surface exposures at visible levels.

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan 3 (OM03) 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. The specific objectives of OM03 are as follows: • Detect and monitor for the presence, quantity, properties, behaviour and weathering of surface, entrained and dissolved hydrocarbons. • Verify predictions made by OM01 and observations made by OM02 about the presence and extent of hydrocarbon contamination. 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: • The hydrocarbon release has ceased. • Response activities have ceased. • 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 4 (OM04) 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. 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. 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. OM04 would be undertaken in liaison with WA DoT as the control agency once the oil is in State Waters (if a Level 2/3 incident).	Triggers for commencing OM04 include: • Contact of a sensitive habitat or shoreline is predicted by OM01, OM02 and/or OM03. • 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: • Locations predicted to be contacted by hydrocarbons have been contacted. • 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 5 (OM05) 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. The primary objectives of OM05 are: • 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. Indirectly, the information collected by OM05 may also support the assessment of environmental impacts, as determined through subsequent SMPs. OM05 would be undertaken in liaison with WA DoT as the control agency once the oil is in State Waters (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: • No additional response or clean-up of wildlife or habitats is predicted. • Spill response and clean-up activities have ceased. OM05 survey sites established at sensitive habitat and shoreline locations will continue to be monitored during SM02. 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 Central 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). In the event that 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 activated the SMPs based on operational monitoring data provided by the Planning Function • Provides advice to the CIMT in relation to scientific monitoring • Provides technical advice regarding the implementation of scientific monitoring • Approves detailed sampling plans prepared for SMPs • 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 • Sits in the Planning function of the CIMT. • 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 • Manages the Environmental Service Provider's implementation of the SMPs • Liaises with the Environmental Service Provider on delivery of the SMPs • 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 • Provides costings, schedule and progress updates for delivery of SMPs • Determines the structure of the Environmental Service Provider's team to necessitate delivery of the SMPs • Verifies that HSE Plans, detailed sampling plans and other relevant deliverables are developed and implemented for delivery of the SMPs • Directs field teams to deliver SMPs • Arranges all contractual matters, on behalf of Environmental Service Provider, associated with the delivery of the SMPs to Woodside • Manages sub-consultant delivery to Woodside • 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. • Early communication of time, budget, HSE risks associated with delivery of the SMPs to the Environmental Service Provider – Project Manager • Provides start up, progress and termination updates to the Environmental Service Provider – Project Manager (will be led in-field by a party chief).

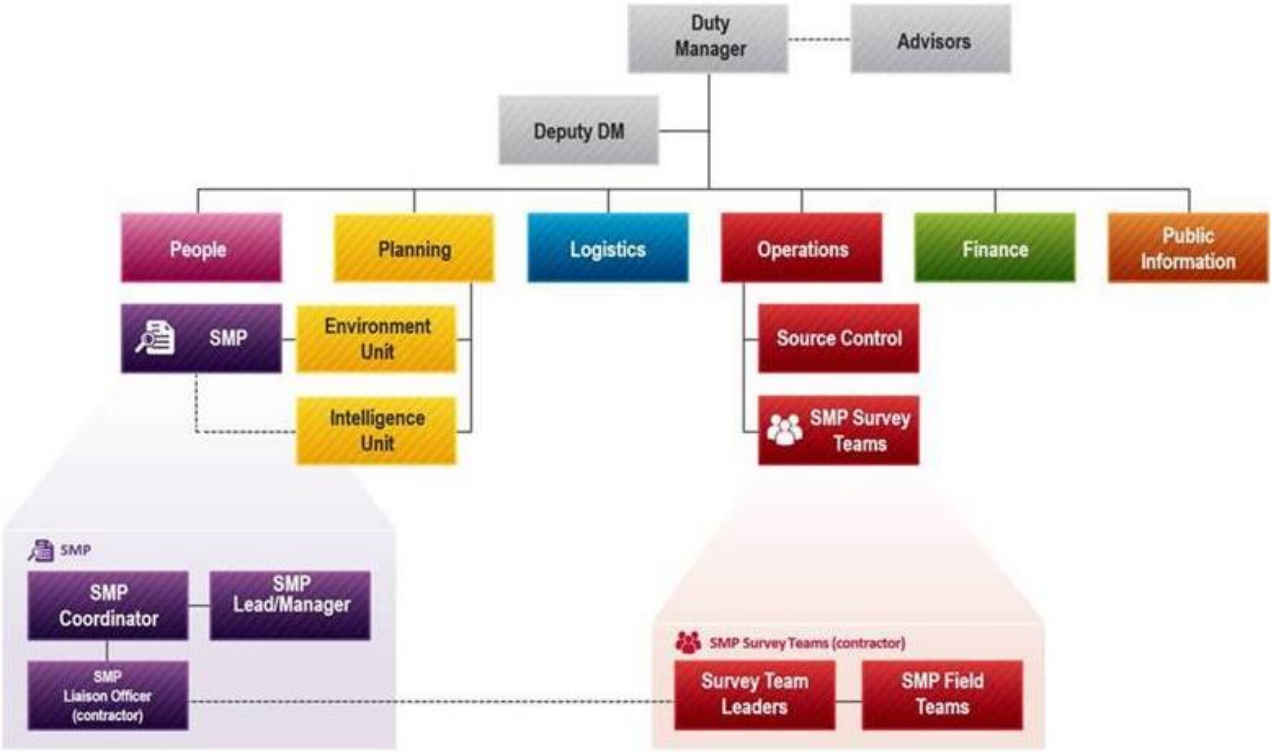

Figure C-1: Woodside Oil Spill Scientific Monitoring Program Delivery Team and Linkage to Corporate Incident Management Team (CIMT) organisational structure.

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) **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. The specific objectives of SM01 are as follows: • 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 • 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: • Operational monitoring data relating to observations and / or measurements of hydrocarbons on and in water have been compiled, analysed and reported; and • 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. SMP monitoring of sensitive receptor sites: • Concentrations of hydrocarbons in water samples are below NOPSEMA guidance note (2019[15]) concentrations of 1 g/m^2 for floating, 10 ppb for entrained and dissolved; and • 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) **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. The specific objectives of SM02 are as follows: • Determine the extent, severity and persistence of hydrocarbons in marine sediments across selected sites where hydrocarbons were observed or recorded during operational monitoring; and • 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: • Response activities have ceased; and • 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: • Concentrations of hydrocarbons in sediment samples are below ANZECC/ ARMCANZ (2013[16]) sediment quality guideline values (SQGVs) for biological disturbance; and • Details of the extent, severity and persistence of hydrocarbons from concentrations recorded in sediments have been documented.
Scientific monitoring program 3 (SM03) **Assessment of Impacts and Recovery of Subtidal and Intertidal Benthos**	The objectives of SM03 are: • 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 • Determine the impact of the hydrocarbon spill and subsequent recovery (including impacts associated with the implementation of response options). Categories of intertidal and subtidal habitats that may be monitored include: • Coral reefs • Seagrass • Macro-algae • Filter-feeders SM03 will be supported by sediment contamination records (SM02) and characteristics of the spill derived from OMPs.	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: • 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 • 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: • Overall impacts to benthic habitats from hydrocarbon exposure have been quantified. • Recovery of impacted benthic habitats has been evaluated. • 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 4 (SM04)	The objectives of SM04 are: • Characterize the status of mangroves (and associated salt marsh habitat) at shorelines exposed/contacted by spilled hydrocarbons;	SM04 will be activated in the event of a Level 2 or 3 hydrocarbon release, or any release event with the	SM04 will be terminated once pre-spill condition is reached and agreed upon as per the SMP

[15] NOPSEMA (2019) Bulletin #1 – Oil spill modelling – April 2019, https://www.nopsema.gov.au/assets/Bulletins/A652993.pdf
[16] 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
Assessment of Impacts and Recovery of Mangroves / Saltmarsh	• Quantify any impacts to species (abundance and density) and mangrove/saltmarsh community structure; and • Determine and monitor the impact of the hydrocarbon spill and potential subsequent recovery (including impacts associated with the implementation of response options). SM03 will be supported by sediment sampling undertaken in SM02 and characteristics of the spill derived from OMPs.	potential to contact sensitive environmental receptors and implemented as follows: • As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; and • 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.	termination criteria process and include consideration of: • Impacts to mangrove and saltmarsh habitat from hydrocarbon exposure have been quantified. • Recovery of impacted mangrove/saltmarsh habitat has been evaluated. • 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) **Assessment of Impacts and Recovery of Seabird and Shorebird Populations**	The Objectives of SM05 are to: • 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 • 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: • As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; • 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 • 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: • Impacts to seabird and shorebird populations from hydrocarbon exposure have been quantified. • Recovery of impacted seabird and shorebird populations has been evaluated. • 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) **Assessment of Impacts and Recovery of Nesting Marine Turtle Populations**	The objectives of SM06 are to: • To quantify impacts of hydrocarbon exposure or contact on marine turtle nesting populations (including impacts associated with the implementation of response options); • 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 • 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: • As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days; • 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 • 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: • Impacts to nesting marine turtle populations from hydrocarbon exposure have been quantified. • Recovery of impacted nesting marine turtle populations has been evaluated. • 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) **Assessment of Impacts to Pinniped Colonies including Haul-out Site Populations**	The objectives of SM07 are to: • Quantify impacts on pinniped colonies and haul-out sites as a result of hydrocarbon exposure/contact. • 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.	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 receptors and implemented if operational monitoring has: • As part of a pre-emptive assessment of receptor locations identified by time to hydrocarbon contact >10 days;	SM07 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: • Impacts to pinniped populations from hydrocarbon exposure have been quantified. • Recovery of pinniped populations has been evaluated.

Scientific monitoring Program (SMP)	Objectives	Activation Triggers	Termination Criteria
		• 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 • Records of dead, oiled or injured pinniped species made during the hydrocarbon spill or response.	• 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) **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: • Cetaceans; • Dugongs; • Whale sharks and other shark and ray populations; • Sea snakes; and • Crocodiles. 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. • 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) **Assessment of Impacts and Recovery of Marine Fish associated with SM03 habitats**	The objectives of SM09 are: • Characterise the status of resident fish populations associated with habitats monitored in SM03 exposed/contacted by spilled hydrocarbons; • Quantify any impacts to species (abundance, richness and density) and resident fish population structure (representative functional trophic groups); and • 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 SMO3.	SM09 will be undertaken and terminated concurrent with monitoring undertaken for SM03, as per the SMP termination criteria process • 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) **SM10 - 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: • Liver Detoxification Enzymes (ethoxyresorufin-O-deethylase (EROD) activity) • Polyaromatic Hydrocarbon (PAH) Biliary Metabolites • Oxidative DNA Damage • Serum Sorbitol Dehydrogenase (SDH) • 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. • Seafood tainting may be included (where appropriate) using applicable sensory tests to objectively assess targeted finfish and shellfish species for hydrocarbon contamination. Results will be used to make inferences on the health of commercial fisheries and the potential magnitude of impacts to fishing industries.	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: • The hydrocarbon spill will or has intersected with active commercial fisheries or aquaculture activities. • Commercially targeted finfish and/or shellfish mortality has been observed/recorded. • Commercial fishing or aquaculture areas have been exposed to hydrocarbons (≥0.5 g/m² surface and ≥5 ppb for entrained/dissolved hydrocarbons); and • Taste, odour or appearance of seafood presenting a potential human health risk is observed.	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: • Physiological impacts to important commercial fish and shellfish species from hydrocarbon exposure have been quantified. • Recovery of important commercial fish and shellfish species from hydrocarbon exposure has been evaluated. • 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. • 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 hydrocarbon spill (actual or suspected) Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors via the FSRP for the PAP. 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 ensure the full range of eventualities relating to the environmental, socio-economic and health consequences of the spill are considered 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 Environment Protection and Biodiversity Conservation (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 on a daily basis 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 a number of 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 of relevant persons/ organisations, planning and engagement 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 objections from relevant persons/ organisations. 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).

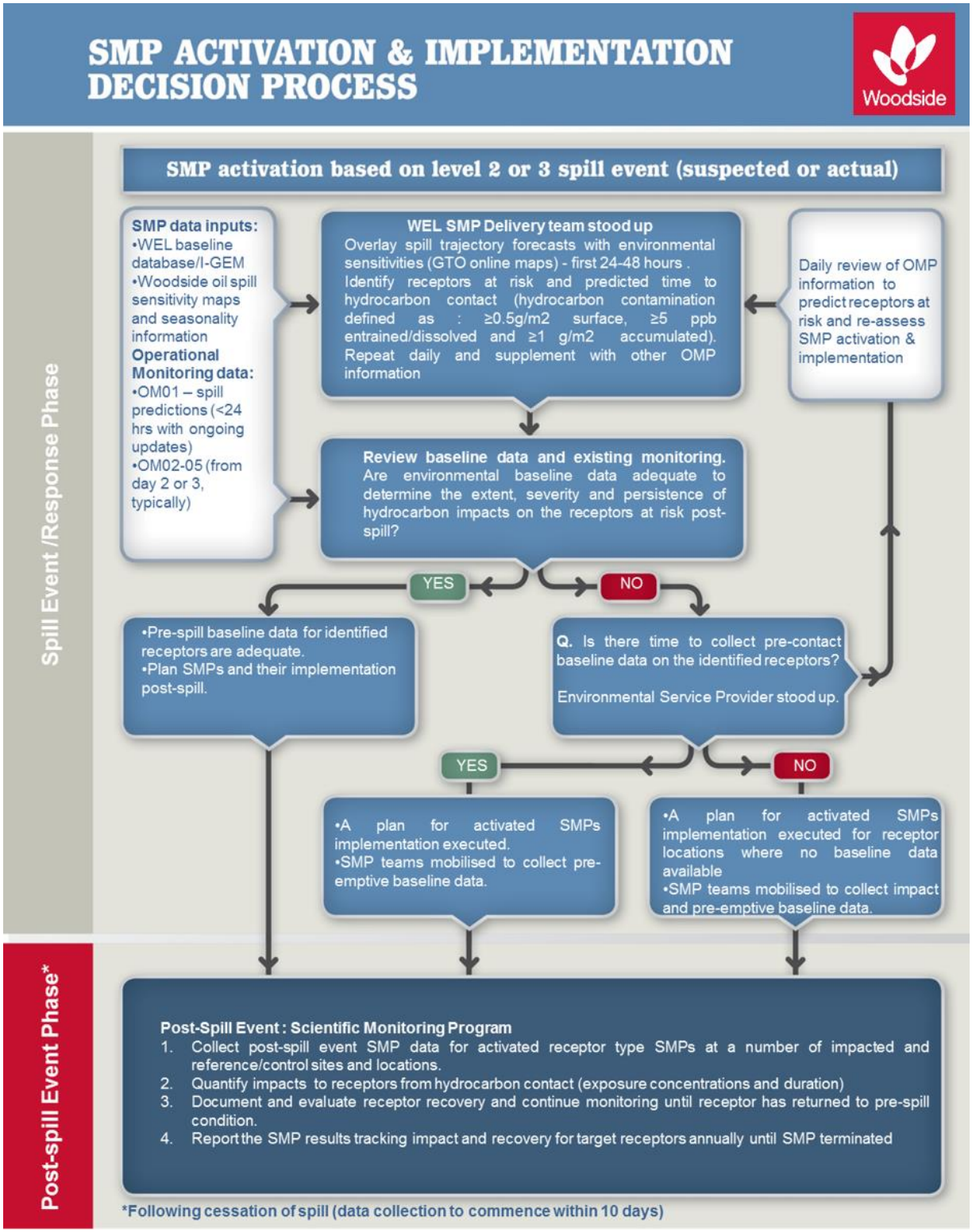

Figure C-2: Activation and Implementation Decision-tree for Oil Spill Environmental Monitoring

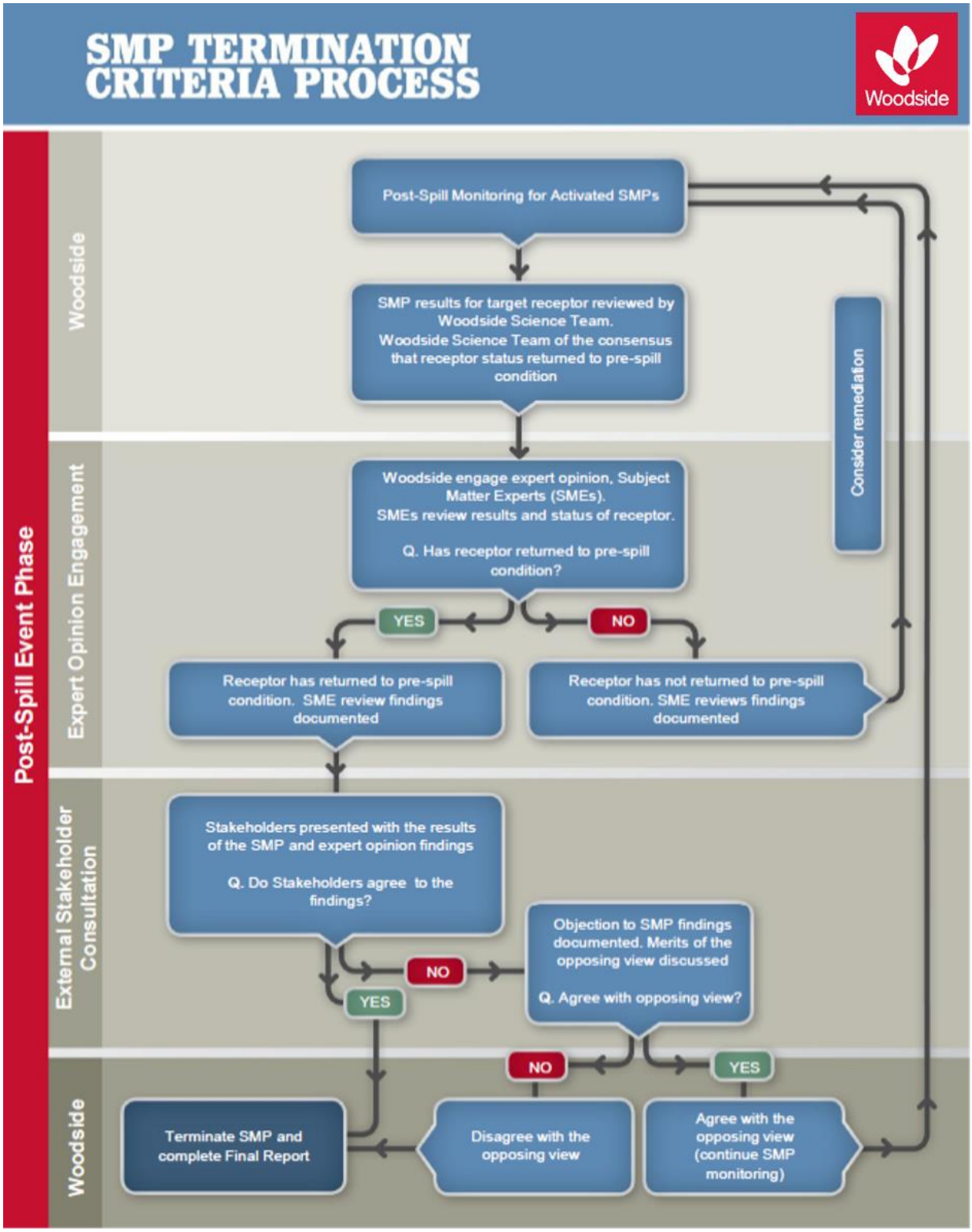

Figure C-3: Termination Criteria Decision-tree for Oil Spill Environmental Monitoring

Receptors at Risk and Baseline Knowledge

In order 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 a number of 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, it is acknowledged that 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). In order to understand the present status of environmental baseline studies a spatial environmental metadata database for Western Australia (Industry-Government Environmental Metadata, I-GEM) was established. IGEM is a collaboration comprising oil and gas operators (including Woodside), government and research agencies and other organisations. IGEM held data were integrated into the Department of Water and Environmental Regulation (WA) Index of Marine Surveys for Assessment (IMSA)[17] in 2020. The Index of Marine Surveys for Assessments (IMSA) is an online portal for information about marine-based environmental surveys in Western Australia. IMSA is a project of the Department of Water and Environmental Regulation (the department) for the systematic capture and sharing of marine data created as part of an environmental impact assessment (EIA).

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, IMSA 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.

[17] https://biocollect.ala.org.au/imsa#max%3D20%26sort%3DdateCreatedSort

ANNEX D: SCIENTIFIC 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 EMBA for Pyxis PAP (CS-01 and CS-02)

Receptors to be Monitored	Applicable SMP	Receptor Areas - Potential Impact and Reference Scientific Monitoring Sites (marked X)																																								
		Kimberley AMP	Agro-Rowley Terrace AMP	Montebello AMP	Dampier AMP	Carnarvon Canyon AMP	Ningaloo AMP	Gascoyne AMP	Shark Bay Open Ocean (including AMP)	Abrolhos AMP	Jurien AMP	Two Rocks AMP	Perth Canyon AMP	Geographe AMP	South-west Corner AMP	Ashmore Reef and AMP	Seringapatam Reef	Scott Reef (North and South)	Mermaid Reef and AMP	Clerke Reef and State Marine Park	Imperieuse Reef and State Marine Park	Rankin Bank	Glomar Shoals	Rowley Shoals (including Sate Maine Park)	Fantome Shoal	Adele Island	Lacepede Islands	Montebello Islands (including State Marine Park)	Lowendal Islands (including State Nature Reserves)	Barrow Island (including State Nature Reserves, State Marine Park and Marine Management Area)	Muiron Islands (WHA, Marine Management Area)	Pilbara Islands - Southern Island Group (Serrurier, Thevenard and Bessieres Islands - State Nature Reserves)	Pilbara Islands - Northern Island Group (Sandy Island Passage Islands - State nature reserves)	Abrolhos Islands	Kimberley Coast	Dampier Peninsula	Northern Pilbara Shoreline	Ningaloo Coast (North/North West Cape, Middle and South) (WHA, and State Marine Park)	Shark Bay - Open Ocean Coast	Shark Bay (WHA, State Marine Park)	Ngari Capes State Marine Park
Habitat																																										
Water Quality	SM01	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	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	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Coral Reef	SM03	X		X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X		
Seagrass / Macro-Algae	SM03	X									X					X	X	X								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Deeper Water Filter Feeders	SM03	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X								X				
Mangroves and Saltmarsh	SM04																											X						X	X	X	X	X	X		X		
Species																																											
Sea Birds and Migratory Shorebirds (significant colonies / staging sites / coastal wetlands)	SM05	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Marine Turtles (significant nesting beaches)	SM06	X	X	X	X		X	X	X							X	X	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X		
Pinnipeds (significant colonies / haul-out sites)	SM07									X	X	X			X																												X
Cetaceans - Migratory Whales	SM08	X	X	X	X		X	X	X	X	X	X	X	X	X			X									X	X	X	X	X		X	X	X		X		X	X	X	X
Oceanic and Coastal Cetaceans	SM08	X	X	X	X		X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Dugongs	SM08	X							X							X												X	X	X	X	X	X	X		X	X	X	X	X	X	
Sea Snakes	SM08	X		X	X			X	X	X						X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Whale Sharks	SM08			X			X	X										X										X	X	X	X								X			
Other Shark and Ray Populations	SM08, SM09	X	X	X	X		X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	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	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Socio-economic																																										
Fisheries - Commercial	SM10		X	X	X	X	X	X	X	X	X	X										X	X	X	X			X	X	X		X		X	X	X	X	X	X	X	X	X
Fisheries - Traditional	SM10															X	X	X									X														X		
Tourism (incl. recreational fishing)	SM10	X		X			X	X	X		X			X	X	X	X	X	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 Basline 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

Table D-2: 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	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
Benthic Habitat (Coral Reef)	**SM03** Quantitative assessment using image capture using either diver held camera or towed video. Post analysis into broad groups based on taxonomy and morphology.	**Studies:**					
		Coral Reefs & Filter Feeders 1. Montebello Marine Park, 2019, Identification and qualitative descriptions of benthic habitat. 2. Montebello Australian Marine Parks – 2019 – Baseline survey on benthic habitats. 3. Pluto Trunkline within Montebello Marine Park – Monitoring marine communities.	1. Glomar Shoal and Rankin Bank Environmental Survey Report, 2013, quantitatively surveyed benthic habitats and communities. AIMS report to Woodside. Scientific Publication - Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems, 2018. 2. Rankin Bank Environmental Survey Extension, 2014, Habitat assessment of an area southeast of Rankin Bank. 3. Glomar Shoal and Rankin Bank surveys, 2017. GWF-2 Monitoring Programme. Quantitatively surveyed benthic habitats and communities. 4. Temporal Studies survey of Rankin Bank and Glomar Shoal, 2018.	1. Broad benthic habitat classifications and habitat maps for the Montebello islands by DBCA. 2. Coral monitoring at sites across Barrow Island, Lowendal and the Montebello islands. Most recent survey 2012 3. Benthic community monitoring as part of DBCA Western Australian Marine Monitoring Program (2015-ongoing). 4. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013).	1. Chevron LTM of corals for the Gorgon Gas Development. Marine Baseline Program (2008), Marine Monitoring Program (2010) Post Development Surveys (2011 – 2013). 2.Coral monitoring at sites around Barrow Island, Lowendal and the Montebello islands. Most recent survey 2012. 3.Benthic community (coral, seagrass and macroalgae) monitoring as part of DBCA's Western Australian Marine Monitoring Program (2015-ongoing). 4.Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013).	1. Benthic habitats surrounding the Lowendal Islands for the Gorgon Gas Development. Coral assemblages on the eastern side of Double Island, and coral bommies on the south-western edge of the Lowendal Shelf. 2. Coral monitoring at sites across Barrow Island, Lowendal and the Montebello islands. Most recent survey 2012. 3. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013).	1. DBCA LTM Ningaloo Reef program: 1991-ongoing 2. AIMS/DBCA 2014 Baseline Ningaloo and Muiron Islands Survey – repeat and expansion on the LTM (Co-funded survey: Woodside and AIMS). 3. Pilbara Marine Conservation Partnership. 4. WAMSI LTM Study: Ningaloo Research node: 2009 -10 over the length of Ningaloo reef system (with a focus on coral and fish recruitment). 5. Ningaloo Outlook (CSIRO) - Shallow and Deep Reefs Program (2015-ongoing). 6. Ningaloo Collaboration Cluster: Habitats of the Ningaloo Reef and adjacent coastal areas determined through hyperspectral imagery.
		Methods:					
		1.ROV Transects 2. Benthic habitat mapping, multibeam acoustic swathing. 3. ROV video.	1. Towed video transects, photo quadrats using towed video system. 2. Towed video transects, photo quadrats using towed video system. 3. Towed video transects, photo quadrats using towed video system. 4. Towed video transects, photo quadrats using towed video system.	1. Habitat mapping. 2. Quantitative assessment details not available. 3. Drop camera. 4. Fixed long-term monitoring sites. Diver video transect. 5. Towed video, benthic trawl and sled.	1. Belt transect, size class frequency, video transects, photo quadrat, tagged colonies and terracotta tiles for coral recruitment. 2. Quantitative assessment 3. Fixed long-term monitoring sites. Diver video transects. 4. Towed camera, benthic trawl and sled.	Benthic habitat mapping, diver swum transects, tagged colonies. Quantitative assessment Towed video, benthic trawl and sled.	1. LTM transects, diver based (video) photo quadrats, specimen collection. 2. LTM sites, transects, diver-based video quadrat. 3. Diver video transects, still photography, video and in situ visual estimates from transects, quadrats, manta-tows, towed video and ROV. 4. Video point intercept transects recorded by towed video or diver hand-held video camera. 5. Video transects. 6. LTM transects, diver based (video) photo quadrat.
		References/Data:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
		1. Advisian 2019 2. Keesing 2019 3. McLean et al. 2019	1. AIMS 2014a and Abdul Wahab et al., 2018. DATAHOLDER: AIMS. 2. AIMS 2014b. DATAHOLDER: AIMS. 3.Currey-Randall et. al., 2019. DATAHOLDER: AIMS 4. Currey-Randall et. al., 2019. DATAHOLDER: AIMS	1. DBCA 2007. DATAHOLDER: DBCA. 2. RPS, 2012. DATAHOLDER: Santos. 3. DATAHOLDER: DBCA. 4. Pitcher et al. (2016). DATAHOLDER: CSIRO.	1. Baseline: Chevron Australia 2010. Marine Monitoring Program: Chevron Australia 2011 Post Dredge: Chevron Australia 2013 DATAHOLDER: Chevron Australia. 2. RPS, 2012. DATAHOLDER: Santos. 3. Bancroft 2009. DATAHOLDER: DBCA. 4. Pitcher et al. (2016). DATAHOLDER: CSIRO.	1. RPS-Bowman Bishaw Gorham 2005. DATAHOLDER: Chevron. 2. RPS, 2012. DATAHOLDER: Santos. 3. Pitcher et al. (2016). DATAHOLDER: CSIRO.	1. DBCA unpublished data. DATAHOLDER: DBCA 2. AIMS 2015. DATAHOLDER: AIMS. 3. Pilbara Marine Conservation Partnership DATAHOLDER: CSIRO 4. Depczynski et al. 2011 DATAHOLDER: AIMS, DBCA and WAMSI. 5. CSIRO 2019 – Ningaloo Outlook Program 6. Murdoch University - Kobryn et al 2022 and Keulen & Langdon 2011.
Benthic Habitat (Seagrass and Macro-algae)	**SM03** Quantitative assessment using image capture using either diver held camera or towed video. Post analysis into broad groups based on taxonomy and morphology.	**Studies:** 1. Glomar Shoal and Rankin Bank Environmental Survey Report, 2013, quantitatively surveyed benthic habitats and communities. AIMS report to Woodside. Scientific Publication - Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems, 2018. 2. Rankin Bank Environmental Survey Extension, 2014, Habitat assessment of an area southeast of Rankin Bank. 3. Glomar Shoal and Rankin Bank surveys, 2017. GWF-2 Monitoring Programme. Quantitatively surveyed benthic habitats and communities. 4. Temporal Studies survey of Rankin Bank and Glomar Shoal, 2018.	1. Santos, macroalgae monitoring at sites across Lowendal and the Montebello islands in 2012. 2. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013).	1. Chevron LTM of Seagrass and Macro algae habitats for the Gorgon Gas Development project. Marine baseline Program (2008, 2009), Marine Monitoring Program (2010), Post Dredge Survey one (2011) 2. Chevron study by RPS in 2004 on Barrow Island intertidal zone. 3. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013).	1. Benthic habitats including seagrass and macroalgae for the (Lowendal Islands, Chevron Janz Feed Gas Pipeline Project.) Gorgon Gas Development Project. 2. Santos macroalgae monitoring at sites across Lowendal and the Montebello islands in 2012. 3. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013).	N/A – see Table D-1	1. Quantitative descriptions of Ningaloo sanctuary zones habitats types including lagoon and offshore areas – Cassata and Collins (2008). 2. CSIRO/BHP Ningaloo Outlook Program. 3. Ningaloo Collaboration Cluster: Habitats of the Ningaloo Reef and adjacent coastal areas determined through hyperspectral imagery. 4. Australian Institute of Marine Science – CReefs: Ningaloo Reef Biodiversity Expeditions (2008-2010).
		Methods:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
		1. Towed video transects, photo quadrats using towed video system. 2. Towed video transects, photo quadrats using towed video system. 3. Towed video transects, photo quadrats using towed video system. 4. Towed video transects, photo quadrats using towed video system	1. Quantitative assessment details not available. 2. Towed video, benthic trawl and sled.	1. Diver transects, photo quadrats, biomass. 2. Physical observational survey of intertidal habitats on Barrow Island. 3. Towed video, benthic trawl and sled.	1. Diver Transects, Photo Quadrats. 2. Quantitative assessment details not available. 3. Towed video, benthic trawl and sled.	N/A – see Table D-1	1. Video transects to ground truth aerial photographs and satellite imagery. 2. Diver video transects. 3. LTM transects, diver based (video) photo quadrat. 7. 4. LTM transects, diver based (video) photo quadrats, specimen collection.
		References/Data:					
		1. AIMS 2014a and Abdul Wahab et al., 2018. DATAHOLDER: AIMS. 2. AIMS 2014b. DATAHOLDER: AIMS. 3. Currey-Randall et. al., 2019. DATAHOLDER: AIMS 4. Currey-Randall et. al., 2019. DATAHOLDER: AIMS	1. RPS 2012. DATAHOLDER: Santos. 2. Pitcher et al. (2016). DATAHOLDER: CSIRO.	1. Baseline: Chevron Australia 2010. Marine Monitoring Program: Chevron Australia 2011 Post Dredge: Chevron Australia 2013 DATAHOLDER: Chevron Australia. 2. RPS-Bowman Bishaw Gorham 2005. DATAHOLDER: Chevron Australia. 3. Pitcher et al. (2016). DATAHOLDER: CSIRO.	1. RPS-Bowman Bishaw Gorham 2005. DATAHOLDER: Chevron. 2. RPS 2012. DATAHOLDER: Santos. 3. Pitcher et al. (2016). DATAHOLDER: CSIRO.	N/A – see Table D-1	1. Cassata and Collins 2008. DATAHOLDER: Curtin University – Applied Geology. 2. CSIRO – Ningaloo Outlook Program 3. Murdoch University - Kobryn et al 2022 and Keulen and Langdon 2011. 4. AIMS (2010) - http://www.aims.gov.au/creefs
	SM03	**Studies:**					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
Benthic Habitat (Deeper Water Filter Feeders)	Quantitative assessment using image capture using towed video. Post analysis into broad groups based on taxonomy and morphology.	1. Glomar Shoal and Rankin Bank Environmental Survey Report, 2013, quantitatively surveyed benthic habitats and communities. AIMS report to Woodside. Scientific Publication - Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems, 2018. 2. Rankin Bank Environmental Survey Extension, 2014, Habitat assessment of an area southeast of Rankin Bank. 3. Glomar Shoal and Rankin Bank surveys, 2017. GWF-2 Monitoring Programme. Quantitatively surveyed benthic habitats and communities. 4. Temporal Studies survey of Rankin Bank and Glomar Shoal, 2018.	N/A – See Table D-1	N/A – See Table D-1	N/A – See Table D-1	N/A – see Table D-1	1. WAMSI 2007 deep-water Ningaloo benthic communities' study, Colquhoun and Heyward (2008). 2. CSIRO/BHP Ningaloo Outlook Program - Deep reef themes 2020
		Methods:					
		1. Towed video transects, photo quadrats using towed video system. 2. Towed video transects, photo quadrats using towed video system. 3. Towed video transects, photo quadrats using towed video system. 4. Towed video transects, photo quadrats using towed video system.	N/A – See Table D-1	N/A – See Table D-1	N/A – See Table D-1	N/A – see Table D-1	1. Towed video and benthic sled (specimen sampling). 8. 2. Side-scan sonar and AUV transects.
		References/Data:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
		1. AIMS 2014a and Abdul Wahab et al., 2018. DATAHOLDER: AIMS. 2. AIMS 2014b. DATAHOLDER: AIMS. 3. Currey-Randall et. al., 2019. DATAHOLDER: AIMS 4. Currey-Randall et. al., 2019. DATAHOLDER: AIMS	N/A – See Table D-1	N/A – See Table D-1	N/A – See Table D-1	N/A – see Table D-1	1.Colquhoun and Heyward (eds) 2008. DATAHOLDER: WAMSI, AIMS. 2.CSIRO – Ningaloo Outlook 2020
Mangroves and Saltmarsh	**SM04** Aerial photography and satellite imagery will be used in conjunction with field surveys to map the range and distribution of mangrove communities.	**Studies:**					
		N/A – See Table D-1	1. Atmospheric correct and land cover classification, NW Cape. 2. Advanced Land Observing Satellite (ALOS) images taken in 2006, 2008, and 2010 by DBCA. Digital Aerial Photos were taken in 2009, and the area ground-truthed in 2006. 3. Ground truthing aerial photography to map the spatial extent of mangroves on the Montebello Islands. 4. Mangrove monitoring as part of DBCA Western Australian Marine Monitoring Program (ongoing).	1. Chevron LTM of Mangroves for the Gorgon Gas Development project. Marine Baseline Program (2009), Post Dredge Survey 1 (2011), Post Dredge Survey 2 (2013). 2. Baseline state of the mangroves 2008.	1. Atmospheric correct and land cover classification, NW Cape. 2. Santos Mangrove baseline (2010). 3. Santos - Long-term mangrove monitoring (1999-2011).	N/A – see Table D-1	1. Atmospheric correct and land cover classification, NW Cape. 2. Woodside hold Rapid Eye imagery of the Ningaloo Reef and coastal area. 3. Hyperspectral survey (2006) of Ningaloo Reef and coastal area (not yet analysed for Mangroves). 4. North West Cape sensitivity mapping 2012 included Mangrove Bay. 5. Global mangrove distribution as mapped by the USGS and located on UNEP's Ocean Data viewer.
		Methods:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
		N/A – See Table D-1	1. Atmospheric correct and land cover classification, NW Cape. 2. Advanced Land Observing Satellite (ALOS) images taken in 2006, 2008, and 2010 by DBCA. Digital Aerial Photos were taken in 2009, and the area ground-truthed in 2006. 3. Ground truthing aerial photography to map the spatial extent of mangroves on the Montebello Islands. 4. Mangrove monitoring as part of DBCA Western Australian Marine Monitoring Program (ongoing).	1. Chevron LTM of Mangroves for the Gorgon Gas Development project. Marine Baseline Program (2009), Post Dredge Survey 1 (2011), Post Dredge Survey 2 (2013). 2. Baseline state of the mangroves 2008.	1. Atmospheric correct and land cover classification, NW Cape. 2. Santos Mangrove baseline (2010). 3. Santos - Long-term mangrove monitoring (1999-2011).	N/A – see Table D-1	1. Atmospheric correct and land cover classification, NW Cape. 2. Woodside hold Rapid Eye imagery of the Ningaloo Reef and coastal area. 3. Hyperspectral survey (2006) of Ningaloo Reef and coastal area (not yet analysed for Mangroves). 4. North West Cape sensitivity mapping 2012 included Mangrove Bay. 5. Global mangrove distribution as mapped by the USGS and located on UNEP's Ocean Data viewer.
		References/Data:					
		N/A – See Table D-1	1. Atmospheric correct and land cover classification, NW Cape. 2. Advanced Land Observing Satellite (ALOS) images taken in 2006, 2008, and 2010 by DBCA. Digital Aerial Photos were taken in 2009, and the area ground-truthed in 2006. 3. Ground truthing aerial photography to map the spatial extent of mangroves on the Montebello Islands. 4. Mangrove monitoring as part of DBCA Western Australian Marine Monitoring Program (ongoing).	1. Chevron LTM of Mangroves for the Gorgon Gas Development project. Marine Baseline Program (2009), Post Dredge Survey 1 (2011), Post Dredge Survey 2 (2013). 2. Baseline state of the mangroves 2008.	1. Atmospheric correct and land cover classification, NW Cape. 2. Santos Mangrove baseline (2010). 3. Santos - Long-term mangrove monitoring (1999-2011).	N/A – see Table D-1	1. Atmospheric correct and land cover classification, NW Cape. 2. Woodside hold Rapid Eye imagery of the Ningaloo Reef and coastal area. 3. Hyperspectral survey (2006) of Ningaloo Reef and coastal area (not yet analysed for Mangroves). 4. North West Cape sensitivity mapping 2012 included Mangrove Bay. 5. Global mangrove distribution as mapped by the USGS and located on UNEP's Ocean Data viewer.
Seabirds	**SM05**	**Studies:**					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
	Visual counts of breeding seabirds, nest counts, intertidal bird counts at high tide.	N/A – See Table D-1	1.No recent studies. A DBCA/WAM study of terrestrial fauna of the islands was published in 2000 (Burbidge et al 2000). The most recent bird survey referenced in this review was 1998 by DBCA (DPaW, CALM).	1. Barrow Island migratory behaviour, nesting and foraging behaviour. 2. Migratory waders at Barrow Island. 3. LTM on Barrow island (island wide) Study September 2003 – 2006. 4. Chevron - Gorgon Gas Development. Terrestrial and subterranean environment monitoring program (2008-2015). Monitoring of Wedge-tailed Shearwaters, Bridled Terns, Silver Gulls.	1. Ongoing study of Bridled Terns from 2009. 2. Quadrant Energy seabird nesting on Lowendal Island, study 2013. 3. Lowendal Islands, common breeding bird species, structure, feeding and disturbances to the population. 4. Quadrant Energy/Santos – Integrated Shearwater Monitoring Program (1994-2016).	Present, in open water, no breeding habitat.	1. LTM Study of marine and shoreline birds: 1970-2011. 2. LTM of shorebirds within the Ningaloo coastline (Shorebirds 2020). 3. Exmouth Sub-basin Marine Avifauna Monitoring Program (Quadrant Energy/Santos). 4. Seabird and Shorebird baseline studies, Ningaloo Region – Report on January 2018 bird surveys. 5.Wedge-tailed shearwater foraging behaviour in the Exmouth Region – Final Report
		Methods:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
		N/A – See Table D-1	1. Bird observations and counts.	1. Species, total numbers, Distribution, Roosting locations and foraging numbers. Migratory behaviour. 2. High tide roost counts, abundance counts. 3. Nest burrow density (number of burrows per m2); presence/absence of eggs or chicks in burrows; collapsed burrows and predation and mortality records. 4. Barrow Island: Variation in abundance and spatial/temporal distribution on beaches. Middle Island: Abundance; nest density; Presence and absence of eggs/chicks in nest.	1. Nest Density, presence and absence of chicks, predation and mortality counts. 2. Nest burrow density (number of burrows per m2); presence/absence of eggs or chicks in burrows. 3. Burrow scopes, Ultrasonic monitors to monitor burrows. 4. The distribution and abundance of other nesting seabirds within the Lowendal Island group, including up to 45 islands and islets, also occurred from 2004 onwards.	N/A	1. Counts of nesting areas, counts of intertidal zone during high tide. 2. The Shorebirds 2020 database comprises the most complete shorebird count data available in Australia. The data have been collected by volunteer counters and BirdLife Australia staff for approximately 150 roosting and feeding sites, mainly in coastal Australia. The data go back as far as 1981 for key areas. 3. The Exmouth Sub-basin Marine Avifauna Monitoring Program undertook a detailed assessment of seabird and shorebird use in the Exmouth Sub-basin. Four aerial surveys and four island surveys were conducted between February 2013 and January 2015 for this Program, inclusive of the mainland coasts, of shore islands and a 2,500 km^2 area of ocean adjacent to the Exmouth Sub-basin. 4.Shorebird counts, Shearwater Burrow Density. 5. Telemetry (GPS & Satellite).
		References/Data:					
		N/A – See Table D-1	DBCA/WAM – Burbidge et al 2000.	1. Bamford M.J. & A.R 2004. DATAHOLDER: Chevron. 2. Bamford M.J & A.R 2011. DATAHOLDER: Chevron. 3. Chevron, 2013. DATAHOLDER: Chevron. 4. Chevron 2013. DATAHOLDER: Chevron.	1. Bamford M.J. & A.R 2004. DATAHOLDER: Chevron. 2. Surman 2012. DATAHOLDER: Santos. 3. Bamford M.J & A.R 2011. DATAHOLDER: Chevron. 4. DATAHOLDER: Santos.	N/A	1. Johnstone et al. 2013. DATAHOLDER: WA MUSEUM. AMOSC/DBCA (DPaW) 2014. 2. BirdLife Australia DATAHOLDER: Woodside and BirdlLife Australia 3. Surman & Nicholson 2015. 4. BirdLife Australia: DATAHOLDER: Woodside 5. Cannel et al. 2019 DATAHOLDER: UWA and BirdLife Australia
Turtles	**SM06**	**Studies:**					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
	Beach surveys (recording species, nests, and false crawls).	N/A – See Table D-1	1. LTM Study of Green, Flatback, Hawksbill turtles on beaches within the Barrow, Lowendal and Montebello Island Complex for Chevron. 2. Marine turtle monitoring as part of DBCA long-term turtle monitoring program (ongoing).	Chevron - Gorgon Gas Development. Long-term Turtle Monitoring Program - Flatback tagging program and marine turtle track census program (2005 – ongoing).	1. LTM Study of Green, Flatback, Hawksbill turtles on beaches within the Barrow, Lowendal and Montebello Island Complex. 2. Santos 2013 turtle nesting survey on the Lowendal islands. 3. Varanus Island Turtle monitoring program (2005 – present).	Present, in open water, no nesting habitats.	1. Exmouth Islands Turtle Monitoring Program. 2. Ningaloo Turtle Program 3. Turtle activity and nesting on the Muiron Islands and Ningaloo Coast (2018). 4. Spatial and temporal use of inter-nesting habitat by sea turtles along the Murion Islands and Ningaloo Coast – 2018-2019
		Methods:					
		N/A – See Table D-1	Nesting demographics (composition, spatial variability, seasonal distribution, post-nesting dispersion).	Island wide (though primary nesting occurs on east coast). Mundabullangana on mainland is the reference location for the Flatback tagging program.	1. Nesting demographics (composition, spatial variability, seasonal distribution, post-nesting dispersion). 2. Tagging and nest counts. 3. Tagging and nest counts. Varanus, Beacon, Bridled, Abutilon and Parakeelya islands.	N/A	1. Astron (on behalf of Santos) to address a gap in the knowledge of turtle numbers at key locations (offshore islands within the region) that are not currently part of an existing monitoring programs (e.g. the NTP). Field surveys were conducted in October 2013 and January 2014. Surveys were conducted on 12 islands, with each island surveyed once (with the exception of Beach 8 at North Muiron Island) and all tracks counted. 2. Long term trends in marine turtle populations, beach surveys, track counts, best location, mortality counts. 3. On-beach monitoring and aerial surveys. 4. Tagging (satellite transmitter), analysis of internesting, migration and foraging grounds movements and behaviour.
		References/Data:					
		N/A – See Table D-1	1. AMOSC/DPaW 2014. DATAHOLDER: Chevron. 2.DBCA.	Pendoley Environmental (2005-ongoing). DATAHOLDER: Chevron.	1. Pendoley 2005. AMOSC/DBCA (DPaW) 2014. DATAHOLDER: Chevron/ Santos. 2. Santos, 2014. DATAHOLDER: Santos. 3. Santos (2005 – present)	N/A	1.Santos – Report. 2. NTP Annual Reports DATAHOLDERS: DBCA. Reports available at http://www.ningalooturtles.org.au/media_reports.html 3.Rob et al. 2019 DATAHOLDER: DBCA 4.Tucker et al. 2019 DATAHOLDER: DBCA

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
Fish	**SM09** Baited Remote Underwater Video Stations (BRUVS), Visual Underwater Counts (VUC), Diver Operated Video (DOV).	**Studies:**					
		1. DBCA diver surveys 2009-2012. 2. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~8-20m) in 2014 and deeper (20-60m) in 2015 inside and outside sanctuary zones at the Montebello Islands and in the area from Cape Preston to the Montebello Islands in 2015. 3. Finfish monitoring as part of DBCA Western Australian Marine Monitoring Program (2015-ongoing).	1. Chevron LTM of demersal fish for the Gorgon Gas Development project. Marine Baseline Program (2008, 2009), Post Dredge Survey 1 (2011), Post Dredge Survey 2 (2012). 2. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~10m) from Exmouth to Barrow Islands in 2015. 3. Finfish monitoring as part of DBCAs Western Australian Marine Monitoring Program (2015-ongoing).	1. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~10m) Montebello Sanctuaries 2015. 2. WA Museum fish surveys of Dampier Archipelago 1998-2000 (Hutchins 2004).	1. CSIRO – Fish Diversity. 2. Fish species richness and abundance.	1. AIMS/DBCA 2014 Baseline Ningaloo Survey – repeat and expansion on the LTM (Co-funded survey: Woodside and AIMS). 2. Demersal fish populations – baseline assessment (AIMS/WAMSI). 3. DBCA study measured Species Richness, Community Composition, and Target Biomass, through UVC. BRUVS studies determining max N, Species Richness, and Biomass. 4. Pilbara Marine Conservation Partnership Stereo BRUVS in shallow water (~10m) in 2014 in northern region of the Ningaloo Marine Park, in shallow water (~10m) inside the lagoonal reef of the Ningaloo Marine Park in 2016, in deep water (~40m) across the length of the Ningaloo Marine Park in 2015, in shallow water outside of Ningaloo Reef from Waroora to Jurabi in 2015 and offshore of the Muiron Islands in 2015. 5. Elasmobranch faunal composition of Ningaloo Marine Park. 6. Juvenile fish recruitment surveys at Ningaloo reef. 7. Demersal fish assemblage sampling method comparison 8. Ningaloo Outlook (CSIRO) - Shallow and Deep Reefs Program	1. DBCA diver surveys 2009-2012. 2. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~8-20m) in 2014 and deeper (20-60m) in 2015 inside and outside sanctuary zones at the Montebello Islands and in the area from Cape Preston to the Montebello Islands in 2015. 3. Finfish monitoring as part of DBCA Western Australian Marine Monitoring Program (2015-ongoing).
		Methods:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
		1. BRUVs. 2. BRUVs. 3. BRUVs. 4. BRUVs.	1. Diver Operated Video - species richness, community composition, and biomass were recorded from 2009-2012. 2. Stereo BRUVS. 3. Diver UVS.	1. Intertidal and subtidal surveys using BRUVS and Netting. 2. Stereo BRUVS. 3. Diver UVS.	1. Stereo BRUVS 2. Diver surveys _ Underwater Visual Census (UVC).	1. Semi V Wing trawl net or an epibenthic sled. 2. ROV Video..	1. UVC surveys. 2. BRUVS Study with 304 video samples at three specific depth ranges (1-10 m, 10-30 m and 30-110m). 3. UVC surveys. 4. Stereo BRUVS 5. Snorkel and Scuba surveys. 5. Underwater visual census. 6. Diver operated video. 7. Diver UVC. 8. Diver UVC, stereo BRUVs
		References/Data:					
		1. AIMS 2014a and Abdul Wahab et al., 2018. DATAHOLDER: AIMS. 2. AIMS 2014b. DATAHOLDER: AIMS. 3. Currey-Randall et. al., 2019. DATAHOLDER: AIMS 4. Currey-Randall et. al., 2019. DATAHOLDER: AIMS	1. DBCA data. DATAHOLDER: DBCA 2. CSIRO Data DATAHOLDER: CSIRO Data centre ([redacted]) 3. DBCA.	1. Baseline: Chevron Australia 2010. Marine Monitoring Program: Chevron Australia 2011. Post Dredge: Chevron Australia 2013 DATAHOLDER: Chevron Australia. 2. CSIRO Data DATAHOLDER: CSIRO Data centre ([redacted]) 3. DBCA.	1. UWA. The UWA Oceans Institute & School of Biological Sciences. 2. DATAHOLDER: Woodside and WAM.	1. Keesing 2019. 2. McLean et al. 2019.	1. AIMS 2014. DATAHOLDER: AIMS/Woodside. 2. Fitzpatrick et al. 2012. DATAHOLDERS: WAMSI, AIMS. 3. DBCA unpublished data. DATAHOLDER: DBCA/AIMS. 4. CSIRO Data DATAHOLDER: CSIRO Data Centre ([redacted]). 5. Stevens, J.D., P.R., White, W.T., McAuley, R.B., Meekan, M.G. 2009. 6. WAMSI unpublished data DATAHOLDER: AIMS ([redacted]). 7. DATAHOLDER: WAMSI 8. CSIRO – Ningaloo Outlook 2020.
Fish	**SM09**	**Studies:**					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
	Baited Remote Underwater Video Stations (BRUVS), Visual Underwater Counts (VUC), Diver Operated Video (DOV).	1. Glomar Shoal and Rankin Bank Environmental Survey Report, 2013, quantitatively surveyed benthic habitats and communities. AIMS report to Woodside. Scientific Publication - Biodiversity and spatial patterns of benthic habitat and associated demersal fish communities at two tropical submerged reef ecosystems, 2018. 2. Rankin Bank Environmental Survey Extension, 2014, Habitat assessment of an area southeast of Rankin Bank. 3. Glomar Shoal and Rankin Bank surveys, 2017. GWF-2 Monitoring Programme. Quantitatively surveyed benthic habitats and communities. 4. Temporal Studies survey of Rankin Bank and Glomar Shoal, 2018.	1. DBCA diver surveys 2009-2012. 2. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~8-20m) in 2014 and deeper (20-60m) in 2015 inside and outside sanctuary zones at the Montebello Islands and in the area from Cape Preston to the Montebello Islands in 2015. 3. Finfish monitoring as part of DBCA Western Australian Marine Monitoring Program (2015-ongoing).	1. Chevron LTM of demersal fish for the Gorgon Gas Development project. Marine Baseline Program (2008, 2009), Post Dredge Survey 1 (2011), Post Dredge Survey 2 (2012). 2. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~10m) from Exmouth to Barrow Islands in 2015. 3. Finfish monitoring as part of DBCAs Western Australian Marine Monitoring Program (2015-ongoing).	1. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~10m) Montebello Sanctuaries 2015. 2. WA Museum fish surveys of Dampier Archipelago 1998-2000 (Hutchins 2004).	1.Pilbara Marine Conservation Partnership Stereo BRUVS drops in deep water (20-55m) offshore of Bessieres Island in 2016.	1. CSIRO – Fish Diversity. 2. Fish species richness and abundance.
		Methods:					
		1. BRUVs. 2. BRUVs. 3. BRUVs. 4. BRUVs.	1. Diver Operated Video - species richness, community composition, and biomass were recorded from 2009-2012. 2. Stereo BRUVS. 3. Diver UVS.	1. Intertidal and subtidal surveys using BRUVS and Netting. 2. Stereo BRUVS. 3. Diver UVS.	1. Stereo BRUVS 2. Diver surveys _ Underwater Visual Census (UVC).	1. Stereo BRUVs	1. Semi V Wing trawl net or an epibenthic sled. 2. ROV Video..
		References/Data:					

Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Montebello Islands	Barrow Island	Lowendal Islands	Montebello AMP	Ningaloo and the Muiron Islands
		1. AIMS 2014a and Abdul Wahab et al., 2018. DATAHOLDER: AIMS. 2. AIMS 2014b. DATAHOLDER: AIMS. 3. Currey-Randall et. al., 2019. DATAHOLDER: AIMS 4. Currey-Randall et. al., 2019. DATAHOLDER: AIMS	1. DBCA data. DATAHOLDER: DBCA 2. CSIRO Data DATAHOLDER: CSIRO Data centre ([redacted]) 3. DBCA.	1. Baseline: Chevron Australia 2010. Marine Monitoring Program: Chevron Australia 2011. Post Dredge: Chevron Australia 2013 DATAHOLDER: Chevron Australia. 2. CSIRO Data DATAHOLDER: CSIRO Data centre ([redacted]) 3. DBCA.	1. UWA. The UWA Oceans Institute & School of Biological Sciences. 2. DATAHOLDER: Woodside and WAM.	1. CSIRO. DATAHOLDER: CSIRO ([redacted])	1. Keesing 2019. 2. McLean et al. 2019.

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ANNEX E: TACTICAL RESPONSE PLANS

TACTICAL RESPONSE PLANS
Exmouth
Mangrove Bay
Turquoise Bay
Yardie Creek
Muiron Islands
Jurabi to Lighthouse Beaches Exmouth
Ningaloo Reef – refer to Mangrove/ Turquoise Bay and Yardie Creek
Exmouth Gulf
Shark Bay Area 1: Carnarvon to Wooramel
Shark Bay Area 2: Wooramel to Petite Point
Shark Bay Area 3: Petite Point to Dubaut Point
Shark Bay Area 4: Dubaut Point to Herald Bight
Shark Bay Area 5: Herald Bight to Eagle Bluff
Shark Bay Area 6: Eagle Bluff to Useless Loop
Shark Bay Area 7: Useless Loop to Cape Bellefin
Shark Bay Area 8: Cape Bellefin to Steep Point
Shark Bay Area 9: Western Shores of Edel Land
Shark Bay Area 10: Dirk Hartog Island
Shark Bay Area 11: Bernier and Dorre Islands
Abrohlos Islands: Pelseart Group
Abrohlos Islands: Wallabi Group
Abrohlos Islands: Easter Group
Dampier
Rankin Bank & Glomar Shoals
Barrow and Lowendal Islands
Pilbara Islands – Southern Island Group
Montebello Island – Stephenson Channel Nth TRP
Montebello Island – Champagne Bay and Chippendale channel TRP
Montebello Island – Claret Bay TRP
Montebello Island – Hermite/Delta Island Channel TRP
Montebello Island – Hock Bay TRP
Montebello Island – North and Kelvin Channel TRP
Montebello Island – Sherry Lagoon Entrance TRP
Withnell Bay
Holden Bay
King Bay
No Name Bay / No Name Beach
Enderby Island – Dampier
Rosemary Island – Dampier
Legendre Island – Dampier
Karratha Gas Plant
KGP to Whitnell Creek

KGP to Northern Shore
KGP Fire Pond & Estuary
KGP to No Name Creek
Broome
Sahul Shelf Submerged Banks and Shoals
Clerke Reef (Rowley Shoals)
Imperieuse Island (Rowley Shoals)
Mermaid Reef (Rowley Shoals)
Scott Reef
Oiled Wildlife Response
Exmouth
Dampier region
Shark Bay

APPENDIX E OIL POLLUTION FIRST STRIKE PLAN

WA-34-L Pyxis Drilling and Subsea Installation – Oil Pollution First Strike Plan

Corporate HSE

Hydrocarbon Spill Preparedness

June 2023
Revision 3

TABLE OF CONTENTS

CONTROL AGENCIES AND INCIDENT CONTROLLERS

Source	Location	Level	Control Agency	Incident Controller
Spill from facility including subsea infrastructure Note: pipe laying and accommodation vessels are considered a "facility" under Australian regulations	Commonwealth waters	1	Woodside	Person In Charge (PIC) with support from Onshore Team Leader (OTL)
		2/3	Woodside	Corporate Incident Management Team (CIMT) Duty Manager
	State waters	1	Woodside	CIMT Duty Manager
		2/3	Department of Transport (DoT)	DoT Incident Controller
	Within port limits	1	Woodside	CIMT Duty Manager
		2/3	DoT	DoT Incident Controller
Spill from vessel Note: SOPEP should be implemented in conjunction with this document	Commonwealth waters	1	Australian Marine Safety Authority (AMSA)	Vessel Master
		2/3	AMSA	AMSA (with response assistance from Woodside)
	State waters	1	DoT	DoT Incident Controller
		2/3	DoT	DoT Incident Controller
	Within port limits	1	Port Authority	Port Harbour Master
		2/3	Port Authority/DoT	Port Harbour Master/ DoT Incident Controller

SPILLS IN STATE/PORT WATERS

As detailed in the table above, in the event of a hydrocarbon spill (hereafter 'spill') where Woodside Energy 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 Western Australian Department of Transport (DoT). In the event that Woodside is the responsible party for a spill that occurs within port limits, Woodside will notify the Port Authority for all spills, and also notify DoT for Level 2 and 3 spills.

Initially Woodside will be required to make available an appropriate number of suitably qualified persons to work in the DoT IMT (APPENDIX F – Woodside Liaison Officer Resources to DoT). DoT/ PPA'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 DoT establishing incident control in line with DoT *Offshore Petroleum Industry Guidance Note – Marine Oil Pollution: Response and Consultation Arrangements* (July 2020). Cost recovery arrangements for offshore marine pollution incidents (MOP) are in accordance with Section 9 of the Guidance Note:

https://www.transport.wa.gov.au/mediaFiles/marine/MAC_P_Westplan_MOP_OffshorePetroleumIndGuidance.pdf

Woodside's Incident Management Structure for a hydrocarbon spill, including Woodside Liaison Officer's command structure within DoT can be seen at APPENDIX E – Woodside Incident Management Structure.

The coordination structure for a concurrent hydrocarbon spill in both Commonwealth and State waters/ shorelines is shown in APPENDIX D – Coordination structure for a concurrent hydrocarbon spill in both Commonwealth and State Waters/ Shorelines.

RESPONSE PROCESS OVERVIEW

For guidance on credible scenarios and hydrocarbon characteristics, refer to APPENDIX A

ALL INCIDENTS

Notify the Woodside Communication Centre (WCC) on:

[redacted]

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 appropriate pre-identified tactics in **Table 2-1** of this Oil Pollution First Strike Plan. Remember to download each Operational Plan.	Notify AMSA or Port Authority (if within port limits) and coordinate appropriate pre-identified tactics in **Table 2-1** of this Oil Pollution First Strike Plan Remember to download each Operational Plan.

If the spill escalates such that the site cannot manage the incident, inform the WCC on:

[redacted] and escalate to a level 2/3 incident.

LEVEL 2/3

FACILITY INCIDENT	VESSEL INCIDENT
Handover control to CIMT and notify DoT or Port Authority (if within port limits)	Handover control to AMSA or Port Authority (if within port limits) and stand up CIMT to assist.
Commence quick revalidation of the recommended strategies on **Table 2-1** taking into consideration seasonal sensitivities and current situational awareness. Commence validated strategies.	If requested by AMSA/Port Authority: Commence quick revalidation of the recommended strategies on **Table 2-1** taking into consideration seasonal sensitivities and current situational awareness. Commence validated strategies.
Create an Incident Action Plan (IAP) for all ongoing operational periods The content of the IAP should reflect the selected response strategies based on current situational awareness. For the full detailed pre-operational Net Environmental Benefit Analysis (NEBA) see the OSPRMA Appendix A	If requested by AMSA/Port Authority: Create an IAP for all ongoing operational periods The content of the IAP should reflect the selected response strategies based on current situational awareness. For the full detailed 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

In the event of an incident impacting live well infrastructure, also activate Pluto Offshore Facility – Oil Pollution First Strike Plan

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	[redacted]	Verbally notify WCC of event and estimated volume and hydrocarbon type.	Verbal	
Within 2 hours	Woodside Site Rep (WSR), Corporate Incident Management Team Duty Manager (CIMT DM) or Delegate	National Offshore Petroleum Safety Environmental Management Authority (NOPSEMA[1])	Incident notification office	[redacted]	Verbally notify NOPSEMA for spills >80L. Record notification using Initial Verbal Notification Form or equivalent and send to NOPSEMA as soon as practicable (cc to NOPTA and DMIRS).	[redacted]	
Within 3 days	WSR, CIMT DM or Delegate				Provide a written NOPSEMA Incident Report Form as soon as practicable (no later than 3 days after notification) (cc to NOPTA and DMIRS) NOPSEMA [redacted] NOPTA [redacted] DMIRS [redacted]	[redacted]	
As soon as practicable	CIMT DM or Delegate	Woodside	Environment Duty Manager	As per roster	Verbally notify Duty Environment of event and seek advice on relevant performance standards from EP	Verbal	
Within 2 hours of becoming aware of a marine oil pollution incident (MOP) that occurs in or may impact state waters	CIMT DM or Delegate	WA Department of Transport	DoT Maritime Environmental Emergency Response Unit (MEER) Duty Officer	[redacted]	Verbally notify DoT MEER Duty Officer that a spill has occurred and, if required, request use of equipment stored in Karratha. Follow up with a written POLREP as soon as practicable following verbal notification. Additionally, DoT to be notified if spill is likely to extend into WA State waters. Request DoT to provide Liaison to WEL IMT.	[redacted]	
As soon as practicable	CIMT DM or Delegate	Department of Climate Change, Energy, the Environment and Water (DCCEEW) Director of National Parks	Marine Park Compliance Duty Officer	[redacted]	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. This notification should include: • titleholder details • time and location of the incident • proposed response arrangements and locations as per the OPEP • contact details for the response coordinator • 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 WA Department of	CIMT DM or Delegate	WA Department of Biodiversity, Conservation and Attractions (DBCA)	Duty Officer	[redacted]	Phone call notification	Verbal	

[1] Notification to NOPSEMA must be from a Woodside Representative.

Timing	By	To	Name	Contact	Instruction	Form	Complete? (✓)
Biodiversity, Conservation and Attractions							
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, tourism operators or relevant cultural authorities may be affected, Woodside would, at the relevant time, engage with these parties as appropriate and in alignment with the Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) for WA-34-L Pyxis Drilling and Subsea Installation. Relevant persons/ organisations 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)	[redacted]	Verbally notify AMSA RCC of the hydrocarbon spill. Follow up with a written Marine Pollution Report (POLREP) as soon as practicable following verbal notification.	[redacted]	
ADDITIONAL LEVEL 2/3 NOTIFICATIONS							
As soon as practicable	CIMT DM or Delegate	AMOSC	AMOSC Duty Manager	[redacted]	Notify AMOSC that a spill has occurred and follow-up with an email from the **CIMT Leader/ CIMT Deputy Leader/ IMT IC/ CMT Adviser/ CMT Leader** to formally activate AMOSC. 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.	[redacted]	
As soon as practicable	CIMT DM or Delegate	Oil Spill Response Limited (OSRL)	OSRL Duty Manager	[redacted]	Contact OSRL duty manager and request assistance from technical advisor in Perth. Send the completed notification form to OSRL as soon as practicable.	[redacted]	
					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.	[redacted]	
As soon as practicable if extra personnel are required for incident support	CIMT DM or Delegate	Marine Spill Response Corporation (MSRC)	MSRC Response Manager	[redacted]	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	

IN THE EVENT OF A HYDROCARBON SPILL THAT IS LIKELY TO TRAVERSE INTERNATIONAL WATERS, CIMT WILL NOTIFY THEAUSTRALIAN DEPARTMENT OF FOREIGN AFFAIRS AND TRADE (DFAT):

[redacted] **and** [redacted]

2. RESPONSE TECHNIQUES

Table 2-1: Response techniques

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	Vessel (MDO)	LOWC (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. If a surface sheen is visible from the facility, deploy the satellite tracking buoy within two hours.	**Operations**	**DAY 1:** Tracking buoy deployed within 2 hours.	Surveillance and Reconnaissance to Detect Hydrocarbons and Resources at Risk (OM02) of The Operational Monitoring Operational Plan. Deploy tracking buoy in accordance with [redacted].
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.**	**Intelligence or Environment**	**DAY 1:** 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). [redacted] *Planning to download immediately and follow steps*
	Yes	Yes	ALL	Send Oil Spill Trajectory Modelling (OSTM) form (Appendix B, Form 7) to RPS Response ([redacted]) and call RPS Response Duty Officer [redacted]).	**Intelligence**	**DAY 1:** Detailed modelling within 4 hours of RPS Response receiving information from Woodside.	
Operational monitoring – aerial surveillance (OM02)	Yes	Yes	ALL	Instruct Aviation Duty Manager to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in Appendix B Form 8.	**Logistics – Aviation**	**DAY 1:** 2 trained aerial observers. 1 aircraft available. 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). [redacted] *Planning to download immediately and follow steps*
Operational monitoring – satellite tracking (OM02)	Yes	Yes	ALL	The Intelligence duty manager should be instructed to stand up Kongsberg Satellite Services (KSAT) to provide satellite imagery of the spill ([redacted])	**Intelligence**	**DAY 1:** Service provider will confirm availability of an initial acquisition within 2 hours. 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:** Service provider deploy resources within 3 days: - 3 specialists in water quality monitoring - 2 monitoring systems and ancillaries - 1 vessel for deploying the monitoring systems with a dedicated winch, A-frame or Hiab and ancillaries to deploy the equipment. 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). [redacted] *Planning to download immediately and follow steps*
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**	10 days prior to any impact predicted by OM01/02/03, and in agreement with WA DoT (for Level 2/3 incidents), deployment of 2 specialists from resource pool in establishing the status of sensitive receptors	Pre-emptive Assessment of Sensitive Receptors (OM04 of The Operational Monitoring Operational Plan). [redacted] *Planning to download immediately and follow steps*

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	Vessel (MDO)	LOWC (Cond.)					
Operational monitoring – shoreline assessment (OM05)	Yes	Yes	ALL	Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05).	**Planning or Environment**	10 days prior to any impact predicted by OM01/02/03, and in agreement with WA DoT (for Level 2/3 incidents), deployment of 1 specialist in SCAT for each RPA	Shoreline Assessment (OM05 of The Operational Monitoring Operational Plan). [redacted] *Planning to download immediately and follow steps*
Surface dispersant	No	No	N/A	Surface dispersant application is not deemed to be a feasible response technique for spills of highly volatile hydrocarbons such as Pluto Condensate or MDO as they are prone to rapid spreading, thinning and evaporation. Dispersant droplets pass through thin surface films without binding to the hydrocarbon and thus its use would unnecessarily introduce additional chemical substances to the marine environment and increase entrained hydrocarbons. Dispersant use is therefore not considered to provide a net environmental benefit.			
Containment and recovery	No	No	N/A	Volatile hydrocarbons such as Pluto Condensate or MDO are likely to weather, spread and evaporate quickly and lead to unsafe conditions in the vicinity of fresh hydrocarbon. Corralling volatile substances such as Pluto Condensate or MDO also poses a safety risk and thus should be avoided. This response technique is therefore not feasible.			
Mechanical dispersion	No	No	N/A	This response strategy is not recommended.			
In-situ burning	No	No	N/A	This response strategy is not recommended.			
Shoreline protection and deflection	No	Yes	L2/3	Shoreline protection and deflection may be deployed in agreement with WA DoT (Level 2/3 spills) if Operational Monitoring activities predict shoreline contact. Woodside will mobilise and commence shoreline protection and deflection tactics to reduce the volume of oil accumulating on shorelines at selected RPAs 5 days prior to predicted impacts. Equipment and relevant personnel from Woodside, AMOSC and AMSA stockpiles to be mobilised. Consideration to be given to the requirement for interstate and international shoreline protection equipment and relevant personnel (e.g. OSRL stockpiles).	**Logistics and Planning**	In agreement with WA DoT, activate relevant Tactical Response Plans (TRPs) 5 days prior to impact. In agreement with WA DoT, mobilise teams to RPAs 5 days prior to impact. In agreement with WA DoT, equipment mobilised from closest stockpile 5 days prior to impact. Supplementary equipment mobilised from AMOSC, AMSA and/or OSRL stockpiles 5 days prior to impact.	Protection and Deflection Operational Plan [redacted] *Logistics to download immediately and follow steps*

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	Vessel (MDO)	LOWC (Cond.)					
				Mobilise security provider as per security support plan.			
Shoreline clean-up	**No**	**Yes**	**L2/3**	Shoreline clean-up operations may be deployed in agreement with WA DoT (Level 2/3 spills) if Operational Monitoring activities predict shoreline contact. Equipment and relevant personnel from Woodside, AMOSC and AMSA stockpiles to be mobilised. Consideration to be given to the requirement for interstate and international shoreline protection equipment and relevant personnel (e.g. OSRL stockpiles). Mobilise security provider as per security support plan.	**Logistics and Planning**	In agreement with WA DoT, activate relevant Tactical Response Plans (TRPs) 5 days prior to impact. In agreement with WA DoT, mobilise teams to RPAs 5 days prior to impact. In agreement with WA DoT, equipment mobilised from closest stockpile 5 days prior to impact. Supplementary equipment mobilised from AMOSC, AMSA and/or OSRL stockpiles 5 days prior to impact.	Shoreline Clean-up Operational Plan [redacted] *Logistics to download immediately and follow steps*
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. Mobilise AMOSC Oiled Wildlife Containers. Consider whether additional equipment is required from local suppliers.	**Logistics and Planning**		Oiled Wildlife Response Operational Plan [redacted]
Scientific monitoring (type II)	**Yes**	**Yes**	**ALL**	Notify Woodside science team of spill event.			Oil Spill Scientific Monitoring Programme – Operational Plan [redacted]
SOURCE CONTROL TECHNIQUES							
Subsea First Response Toolkit	**N/A**	**Yes**	**L2/3**	Debris clearance equipment may require mobilisation prior to the undertaking of any further source control activities or Subsea Dispersant Injection. Source control via ROV intervention using the intervention riser system (IRS) or subsea tree may be feasible.	**Operations and Logistics**	**DAY 2:** 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. Intervention vessel with minimum requirement of a working class ROV and operator mobilised to with for deployment within 11 days. ROV equipment deployed within 7 days.	• Source Control Emergency Response Planning Guideline • PLA08 Source Control Emergency Response Plan
Subsea Dispersant	**N/A**	**No**	**N/A**	Pluto Condensate is highly volatile with a low residue of 0.6%. Modelling does not predict surface oil at threshold (>50 g/m^2) or at 10 g/m^2. There is also no significant shoreline contact at feasible response thresholds (>100 g/m^2) predicted until month 2-3. The use of subsea dispersant injection would therefore not provide an environmental benefit and would			

Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	Vessel (MDO)	LOWC (Cond.)					
				unnecessarily introduce additional chemical substances to the marine environment and further increase exposure of subsea ecosystems to entrained hydrocarbons. Subsea dispersant injection is also not applicable to surface spills of MDO.			
Capping Stack	**N/A**	**Yes**	**L2/3**	Conventional/ vertical capping stack deployment with a heavy lift vessel will be attempted at the discretion of the vessel master on the day, giving due regard to the safety of the vessel and crew and consideration to the factors that may influence a safe deployment such as: a plume radius and acceptable environmental conditions e.g. wind speed, wave height and current.	**Operations – Source Control Unit**	**DAY 1:** Identify source control vessel availability within 24 hours. Capping stack deployed by a chartered construction vessel by day 16.	
Relief Well	**N/A**	**Yes**	**L2/3**	As per PLA08 Source Control Emergency Response Plan	**Operations – Source Control Unit**	**DAY 1:** Identify source control vessel availability within 24 hours. MODU mobilised to location within 21 days.	

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 for both Credible Scenario-01 (CS-01) and CS-02, there are no sensitive receptors with the potential to be contacted by hydrocarbon at or above impact threshold levels within 48 hours of a spill.

However, hydrocarbon spill modelling results for CS-01 indicate that the following sensitive receptors have the potential to be contacted by hydrocarbons beyond 48 hours of a spill:

Areas of coastline contacted	Minimum time to shoreline accumulation (above 100 g/m^2) in days
Barrow Island	8.9 days (10 m^3)
Lowendal Islands	39.8 days (7 m^3)
Southern Pilbara – Islands (Thevenard Island and NR)	39.8 days (34 m^3)
Airlie Island	40.8 days (12 m^3)
Dampier Archipelago and Enderby Island	41.7 days (67 m^3)
Southern Pilbara – Shorelines (Ashburton)	41.9 days (25 m^3)
Direction Island	42.0 days (2 m^3)
Twin Island	42.2 days (14 m^3)
Goodwyn Island	43.0 days (4 m^3)
Kendrew Island	43.0 days (11 m^3)
Middle Pilbara – Islands and Shoreline (Great Sandy Island NR and Mary Anne Group)	43.1 days (72 m^3)
Rosemary Island	43.2 days (18 m^3)
Malus Island	44.0 days (9 m^3)
Mangrove Islands	44.2 days (9 m^3)
Passage Islands	45.4 days (13 m^3)
Keast Island	45.4 days (2 m^3)
Karratha	46.5 days (15 m^3)
Karratha-Port Hedland	58.5 days (5 m^3)
Hermite Island, Montebello Islands and Montebello Islands Marine Park	29.4 days (15 m^3)
North Sandy Island NR	64.3 days (5 m^3)
Northern Pilbara - Islands and Shoreline	68.6 days (5 m^3)
Cohen Island	80.6 days (6 m^3)
Legendre Island	80.9 days (5 m^3)
Angel and Gidley Islands	84.7 days (2 m^3)

Tactical Response plans can be accessed via the Oil Spill Portal - Tactical Response Plans and 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 regional sensitive receptors in relation to the WA-34-L Pyxis Drilling and Subsea Installation Operational Area and identifies priority protection areas.

Consideration should be given to other stakeholders (including mariners) in the vicinity of the spill location. **Table 3-1** indicates the assets within the vicinity of the WA-34-L Pyxis Drilling and Subsea Installation Operational Area.

Table 3-1: Assets in the vicinity of the WA-34-L Pyxis Drilling and Subsea Installation Operational Area

Asset	Distance and Direction from Operational Area	Operator
Pluto Platform	~12 km east	Woodside
Wheatstone Platform	~14 km east	Chevron
John Brookes	~50 km south	Santos

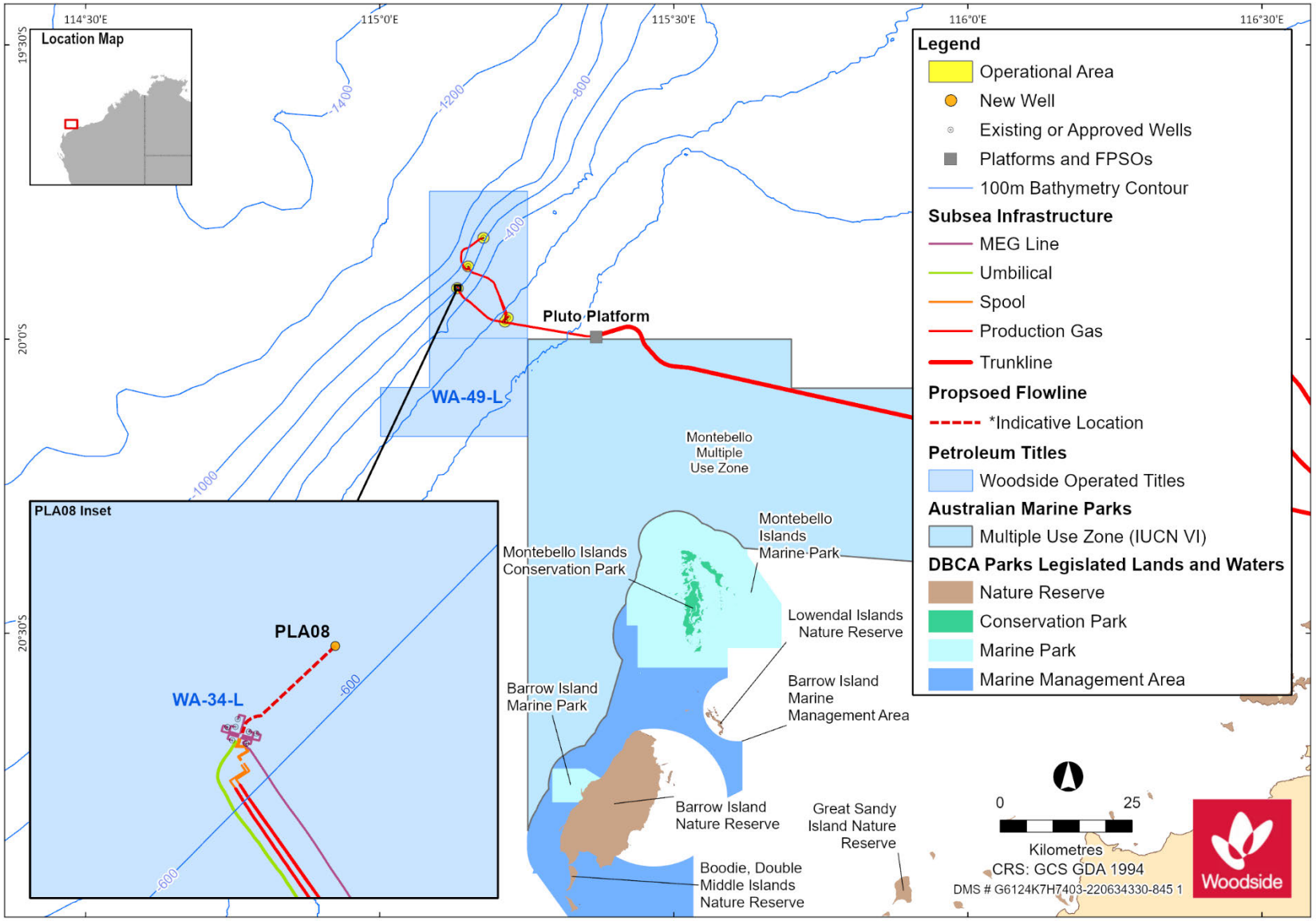


Figure 3-1: Map of WA-34-L Pyxis Drilling and Subsea Installation Operational Area and regional sensitive receptors

4. DISPERSANT APPLICATION

Surface dispersant application is not considered an appropriate response strategy for this activity as described in the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Appendix D (Woodside's Oil Spill Preparedness and Response Mitigation Assessment).

APPENDIX A – CREDIBLE SPILL SCENARIOS AND HYDROCARBON INFORMATION

Table A - 1: Credible spill scenarios and hydrocarbon information

Scenario	Product	API gravity	Volume (m^3)	Residue	Weathering rate		Suggested ADIOS2 Analogue[2]
CS-01 (WCCS) **Loss of well containment during drilling of development well PLA08 over 60.1 days**	Pluto Condensate	80.2°	75,928	0.6% or 471 m^3	12 hours (BP < 180 °C)	73%	Terengganu Condensate – API 73.1°
					24 hours (180 °C < BP < 265 °C)	21%	
					Several days (265 °C < BP < 380 °C)	6%	
CS-02 **A short-term (instantaneous) surface release of MDO within the Operational Area representing loss of vessel fuel tank integrity after a collision[3]**	MDO	37.2°	500	5% or 25 m^3	12 hours (BP < 180 °C)	6%	Diesel Fuel Oil (Southern USA 1)
					24 hours (180 °C < BP < 265 °C)	35%	
					Several days (265 °C < BP < 380 °C)	54%	

[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.

[3] Modelling for a surface release of 2000 m^3 MDO was available within Montebello Marine Park, 33 km closer to shore than the Operational Area for this activity. It was originally undertaken in 2019 and reprocessed in 2021 using NOPSEMA's contemporary modelling thresholds. The largest tank of the vessel proposed for the activity is circa 500 m^3, 75% smaller than the modelled MDO volume (2000 m^3). Given that spill parameters and geographic location fall within the envelope of the existing MDO modelling, it is an appropriate surrogate and therefore additional modelling was not required.

APPENDIX B – NOTIFICATION FORMS

Table B - 1: Notification forms

No.	Form Name	Link
1	Record of initial verbal notification to NOPSEMA template	[redacted]
2	NOPSEMA Incident Report Form	[redacted]
3	Marine Pollution Report (POLREP – AMSA)	[redacted]
4	AMOSC Service Contract	[redacted]
5	Marine Pollution Report (POLREP – DoT)	[redacted]
6a	OSRL Initial Notification Form	[redacted]
6b	OSRL Mobilisation Activation Form	[redacted]
7	RPS Response Oil Spill Trajectory Modelling Request	[redacted]
8	Aerial Surveillance Observer Log	[redacted]
9	Tracking buoy deployment instructions	[redacted]

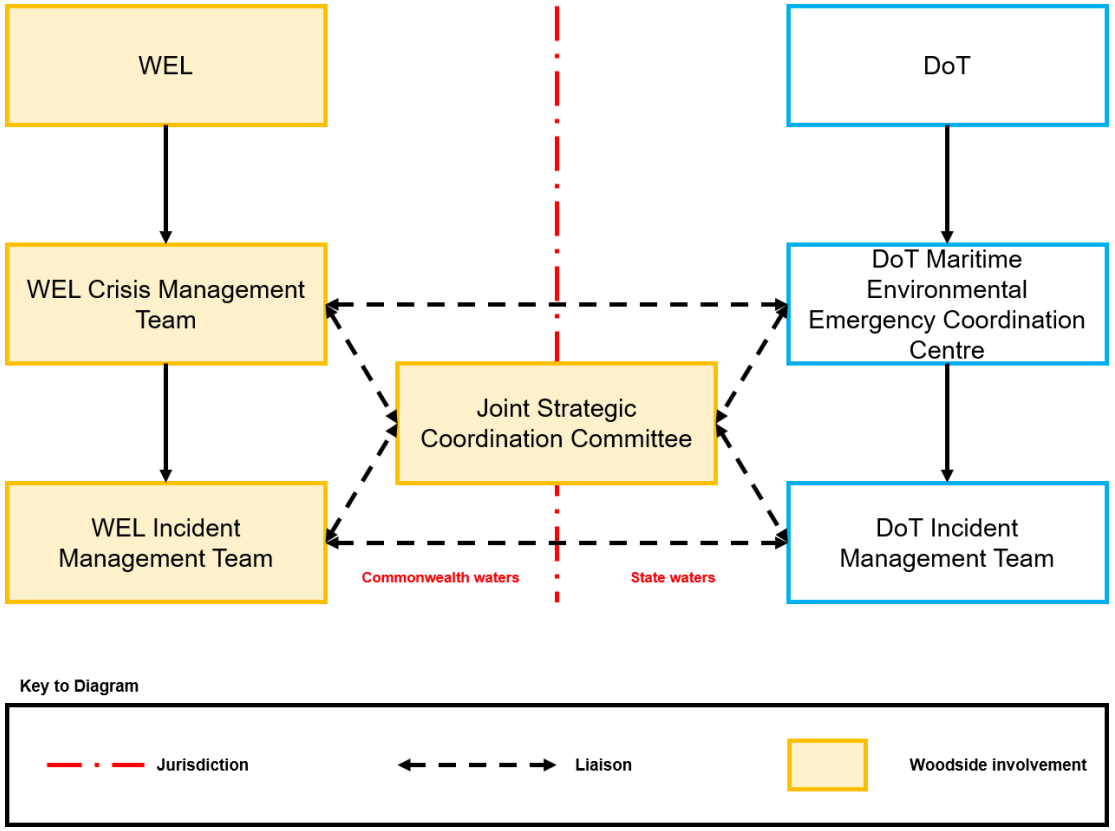
FORM 1 – RECORD OF INITIAL VERBAL NOTIFICATION TO NOPSEMA

NOPSEMA phone:		
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	[redacted]	
NOPTA	[redacted]	
DMIRS	[redacted]	

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[4]



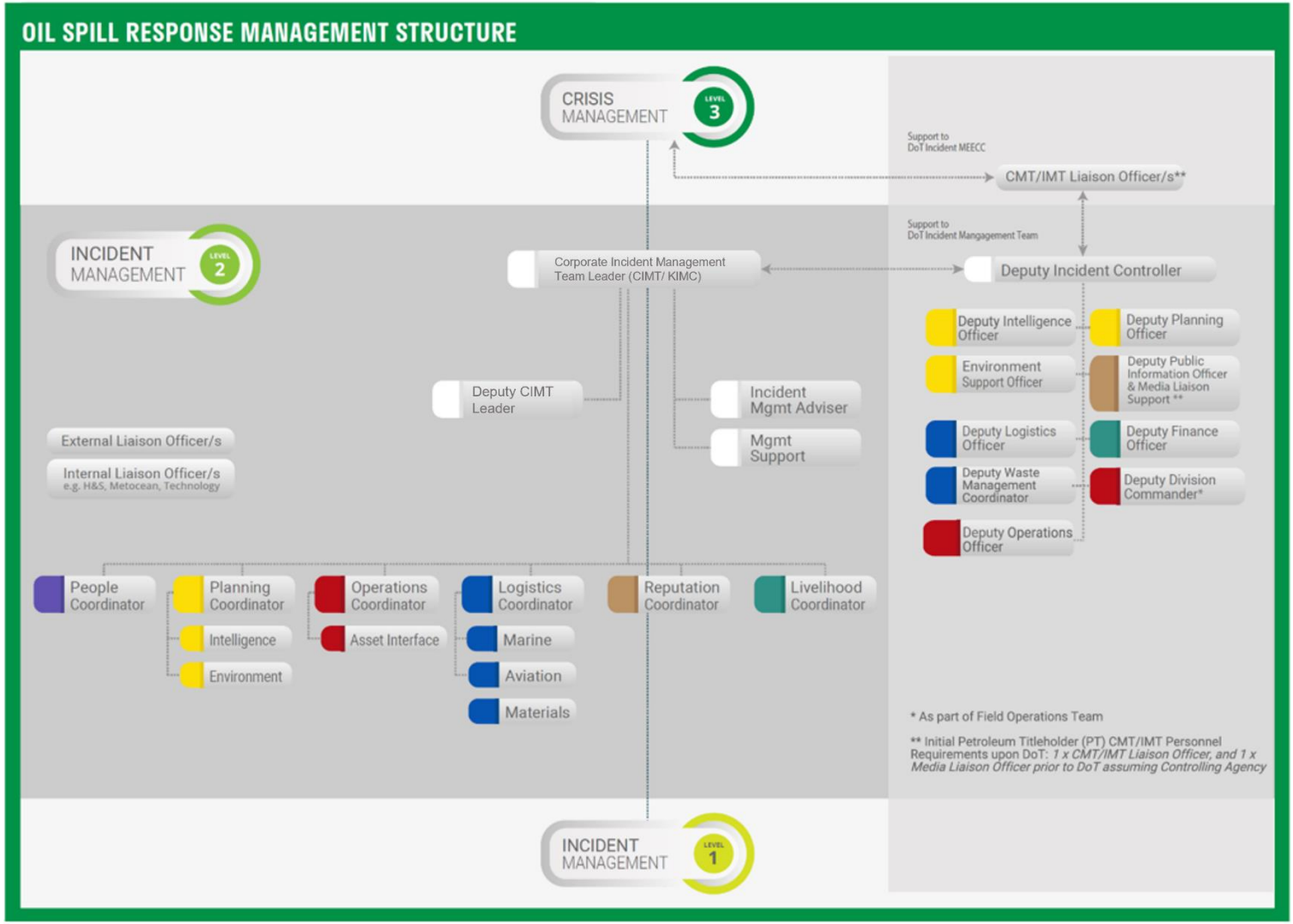
The Control Agency for a hydrocarbon spill in Commonwealth waters resulting from an offshore petroleum activity is Woodside (the Petroleum Titleholder).

The Control Agency/HMA for a hydrocarbon spill in State waters/shorelines resulting from an offshore petroleum activity is DoT. DoT will appoint an Incident Controller and form a separate IMT to only manage the spill within State waters/shorelines.

[4] Adapted from DoT Offshore Petroleum Industry Guidance Note, Marine Oil Pollution: Response and Consultation Arrangements July 2020. Note: For full structure up to Commonwealth Cabinet/Minister refer to Marine Oil Pollution: Response and Consultation Arrangements Section 6.5, Figure 4.

APPENDIX E – WOODSIDE INCIDENT MANAGEMENT STRUCTURE

Woodside Incident Management Structure for Hydrocarbon Spill (including Woodside Liaison Officers Command Structure within DoT IMT if required).



APPENDIX F – WOODSIDE LIAISON OFFICER RESOURCES TO DOT

In the event that DoT is required to establish an IMT, Woodside will make available an appropriate number of appropriately qualified persons to work within the DoT IMT. In the event the PPA is the Control Agency within the Dampier Port Limits, Woodside will make available similar roles as requested.

It is an expectation that Woodside's nominated CMT Liaison Officer and the Deputy Incident Controller attend the DoT Fremantle ICC as soon as possible after the formal request has been made by the State Marine Pollution Coordinator (SMPC), and no later than 8am on the day following the request being formally made. For Woodside personnel designated to serve in DoT's Forward Operating Base (FOB), it is expected that they arrive at the FOB no later than 24 hours from the formal request being made by the SMPC.

Area	WEL Liaison Role	Personnel Sourced from[5]:	Key Duties	#
DoT Maritime Environmental Emergency Coordination Centre (MEECC)	CMT Liaison Officer	CIMT Leader Roster	• Provide a direct liaison between the CMT and the MEECC. • Facilitate effective communications and coordination between the CMT Leader and SMPC. • Offer advice to SMPC on matters pertaining to PT crisis management policies and procedures.	1
DoT IMT Incident Control	WEL Deputy Incident Controller	CIMT Leader Roster	• Provide a direct liaison between the PT IMT and DoT IMT. • Facilitate effective communications and coordination between the PT IC and the DoT IC. • Offer advice to the DoT IC on matters pertaining to PT incident response policies and procedures. • Offer advice to the Safety Coordinator on matters pertaining to PT safety policies and procedures, particularly as they relate to PT employees or contractors operating under the control of the DoT IMT.	1
DoT IMT Intelligence	Intelligence Support Officer/ Deputy Intelligence Officer	Intelligence Coordinator Roster	• As part of the Intelligence Team, assist the Intelligence Officer in the performance of their duties in relation to situation and awareness. • Facilitate the provision of relevant modelling and predications from the PT IMT. • Assist in the interpretation of modelling and predictions originating from the PT IMT. • Facilitate the provision of relevant situation and awareness information originating from the DoT IMT to the PT IMT. • Facilitate the provision of relevant mapping from the PT IMT.	1

[5] *These positions would be mobilised, in consultation with DoT, to align to the actual spill scenario. The selected roles and/or individual personnel would be subject to continued evaluation to ensure continued 'best fit'. For CIMT/ KIMC roster arrangements, contact the WCC. During a prolonged response, additional personnel may be sourced through AMOSC Core Group via* [redacted]

Area	WEL Liaison Role	Personnel Sourced from[5]:	Key Duties	#
			• Assist in the interpretation of mapping originating from the PT IMT. • Facilitate the provision of relevant mapping originating from the DoT IMT to the PT IMT.	
DoT IMT Intelligence – Environment	Environment Support Officer	Environment Coordinator Roster	• As part of the Intelligence Team, assist the Environment Coordinator in the performance of their duties in relation to the provision of environmental support into the planning process. • Assist in the interpretation of the PT OPEP and relevant TRP plans. • Facilitate in requesting, obtaining and interpreting environmental monitoring data originating from the PT IMT. • Facilitate the provision of relevant environmental information and advice originating from the DoT IMT to the PT IMT.	1
DoT IMT Planning- Plans/ Resources	Deputy Planning Officer	Planning Coordinator Roster	• As part of the Planning Team, assist the Planning Officer in the performance of their duties in relation to the interpretation of existing response plans and the development of incident action plans and related sub plans. • Facilitate the provision of relevant IAP and sub plans from the PT IMT. • Assist in the interpretation of the PT OPEP from the PT. • Assist in the interpretation of the PT IAP and sub plans from the PT IMT. • Facilitate the provision of relevant IAP and sub plans originating from the DoT IMT to the PT IMT. • Assist in the interpretation of the PT existing resource plans. • Facilitate the provision of relevant components of the resource sub plan originating from the DoT IMT to the PT IMT. **(Note this individual must have intimate knowledge of the relevant PT OPEP and planning processes)**	1
DoT IMT Public Information- Media/ Community Engagement	Public Information Support and Media Liaison Officer/ Deputy Public Information Officer	Reputation Coordinator Roster	• As part of the Public Information Team, provide a direct liaison between the PT Media team and DoT IMT Media team. • Facilitate effective communications and coordination between the PT and DoT media teams. • Assist in the release of joint media statements and conduct of joint media briefings. • Assist in the release of joint information and warnings through the DoT Information and Warnings team. • Offer advice to the DoT Media Coordinator on matters pertaining to PT media policies and procedures.	1

Area	WEL Liaison Role	Personnel Sourced from[5]:	Key Duties	#
			• Facilitate effective communications and coordination between the PT and DoT Community Liaison teams. • Assist in the conduct of joint community briefings and events. • Offer advice to the DoT Community Liaison Coordinator on matters pertaining to the PT community liaison policies and procedures. • Facilitate the effective transfer of relevant information obtained from through the Contact Centre to the PT IMT.	
DoT IMT Logistics	Deputy Logistic Officer	Logistics Coordinator Roster	• As part of the Logistics Team, assist the Logistics Officer in the performance of their duties in relation to the provision of supplies to sustain the response effort. • Facilitate the acquisition of appropriate supplies through the PTs existing OSRL, AMOSC and private contract arrangements. • Collects Request Forms from DoT to action via PT IMT. **(Note this individual must have intimate knowledge of the relevant PT logistics processes and contracts)**	1
DoT IMT Finance-Accounts/ Financial Monitoring	Deputy Finance Officer	Livelihood Coordinator Roster	• As part of the Finance Team, assist the Finance Officer in the performance of their duties in relation to the setting up and payment of accounts for those services acquired through the PTs existing OSRL, AMOSC and private contract arrangements. • Facilitate the communication of financial monitoring information to the PT to allow them to track the overall cost of the response. • Assist the Finance Officer in the tracking of financial commitments through the response, including the supply contracts commissioned directly by DoT and to be charged back to the PT.	1
DoT IMT Operations	Deputy Operations Officer	Operations Coordinator Roster	• As part of the Operations Team, assist the Operations Officer in the performance of their duties in relation to the implementation and management of operational activities undertaken to resolve an incident. • Facilitate effective communications and coordination between the PT Operations Section and the DoT Operations Section. • Offer advice to the DoT Operations Officer on matters pertaining to PT incident response procedures and requirements. • Identify efficiencies and assist to resolve potential conflicts around resource allocation and simultaneous operations of PT and DoT response efforts.	1

Area	WEL Liaison Role	Personnel Sourced from[5]:	Key Duties	#
DoT IMT Operations – Waste Management	Facilities Support Officer/ Deputy Waste Management Coordinator	Logistics Materials Coordinator Roster	• As part of the Operations Team, assist the Waste Management Coordinator in the performance of their duties in relation to the provision of the management and disposal of waste collected in State waters. • Facilitate the disposal of waste through the PT's existing private contract arrangements related to waste management and in line with legislative and regulatory requirements. • Collects Request Forms from DoT to action via PT IMT.	1
DoT FOB Operations Command	Deputy On-Scene Commander/ Deputy Division Commander	CIMT Leader Roster	• As part of the Field Operations Team, assist the Division Commander in the performance of their duties in relation to the oversight and coordination of field operational activities undertaken in line with the IMT Operations Section's direction. • Provide a direct liaison between the PT FOB and DoT FOB. • Facilitate effective communications and coordination between the PT Division Commander and the DoT Division Commander. • Offer advice to the DoT Division Commander on matters pertaining to PT incident response policies and procedures. • Assist the Safety Coordinator deployed in the FOB in the performance of their duties, particularly as they relate to PT employees or contractors. • Offer advice to the Safety Coordinator deployed in the FOB on matters pertaining to PT safety policies and procedures.	1
			Total Woodside personnel initially required in DoT IMT	11

APPENDIX G – DOT LIAISON OFFICER RESOURCES TO WOODSIDE

Once DoT activates a State waters/shorelines IMT, DoT will make available the following roles to Woodside.

Area	DoT Liaison Role	Personnel Sourced from:	Key Duties	#
WEL CMT	DoT Liaison Officer (prior to DoT assuming Controlling Agency) / Deputy Incident Controller – State waters (after DoT assumes Controlling Agency)	DoT	• Facilitate effective communications between DoT's SMPC/ Incident Controller and the Petroleum Titleholder's appointed CMT Leader / Incident Controller. • Provide enhanced situational awareness to DoT of the incident and the potential impact on State waters. • Assist in the provision of support from DoT to the Petroleum Titleholder. • Facilitate the provision technical advice from DoT to the Petroleum Titleholder Incident Controller as required.	1
WEL Reputation FST (Media Room)/ Public Information – Media	DoT Media Liaison Officer	DoT	• Provide a direct liaison between the PT Media team and DoT IMT Media team. • Facilitate effective communications and coordination between the PT and DoT media teams. • Assist in the release of joint media statements and conduct of joint media briefings. • Assist in the release of joint information and warnings through the DoT Information & Warnings team. • Offer advice to the PT Media Coordinator on matters pertaining to DoT and wider Government media policies and procedures.	1
			Total DoT Personnel Initial Requirement to Woodside	2

APPENDIX F NOPSEMA REPORTING FORMS

NOPSEMA Recordable Environmental Incident monthly Reporting Form
https://www.nopsema.gov.au/assets/Forms/A198750.doc
Report of an accident, dangerous occurrence or environmental incident
https://www.nopsema.gov.au/assets/Forms

APPENDIX G CONSULTATION

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision

Date: June 2023
Revision: 4

TABLE OF CONTENTS

1. Consultation

1.1 Email sent to ABF, DISER, DMIRS, DoT, APPEA, Recfishwest, Marine Tourism WA, WA Game Fishing Association, Karratha-based charter boat, tourism and dive operators (2 June 2022)

Dear Stakeholder

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A Consultation Information Sheet is attached, which provides background on the proposed activity, including a summary of potential key risks and associated management measures. The Information Sheet is also available on our website.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.

Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.2 Email sent to Australian Fisheries Management Authority (AFMA) (2 June 2022)

Dear AFMA

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.

Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Wellhead locations:

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
Proposed New Well					
PLA08	~820 m	19° 54’ 42.003” S	115° 08’ 02.424” E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA manifold	~844 m	19°52'46.2896”S	115°09’00.0179”E	Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141”S	115°12’54.6816”E		
Existing or Approved Wells					

PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
PLA03 well	~830 m	19°54'48.200"S	115°07'54.765"E		
PLA04 well	~830 m	19°54'48.566"S	115°07'55.798"E		
PLA05 well	~830 m	19°54'48.694"S	115°7'56.3530"E		
PLA06 well	~830 m	19°54'48.686"S	115°07'55.577"E		
PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
PL-PYA02 well	~862 m	19°52'34.908"S	115°09'00.666"E		
XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Commercial fishing implications:

Woodside has assessed potential impacts for commercial fisheries based on Fishcube, ABARES data, fishing methods and water depth. We note there are four overlapping Commonwealth managed fisheries, only one of which – North West Slope and Trawl Fishery – has been active in the Operational Area in recent years. The following fisheries have not been active:

- Southern Bluefin Tuna Fishery
- Western Tuna and Billfish Fishery
- Western Skipjack Fishery

Woodside has provided information to the fishery's representative organisation 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.

Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		
Physical presence of infrastructure	Physical presence of infrastructure on seafloor causing interference or displacement	Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and, government departments and agencies to inform decision making for the proposed activity and development of the EP Advice to relevant stakeholders prior to the commencement of activities. Navigation charts will be updated once all PLA08 activities are complete.
Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water,	All routine marine discharges will be managed according to legislative and regulatory requirements

	cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	
Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects
Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the DP MODU and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		
Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment
Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:

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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.3 Email sent to Australian Hydrographic Office (AHO) and Australian Maritime Safety Authority (AMSA) – Marine Safety (2 June 2022)

Dear AHO / AMSA

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website), and shipping lane map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier

Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.4 Email sent to Australian Maritime Safety Authority (AMSA) – Marine Pollution (3 August 2022)

Dear [redacted]

As part of Woodside's ongoing consultation for its current and planned activities, I would like to advise the Australian Maritime Safety Authority (AMSA) that Woodside is preparing a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Intervention Environment Plan (EP) to drill and develop one Pluto production well, PLA08. The well will be tied back to the Pluto platform and operated under the previously accepted Pluto Facility Operations Environment Plan.

Woodside would like to offer AMSA the opportunity to review or provide comment on the activity.

Information is presented as follows:

- A Consultation Information Sheet is available on our website here, providing information on the proposed activities.
- The *WA-34-L Pyxis Drilling and Subsea Intervention Oil Pollution First Strike Plan* is attached. This will form part of the approval submission in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).

Woodside anticipates submitting the proposed EP in September 2022 to support these activities.

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977 by **COB 05 September 2022**.

Your feedback and our response will be included in our Environment Plan which 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).

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.

Many thanks,

1.5 Email sent to Department of Climate Change, Energy, the Environment and Water Agriculture (DCCEEW) *(formerly the Department of Agriculture, Water and the Environment (DAWE))* (2 June 2022)

Dear DAWE

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.

Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Wellhead locations:

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
Proposed New Well					
PLA08	~820 m	19° 54’ 42.003” S	115° 08’ 02.424” E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA manifold	~844 m	19°52'46.2896”S	115°09’00.0179”E	Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141”S	115°12’54.6816”E		
Existing or Approved Wells					

PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
PLA03 well	~830 m	19°54'48.200"S	115°07'54.765"E		
PLA04 well	~830 m	19°54'48.566"S	115°07'55.798"E		
PLA05 well	~830 m	19°54'48.694"S	115°7'56.3530"E		
PLA06 well	~830 m	19°54'48.686"S	115°07'55.577"E		
PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
PL-PYA02 well	~862 m	19°52'34.908"S	115°09'00.666"E		
XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Commercial fishing implications:

Woodside has assessed potential impacts for commercial fisheries based on Fishcube, ABARES data, fishing methods and water depth. We note there are four overlapping Commonwealth managed fisheries, only one of which – North West Slope and Trawl Fishery – has been active in the Operational Area in recent years. The following fisheries have not been active:

- Southern Bluefin Tuna Fishery
- Western Tuna and Billfish Fishery
- Western Skipjack Fishery

Woodside has provided information to the fishery's representative organisation 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.

Biosecurity:

With respect to the biosecurity matters, please note the following information below:

Environment description:	
The Operational Area is located in water depths between approximately 985m (PLA01) and 180m (XNA01) and traverses the Northwest Province and the Northwest Shelf Province to the south-eastern corner. The seabed consists primarily of bare sediments that generally become finer with increasing water depth, ranging from sand and gravels on the continental shelf to mud on the slope and abyssal plain.	
Potential IMS risk	***IMS mitigation management***
Accidental introduction and establishment of invasive marine species	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 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. Woodside's Invasive Marine

Species Management Plan includes a risk assessment process that is applied to vessels undertaking Activities. Based on the outcomes of each IMS risk assessment, Management measures commensurate with the risk (such as the treatment of internal systems, IMS inspections or cleaning) will be implemented to minimise the likelihood of IMS being introduced.

Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		
Physical presence of infrastructure	Physical presence of infrastructure on seafloor causing interference or displacement	Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and, government departments and agencies to inform decision making for the proposed activity and development of the EP Advice to relevant stakeholders prior to the commencement of activities. Navigation charts will be updated once all PLA08 activities are complete.
Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water, cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	All routine marine discharges will be managed according to legislative and regulatory requirements
Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects
Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to

		Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		
Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment
Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:
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 Plan which 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).

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.

1.6 Email sent to Department of Defence (DoD) (2 June 2022)

Dear Department of Defence

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and defence zone maps are attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-

submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity.
The MODU may be supported by subsea installation and light well intervention vessels.
Support vessels may be used including, anchor handling vessels and activity support vessels.
The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.
Vessels will operate 24 hours per day for the duration of the activities.

Feedback:
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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.7 Email sent to Director of National Parks (13 June 2022)

Dear Director of National Parks

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

We note Australian Government Guidance on consultation activities and confirm that:

- The proposed activities are outside the boundaries of a proclaimed Australian Marine Park, with the Operational Area located approximately 1.2 km north west of the Commonwealth boundary of the Montebello Marine Park.
- 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 remote likelihood event of a subsea well blowout resulting a spill of Pluto Condensate to the marine environment. Through review of hydrocarbon spill modelling, and with consideration of a 10 ppb dissolved and entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:
    - Argo-Rowley Terrace MP1
    - Gascoyne MP
    - Montebello MP
    - Ningaloo MP
- 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.

A Consultation Information Sheet is attached, which provides background on the proposed activity, including a summary of potential key risks and associated management measures. The Information Sheet is also available on our website.

Please provide your views by **13 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.

Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

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 Plan which 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).

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.

Please provide your views by **13 July 2022**.

1.8 Email sent to Department of Primary Industries and Regional Development (DPIRD) (2 June 2022)

Dear [redacted]

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

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A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.

Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
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Wellhead locations:

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
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Existing Subsea Infrastructure					
PYA manifold	~844 m	19°52'46.2896”S	115°09’00.0179”E	Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141”S	115°12’54.6816”E		
Existing or Approved Wells					

PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
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PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
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XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		
Physical presence of infrastructure	Physical presence of infrastructure on seafloor causing interference or displacement	Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and, government departments and agencies to inform decision making for the proposed activity and development of the EP Advice to relevant stakeholders prior to the commencement of activities. Navigation charts will be updated once all PLA08 activities are complete.
Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water, cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	All routine marine discharges will be managed according to legislative and regulatory requirements
Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects
Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users

		Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		
Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment
Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:
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 Plan which 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).

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.

1.9 Email sent to Department of Transport (DoT) (3 August 2022)

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision

Hi [redacted]

As part of Woodside's ongoing consultation for its current and planned activities, I would like to advise WA Department of Transport (DoT) that Woodside is preparing a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Intervention Environment Plan (EP) to drill and develop one Pluto production well, PLA08. The well will be tied back to the Pluto platform and operated under the previously accepted Pluto Facility Operations Environment Plan.

Woodside would like to offer DoT the opportunity to review or provide comment on the activity.

Information is presented as follows:

- A Consultation Information Sheet is available on our website here, providing information on the proposed activities.
- The *WA-34-L Pyxis Drilling and Subsea Intervention Oil Pollution First Strike Plan* is attached. This will form part of the approval submission in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009* (Cth).
- In the table below, as requested in the *Offshore Petroleum Industry Guidance Note* (July 2020) and from recent engagement activities between DoT and Woodside, responses to the information requirements in a succinct summary and source of information.

Woodside anticipates submitting the proposed EP in September 2022 to support these activities.

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977 by **COB 05 September 2022**.

Your feedback and our response will be included in our Environment Plan which 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).

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.

Many thanks,

[redacted]

<table>
<tr><th>Information Requested in the Offshore Petroleum Industry Guidance Note (July 2020)</th><th colspan="3">Information Provided & Reference</th></tr>
<tr><td>Description of activity, including the intended schedule, location (including coordinates), distance to nearest landfall and map.</td><td colspan="3">Included in the consultation information sheet</td></tr>
<tr><td>Worst case spill volumes.</td><td colspan="3">Included in Appendix A of the First Strike Plan</td></tr>
<tr><td>Known or indicative oil type/properties.</td><td colspan="3">Included in Appendix A of the First Strike Plan</td></tr>
<tr><td>Amenability of oil to dispersants and window of opportunity for dispersant efficacy.</td><td colspan="3">Dispersant is not deemed suitable for spill of Pluto Condensate due to the highly volatile characteristics and low residue of 0.6%. Additionally, modelling does not predict the presence of floating hydrocarbons at feasible response thresholds of >50 g/m^2. Surface dispersant is also not deemed to be suitable for spills of marine diesel oil (MDO).</td></tr>
<tr><td>Description of existing environment and protection priorities.</td><td colspan="3">Included in Section 3 of the First Strike Plan</td></tr>
<tr><td>Details of the environmental risk assessment related to marine oil pollution - describe the process and key outcomes around risk identification, risk analysis, risk evaluation and risk treatment. For further information see the Oil Pollution Risk Management Information Paper (NOPSEMA 2021).</td><td colspan="3">Unplanned loss of containment events from the Petroleum Activities Program have been identified during the risk assessment process (presented in Section 6 of the EP). Further descriptions of risk, impacts and mitigation measures (which are not related to hydrocarbon preparedness and response) are provided in Section 6 of the EP. Two unplanned events or credible spill scenario for the Petroleum Activities Program have been selected as representative across types, sources and incident/response levels, up to and including the WCCS.

Table 2-1 of the OSPRMA and Appendix A of the First Strike Plan present the credible scenarios for the Petroleum Activities Program. Two worst-case credible scenarios (CS-01 – LOWC (Pluto Condensate) and CS-02 – vessel collision (MDO)) have been used for response planning purposes for the activity as all other scenarios are of a lesser scale and extent. By demonstrating capability to meet and manage events of this size and timescale, Woodside assumes relevant scenarios that are smaller in nature and scale can also be managed by the same capability.

Response performance outcomes have been defined based on a response to the WCCS.</td></tr>
<tr><td rowspan="8">Outcomes of oil spill trajectory modelling, including predicted times to enter State waters and contact shorelines.</td><td colspan="2">Credible Scenario-01 (CS-01) – Loss of well containment at PLA08 well (Pluto Condensate)

Instantaneous release of 92,000 m^3. 0.6% residue of 552 m^3</td><td>Credible Scenario-02 (CS-02) – loss of containment due to vessel collision

Instantaneous release of 500 m^3. 5% residue of 25 m^3

(Modelling for a surface release of 2000 m^3 MDO was available within Montebello Marine Park, 33 km closer to shore than the Operational Area for this activity. It was originally undertaken in 2019 and reprocessed in 2021 using NOPSEMA's contemporary entrained and dissolved modelling thresholds. The largest tank of the vessel proposed for the activity is circa 500 m^3, 75% smaller than the modelled MDO volume (2000 m^3). Given that spill parameters and geographic location fall within the envelope of the existing MDO modelling, it is an appropriate surrogate and therefore additional modelling was not undertaken)</td></tr>
<tr><td colspan="2">Minimum time to shoreline contact (above 100 g/m^2) in days – based on deterministic modelling</td><td>Minimum time to shoreline contact (above 100 g/m^2) in days</td></tr>
<tr><td>Hermite Island, Montebello Islands and Montebello Islands Marine Park</td><td>12.7 days (2 m^3) – fastest
70.6 days (34 m^3) – largest</td><td rowspan="4">No contact at response thresholds</td></tr>
<tr><td>Exmouth, Ningaloo Coast World Heritage Area an Ningaloo Marine Park</td><td>90.5 days (206 m^3)</td></tr>
<tr><td>Cape Range</td><td>90.6 days (55 m^3)</td></tr>
<tr><td>Muiron Islands Marine Management Area and World Heritage Area</td><td>90.5 days (4 m^3)</td></tr>
<tr><td colspan="2">Stochastic modelling for the above scenario was undertaken by RPS in June 2022.

The below figure shows the smoothed EMBA of floating oil concentrations at or above 10 g/m^2

 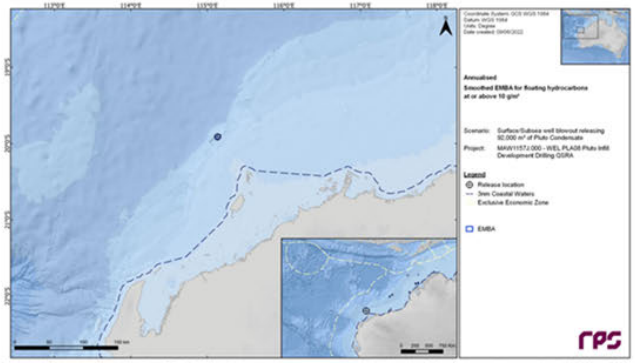

Figure 5.8: Predicted annualised smoothed EMBA of floating oil concentrations at or above 10 g/m² resulting from Surface/Subsea well blowout releasing 92,000 m³ of Pluto Condensate.</td><td>Stochastic modelling for the above scenario was undertaken by RPS in April 2019 and reprocessed at lower entrained/dissolved thresholds in May 2021.

The below figure shows the smoothed EMBA of floating oil concentrations at or above 10 g/m^2 (from 2019 report).

 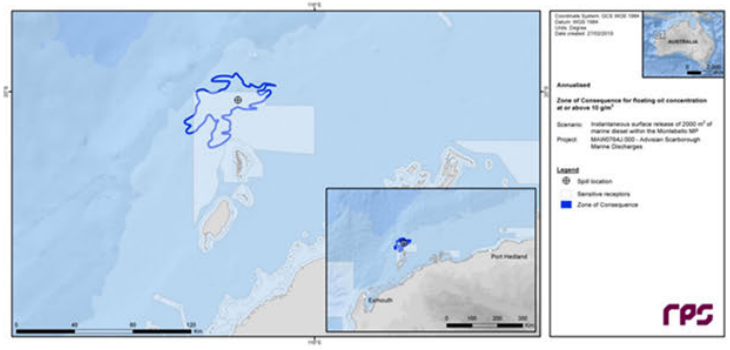

Figure 3.34 Predicted annualised smoothed Zone of Consequence of floating oil concentrations at or above 10 g/m^2 resulting from an instantaneous surface release of marine diesel after a vessel collision within Montebello Marine Park.</td></tr>
</table>

Details on initial response actions and key activation timeframes.	Included in Section 2 of the First Strike Plan
Potential Incident Control Centre arrangements.	Included in Appendix D and E of the First Strike Plan
Potential staging areas / Forward Operating Base.	A Forward Operating Base can be established at Exmouth and/ or Dampier.
Details on response strategies.	Included in Section of the First Strike Plan
Use of DoT equipment resources	Woodside has access to its own and contracted stockpiles of response equipment and acknowledges that potential use of DoT resources cannot be assumed and is at the discretion of DoT.
Details and diagrams on proposed IMT structure including integration of DoT arrangements as per this IGN.	Included in Appendix D and E of the First Strike Plan
Details on testing of arrangements of OPEP/OSCP.	• Level 1 Response – one Level 1 First Strike drill must be conducted during the 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. • Level 2 Response – 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/vessel per campaign must be conducted within the first month of commencing the activity and then at every 6 month hire period thereafter, where applicable based on duration. • Level 3 Response – 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. **Testing of Oil Spill Response Arrangements** 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. Woodside's Testing of Arrangements Schedule aligns with international good practice for spill preparedness and response management; the testing is compatible with the IPIECA 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. The hydrocarbon spill arrangements included within 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. 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 within the schedule, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment. • 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).
Additional comments	Please note some of the links in the document are still being finalised, and as such may show a reference error in the attached version.

1.10 Email sent to North West Slope and Trawl Fishery (4 licence holders) (2 June 2022)

Dear North West Slope and Trawl Fishery

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier

Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Wellhead locations:

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
Proposed New Well					
PLA08	~820 m	19° 54’ 42.003” S	115° 08’ 02.424” E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA	~844 m	19°52'46.2896”S	115°09’00.0179”E		

manifold				Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141"S	115°12'54.6816"E		
Existing or Approved Wells					
PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
PLA03 well	~830 m	19°54'48.200"S	115°07'54.765"E		
PLA04 well	~830 m	19°54'48.566"S	115°07'55.798"E		
PLA05 well	~830 m	19°54'48.694"S	115°7'56.3530"E		
PLA06 well	~830 m	19°54'48.686"S	115°07'55.577"E		
PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
PL-PYA02 well	~862 m	19°52'34.908"S	115°09'00.666"E		
XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Commercial fishing implications:

Woodside has assessed potential impacts for commercial fisheries based on Fishcube, ABARES data, fishing methods and water depth. We note there are four overlapping Commonwealth managed fisheries, only one of which – North West Slope and Trawl Fishery – has been active in the Operational Area in recent years. The following fisheries have not been active:

- Southern Bluefin Tuna Fishery
- Western Tuna and Billfish Fishery
- Western Skipjack Fishery

Woodside has provided information to the fishery's representative organisation 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.

Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		
Physical presence of infrastructure	Physical presence of infrastructure on seafloor causing interference or displacement	Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and, government departments and agencies to inform decision making for the proposed activity and development of the EP

		Advice to relevant stakeholders prior to the commencement of activities. Navigation charts will be updated once all PLA08 activities are complete.
Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water, cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	All routine marine discharges will be managed according to legislative and regulatory requirements
Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects
Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		
Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment

Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:

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 Plan which 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).

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.

1.11 Letter sent to Mackerel Managed Fishery (Area 2) (10 licence holders) (2 June 2022)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

Woodside

Woodside Energy Ltd.
ACN 005 482 986
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T +61 8 9348 4000
F +61 8 9214 2777
www.woodside.com.au

2 June 2022

Dear Mackerel Managed Fishery

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

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Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		
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Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water, cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	All routine marine discharges will be managed according to legislative and regulatory requirements

Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects
Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		
Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment
Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:
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Your feedback and our response will be included in our Environment Plan which 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).

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.

Regards,

Woodside Feedback

Woodside Energy Ltd.
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com.au

Attached: Consultation Information Sheet and Fishery Map

1.12 Email sent to Pilbara Trap Fishery and Pilbara Line Fishery (14 licence holders) (2 June 2022)

Dear Fishery Stakeholders

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity.

The MODU may be supported by subsea installation and light well intervention vessels.
Support vessels may be used including, anchor handling vessels and activity support vessels.
The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.
Vessels will operate 24 hours per day for the duration of the activities.

Wellhead locations:

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
Proposed New Well					
PLA08	~820 m	19° 54' 42.003" S	115° 08' 02.424" E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA manifold	~844 m	19°52'46.2896"S	115°09'00.0179"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141"S	115°12'54.6816"E		
Existing or Approved Wells					
PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
PLA03 well	~830 m	19°54'48.200"S	115°07'54.765"E		
PLA04 well	~830 m	19°54'48.566"S	115°07'55.798"E		
PLA05 well	~830 m	19°54'48.694"S	115°7'56.3530"E		
PLA06 well	~830 m	19°54'48.686"S	115°07'55.577"E		
PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
PL-PYA02 well	~862 m	19°52'34.908"S	115°09'00.666"E		
XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		
Physical presence of infrastructure	Physical presence of infrastructure on seafloor causing interference or displacement	Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and, government departments and agencies to inform decision making for

		the proposed activity and development of the EP Advice to relevant stakeholders prior to the commencement of activities. Navigation charts will be updated once all PLA08 activities are complete.
Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water, cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	All routine marine discharges will be managed according to legislative and regulatory requirements
Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects
Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		
Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained

		Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment
Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:
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 Plan which 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).

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.

1.13 Email sent to Mobil Australia Resources Company, Shell Australia, PE Wheatstone, Kyushu Electric Wheatstone, KUFPEC Australia (Wheatstone lago) (2 June 2022)

Dear Titleholder

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and titleholder map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.14 Email sent to Chevron Australia, Osaka Gas Gorgon, Tokyo Gas Gorgon, JERA Gorgon (2 June 2022)

Dear [redacted]

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

We would be grateful if you could please forward this consultation information to your Joint Venture participants Osaka Gas Gorgon, Tokyo Gas Gorgon and JERA Gorgon for feedback.

An information sheet (also on our website) and titleholder map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.15 Email sent to Commonwealth Fisheries Association (CFA), Australian Southern Bluefin Tuna Industry Association (ASBTIA), Tuna Australia (2 June 2022)

Dear Fisheries Stakeholder

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Wellhead locations:

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
Proposed New Well					
PLA08	~820 m	19° 54' 42.003" S	115° 08' 02.424" E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA manifold	~844 m	19°52'46.2896"S	115°09'00.0179"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141"S	115°12'54.6816"E		
Existing or Approved Wells					
PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
PLA03 well	~830 m	19°54'48.200"S	115°07'54.765"E		
PLA04 well	~830 m	19°54'48.566"S	115°07'55.798"E		
PLA05 well	~830 m	19°54'48.694"S	115°7'56.3530"E		
PLA06 well	~830 m	19°54'48.686"S	115°07'55.577"E		
PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
PL-PYA02 well	~862 m	19°52'34.908"S	115°09'00.666"E		
XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Commercial fishing implications:

Woodside has assessed potential impacts for commercial fisheries based on Fishcube, ABARES data, fishing methods and water depth. We note there are four overlapping Commonwealth managed fisheries, only one of which – North West Slope and Trawl Fishery – has been active in the Operational Area in recent years. The following fisheries have not been active:

- Southern Bluefin Tuna Fishery
- Western Tuna and Billfish Fishery
- Western Skipjack Fishery

Woodside has provided information to the fishery's representative organisation 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.

Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		

Physical presence of infrastructure	Physical presence of infrastructure on seafloor causing interference or displacement	Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and, government departments and agencies to inform decision making for the proposed activity and development of the EP Advice to relevant stakeholders prior to the commencement of activities. Navigation charts will be updated once all PLA08 activities are complete.
Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water, cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	All routine marine discharges will be managed according to legislative and regulatory requirements
Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects
Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		

Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment
Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:

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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.16 Email sent to Pearl Producers Australia (PPA) (2 June 2022)

Dear [redacted]

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery

Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Wellhead locations:

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
Proposed New Well					
PLA08	~820 m	19° 54’ 42.003” S	115° 08’ 02.424” E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA manifold	~844 m	19°52'46.2896”S	115°09’00.0179”E	Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141”S	115°12’54.6816”E		
Existing or Approved Wells					
PLA01 well	~830 m	19°54'49.220”S	115°07'54.497”E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226”S	115°07'54.151”E		
PLA03 well	~830 m	19°54'48.200”S	115°07'54.765”E		
PLA04 well	~830 m	19°54'48.566”S	115°07'55.798”E		
PLA05 well	~830 m	19°54'48.694”S	115°7'56.3530”E		
PLA06 well	~830 m	19°54'48.686”S	115°07'55.577”E		
PLA07 well	~830 m	19°54’47.584”S	115°07’55.000”E		
PYA01 well	~985 m	19°49'40.371”S	115°10'34.956”E		
PL-PYA02 well	~862 m	19°52'34.908”S	115°09'00.666”E		

XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Commercial fishing implications:

Woodside has assessed potential impacts for commercial fisheries based on Fishcube, ABARES data, fishing methods and water depth. We note there are four overlapping Commonwealth managed fisheries, only one of which – North West Slope and Trawl Fishery – has been active in the Operational Area in recent years. The following fisheries have not been active:

- Southern Bluefin Tuna Fishery
- Western Tuna and Billfish Fishery
- Western Skipjack Fishery

Woodside has provided information to the fishery's representative organisation 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.

Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		
Physical presence of infrastructure	Physical presence of infrastructure on seafloor causing interference or displacement	Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and, government departments and agencies to inform decision making for the proposed activity and development of the EP Advice to relevant stakeholders prior to the commencement of activities. Navigation charts will be updated once all PLA08 activities are complete.
Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water, cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	All routine marine discharges will be managed according to legislative and regulatory requirements
Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects

Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		
Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment
Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:

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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.17 Email sent to Western Australian Fishing Industry Council (WAFIC) (2 June 2022)

Dear [redacted]

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A 1500 m radius operational exclusion zone around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) will apply whilst activities are taking place. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

We have identified potential impacts to active commercial fishers and the environment, which are summarised below. We have endeavoured to reduce these risks to an as low as reasonably practicable level.

Fisheries have been identified as being relevant based on fishing licence overlap with the activity area, assessment of government fishing effort data (including Fishcube and ABARES) from recent years, fishing methods and water depth.

An information sheet (also on our website) and relevant fisheries map is attached.

Please provide your views by **2 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier

Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Relevant fisheries:	**Commonwealth:** North West Slope and Trawl Fishery **State:** Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically positioned drillship, depending on availability and suitability for the activity. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Wellhead locations:

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
Proposed New Well					
PLA08	~820 m	19° 54’ 42.003” S	115° 08’ 02.424” E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA	~844 m	19°52'46.2896”S	115°09’00.0179”E		

manifold				Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141"S	115°12'54.6816"E		
Existing or Approved Wells					
PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
PLA03 well	~830 m	19°54'48.200"S	115°07'54.765"E		
PLA04 well	~830 m	19°54'48.566"S	115°07'55.798"E		
PLA05 well	~830 m	19°54'48.694"S	115°7'56.3530"E		
PLA06 well	~830 m	19°54'48.686"S	115°07'55.577"E		
PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
PL-PYA02 well	~862 m	19°52'34.908"S	115°09'00.666"E		
XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Commercial fishing implications:

Woodside has assessed potential impacts for commercial fisheries based on Fishcube, ABARES data, fishing methods and water depth. We note there are four overlapping Commonwealth managed fisheries, only one of which – North West Slope and Trawl Fishery – has been active in the Operational Area in recent years. The following fisheries have not been active:

- Southern Bluefin Tuna Fishery
- Western Tuna and Billfish Fishery
- Western Skipjack Fishery

Woodside has provided information to the fishery's representative organisation 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.

Potential risks to commercial fishing and proposed mitigation measures:

Potential Risk	Risk Description	Mitigation And / Or Management Measures
Planned		
Physical presence of infrastructure	Physical presence of infrastructure on seafloor causing interference or displacement	Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and, government departments and agencies to inform decision making for the proposed activity and development of the EP

		Advice to relevant stakeholders prior to the commencement of activities. Navigation charts will be updated once all PLA08 activities are complete.
Marine discharges	Discharges from the operation of project vessels may include sewage, grey water, drain and bilge water, cooling water and brine. These discharges may result in a localised short-term reduction in water quality however they will be rapidly diluted and dispersed in the water column	All routine marine discharges will be managed according to legislative and regulatory requirements
Seabed disturbance	Disturbance to the seabed from removal activities	No anchoring of vessels Attempted retrieval of dropped objects
Vessel interaction	The presence of vessels may preclude other marine users from access to the area	Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users Notification to relevant fishery stakeholders and Government maritime safety agencies of specific start and end dates, specific vessel-on-location and any exclusion zones prior to commencement of the activity A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place A 500 m radius petroleum safety zone will apply during MODU activities A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area
Unplanned Risks		
Hydrocarbon release	Loss of hydrocarbons to the marine environment from a vessel collision resulting in a tank rupture	Appropriate spill response plans, equipment and materials will be in place and maintained Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment

Invasive Marine Species	Introduction or translocation and establishment of invasive marine species to the area via vessels ballast water or biofouling	All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species Compliance with Australian biosecurity requirements and guidance

Feedback:
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 Plan which 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).

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.

Please provide your views by **2 July 2022**.

1.18 Email sent to Department of Biodiversity, Conservation and Attractions (DBCA) (14 June 2022)

Dear DBCA

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing

and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A Consultation Information Sheet is attached, which provides background on the proposed activity, including a summary of potential key risks and associated management measures. The Information Sheet is also available on our website.

Please provide your views by **14 July 2022**.

Activity:

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Location:	~170 km north west of Dampier
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned in Q3 2022. Timing of activities is subject to approvals, vessel availability and weather constraints.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 4 weeks. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary/Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU will be used for the drilling activities. However, contingency options include a semi-submersible moored MODU or dynamically

positioned drillship, depending on availability and suitability for the activity.
The MODU may be supported by subsea installation and light well intervention vessels.
Support vessels may be used including, anchor handling vessels and activity support vessels.
The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.
Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

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 Plan which 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).

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.

Please provide your views by **14 July 2022**.

Regards,

1.19 Woodside Consultation Information Sheet (sent to all relevant persons) (2 June 2022)

Woodside

STAKEHOLDER CONSULTATION

INFORMATION SHEET

June 2022

WA-34-L PYXIS DRILLING AND SUBSEA INSTALLATION ENVIRONMENT PLAN REVISION

CARNARVON BASIN, NORTH-WEST AUSTRALIA

Proposed activity

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (EP) to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation EP, may be carried forward into this revision depending on timing of activities and EP submission.

If required, Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The proposed PLA08 well will be tied back to the Pluto platform and operated under the previously accepted Pluto Facility Operations Environment Plan.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project. The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m flexible jumper lines. Activities are currently anticipated to be completed around Q2 - Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

Project Vessels

Activities will be completed using a range of project vessels. The proposed PLA08 development well drilling will be performed by a dynamically positioned MODU, however contingency options include a semi-submersible moored Mobile offshore drilling unit (MODU) or dynamically positioned drillship, depending on availability and suitability for the activity. If drilling is performed by a MODU, the MODU may be supported by installation vessels for installing the subsea infrastructure and light well intervention vessel for well intervention, subsea installation or contingent activities.

The project vessels may be supported by general support vessels, including anchor handling vessel(s) and general supply/support vessels. The project vessels will operate on dynamic positioning (DP) and will not anchor/moor on the seabed.

It is anticipated that vessels will operate 24 hours per day for the duration of the activities.

Drilling operations for the proposed production well are currently expected to take approximately 50 days to complete, including mobilisation, demobilisation and contingency. Installation of subsea connections and pre-commissioning is anticipated to commence when the well has been drilled and is expected to have a duration of approximately four weeks (including mobilisation, demobilisation and contingency).

If required, well intervention activities will take up to 70 days per well and may be undertaken at any time during the in-force period of this EP.

Communications with mariners

A 500 m radius Operational Area will be applied around the proposed PLA08 well location and a 1500m radius Operational Area will be applied around the proposed subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used.

A temporary 500 m petroleum safety exclusion zone will apply during any MODU 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. The PLA08 well will continue to be marked on navigational charts.

Background

The previously accepted EP included the drilling of two Pyxis hub wells (PYA01 and PL-PYA02) and two Xena infill production wells (XNA02 and XNA03) and performing subsea installation and pre-commissioning to enable hydrocarbons from these wells to be produced through the existing nearby Pluto field flowlines.

The XNA03 well has been removed from the petroleum activities program and is proposed to be replaced with the PLA08 well. All other wells within the scope of the previously accepted EP have been, or will be, drilled and completed in accordance with the previous EP and are not included in the scope of this EP revision.

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 revised EP.

In preparing the EP, our intent is to minimise environmental and social impacts associated with the proposed activities, and we are seeking any interest or comments you may have to inform our decision making.

Joint Venture

Woodside Burrup Pty Ltd is operator on behalf of its Pluto LNG joint venture partners, Tokyo Gas Pluto Pty Ltd and Kansai Electric Power Australia Pty Ltd.

We welcome your feedback by 2 July 2022.

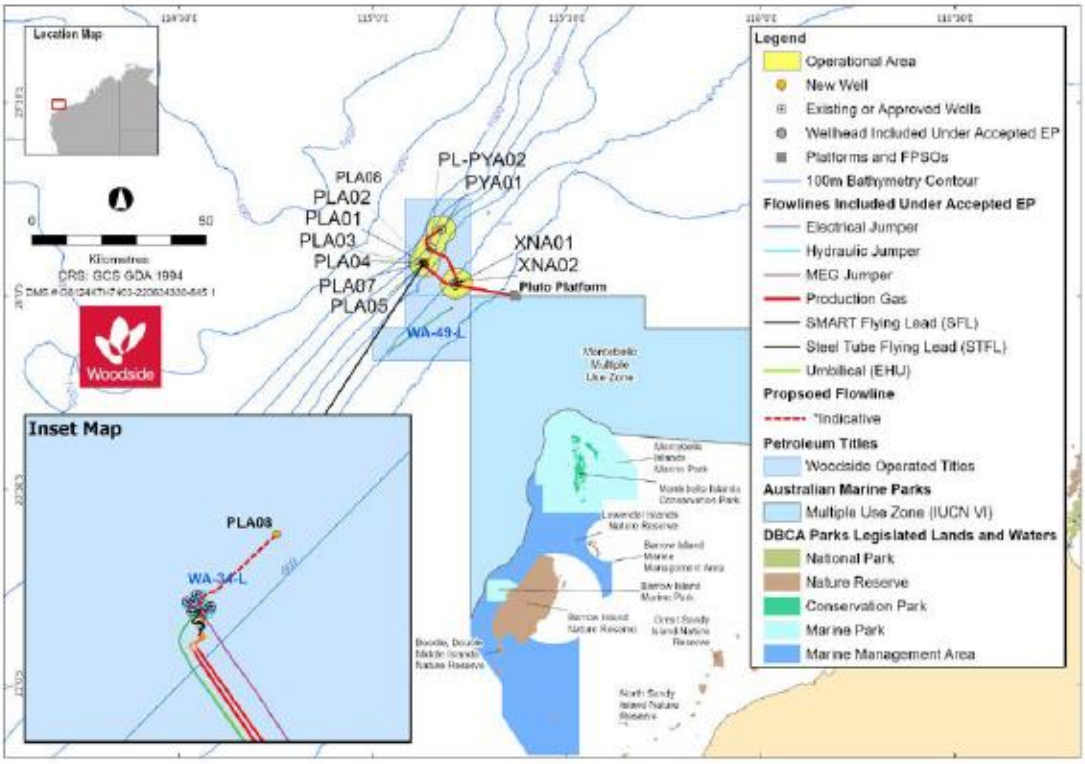


Figure 1. Petroleum Activity Program Operational Area

Table 1. Activity summary

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision	
Commencement date	• Planned drilling, completions, subsea installation and pre-commissioning activities for PLA08 and are anticipated around Q2 – Q4 2023. • Remaining XNA02 subsea installation activities are planned in Q3 2022. • Timing of activities is subject to approvals, vessel availability and weather constraints.
Approximate estimated duration	• Drilling activities are expected to take approximately 50 days to complete. • Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 3-4 weeks. • If required, well intervention activities will take up to 70 days per well to complete. • Activities may occur intermittently over a two-year period.

PLA08 Infrastructure	• One subsea xmas tree
	• One subsea control module and foundation skid
	• One intermediate frame
	• One production flexible – approximately 350 m
	• One MEG Jumper – approximately 350 m
	• Hydraulic flying lead (HFLs) and electric flying leads (EFLs):
	  • One HFL from Pluto Production Manifold to SCM Support Structure – approximately 300 m
	  • Two HFLs from SCM Support Structure to XT – approximately 100 m each
	  • Two EFLs from Pluto Production Manifold to SCM Support Structure – approximately 350 m each
	  • Three EFLs from SCM Support Structure to XT – approximately 100 m each
	• Approximately 12 mattresses/grout bags and mud mats.

Vessels	• Dynamically positioned MODU • Moored semi-submersible MODU or dynamically positioned drillship for contingency activities • Subsea installation vessels • Light well intervention vessel • Support vessels including, anchor handling vessels and activity support vessels.

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision	
Exclusion zones	• A 500 m radius Operational Area will be applied around the proposed PLA08 well location. • A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. • A 4000 m radius Operational Area will apply around a moored MODU, if used. • A temporary 500 m petroleum safety exclusion zone will apply during MODU activities. • An interactive map showing the location of the proposed activities will be available on the Woodside website and will be updated throughout the proposed activities.
Distance to nearest town	• ~170 km north west of Dampier
Distance to nearest marine park/nature reserve	• ~45 km north west of the Montebello Islands Marine Park (WA) • ~1.2 km north west of the Montebello Marine Park – Multiple Use Zone (Cwlth)

Table 2. Approximate Locations

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion Zones	Permit Area
Proposed New Wells					
PLA08	~820 m	19° 54' 42.003" S	115° 08' 02.424" E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA manifold	~844 m	19°52'46.2896"S	115°09'00.0179"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141"S	115°12'54.6816"E		
Existing or Approved Wells					
PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
PLA03 well	~830 m	19°54'48.200"S	115°07'54.765"E		
PLA04 well	~830 m	19°54'48.566"S	115°07'55.798"E		
PLA05 well	~830 m	19°54'48.694"S	115°7'56.3530"E		
PLA06 well	~830 m	19°54'48.686"S	115°07'55.577"E		
PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
PL-PYA02 well	~862 m	19°52'34.908"S	115°09'00.666"E		
XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well*	~182 m	19°57'49.116"S	115°13'02.735"E		

Mitigation and Management Measures

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from the activities considering timing, duration, location.

A number of mitigation and management measures for the WA-34-L drilling and subsea installation activities are outlined in Table 3. Further details will be provided in the EP.

Table 1. Activity summary

Potential Risk and/or Impact	Mitigation and/or Management Measure
Planned	
Physical presence of infrastructure on seafloor causing interference or displacement	• Consultation with relevant persons. For example, commercial fishers and their representative organisations, petroleum titleholders and government departments and agencies to inform decision making for the proposed activity and development of the EP. • Advice to relevant stakeholders prior to the commencement of activities. • Navigation charts will be updated once all PLA08 activities are complete.
Chemical use	• Chemical use will be managed in accordance with Woodside and contractor chemical selection and approval procedures.
Marine discharges	• All routine marine discharges will be managed according to legislative and regulatory requirements.

Potential Risk and/or Impact	Mitigation and/or Management Measure
Seabed disturbance	• No anchoring of project vessels. • Attempted retrieval of dropped objects and temporary installation equipment.
Vessel interactions	• Navigation aids and practices will be used as required by Maritime Regulations to minimise potential impact on other marine users. • A 500 m radius Operational Area will be applied around the PLA08 well location and a 1500m radius Operational Area around subsea installation locations (PLA08 to Pluto manifold and XNA02 to the Xena manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around the moored MODU, if used for contingency activities. • The Operational Area includes a 500 m petroleum safety exclusion zone around the MODU to manage vessel movements. • Commercial fishers and other marine users are permitted to use but should take care when entering the Operational Area. • Stakeholder engagement activities will be conducted as part of the EP.
Waste generation	• Waste generated on the vessels will be managed in accordance with legislative requirements and a Waste Management Plan. • Wastes will be managed and disposed of in a safe and environmentally responsible manner that prevents accidental loss to the environment. • Wastes transported onshore will be sent to appropriate recycling or disposal facilities by a licensed waste contractor.
Emissions to atmosphere	• Standard vessel operations.
Unplanned	
Hydrocarbon release	• Appropriate spill response plans, equipment and materials will be in place and maintained. • Appropriate refuelling procedures and equipment will be used to prevent spills to the marine environment.
Marine fauna interactions	• Vessel masters will implement interaction management actions in accordance with the Environment Protection and Biodiversity Conservation Regulations 2000 (Cth).
Introduction of invasive marine species	• All vessels will be assessed and managed as appropriate to prevent the introduction of invasive marine species. • Compliance with Australian biosecurity requirements and guidance.

Feedback

Woodside consults relevant persons in the course of preparing Environment Plans to ensure relevant feedback informs its planning for proposed petroleum activities and builds upon Woodside's relevant person consultation for its offshore petroleum activities in the region.

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside before **2 July 2022** via:

E: Feedback@woodside.com.au

Toll free: 1800 442 977

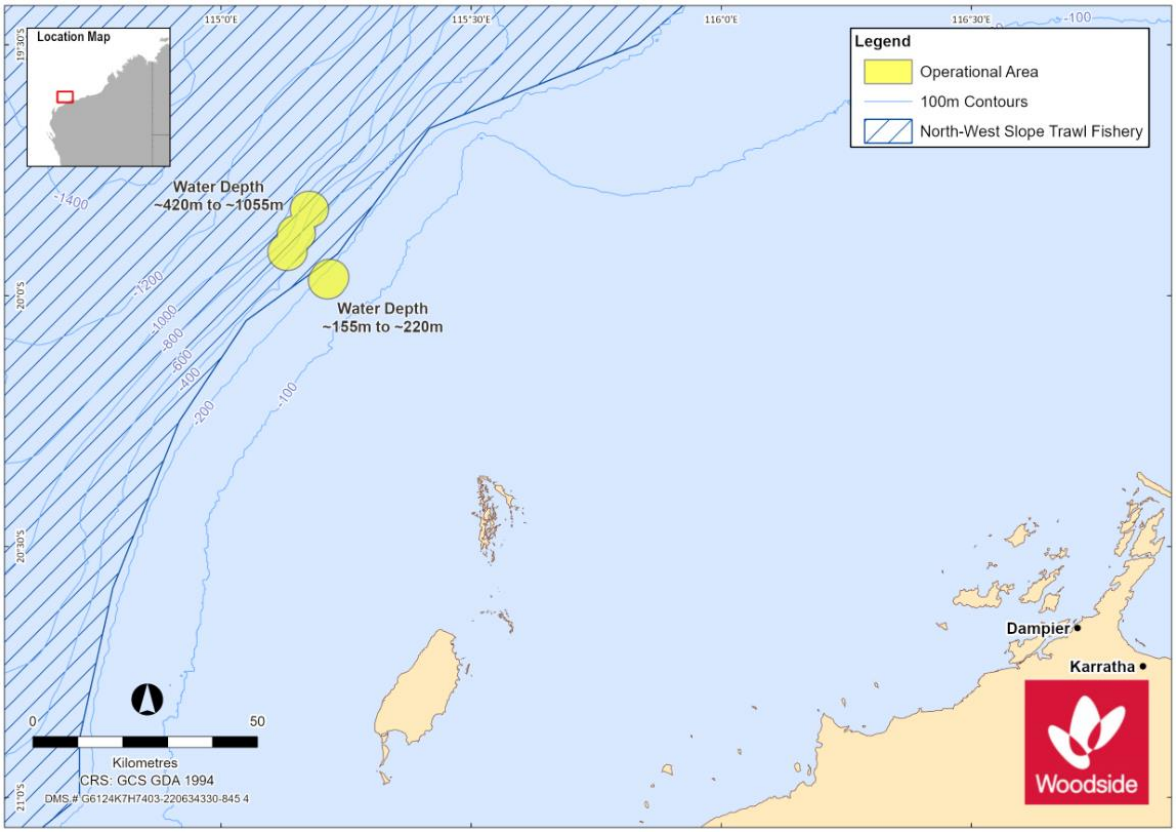
You can subscribe on our website to receive Consultation Information Sheets for proposed activities: www.woodside.com.au.

Please note that stakeholder feedback will be communicated to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) as required under legislation. Woodside will communicate any material changes to the proposed activity to affected stakeholders as they arise.

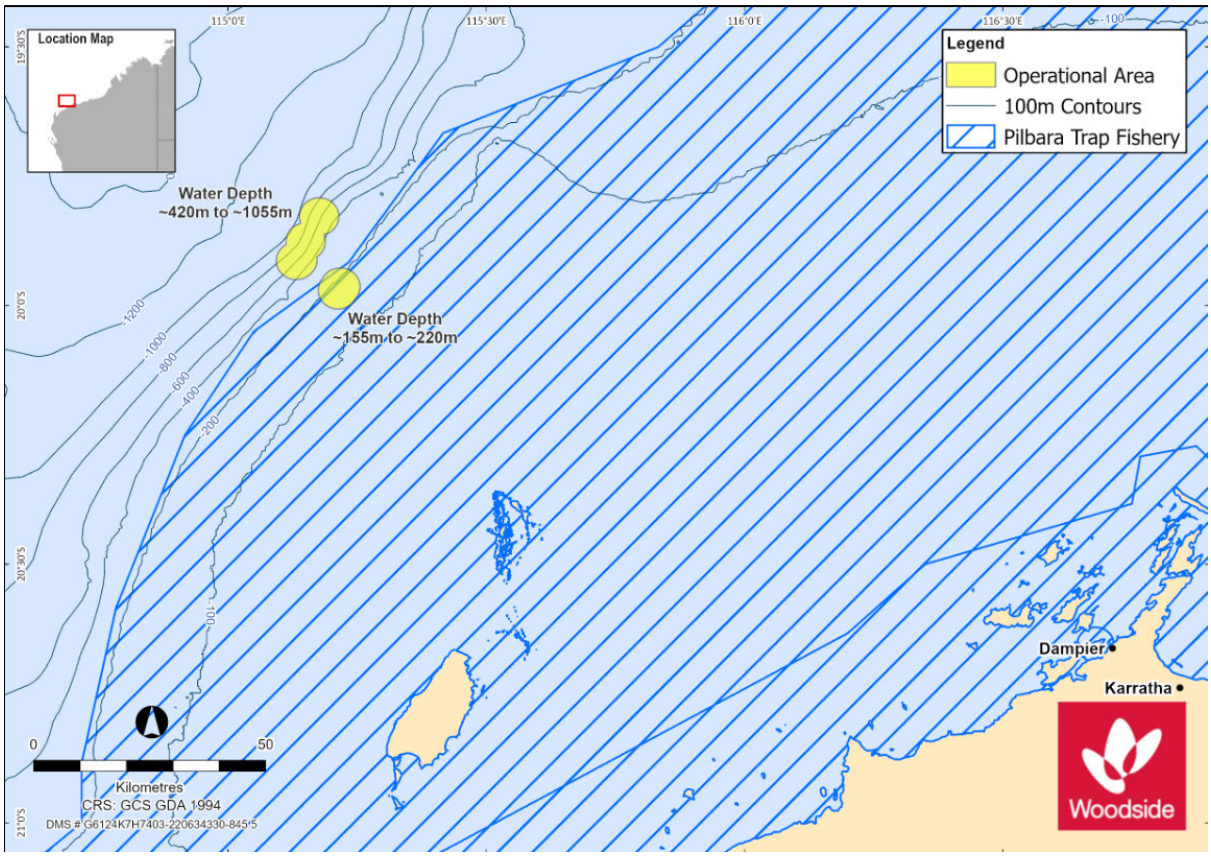
Please note that your feedback and our response will be included in our Environment Plan for the proposed activity, which will be submitted to the NOPSEMA for acceptance in accordance with the Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth).

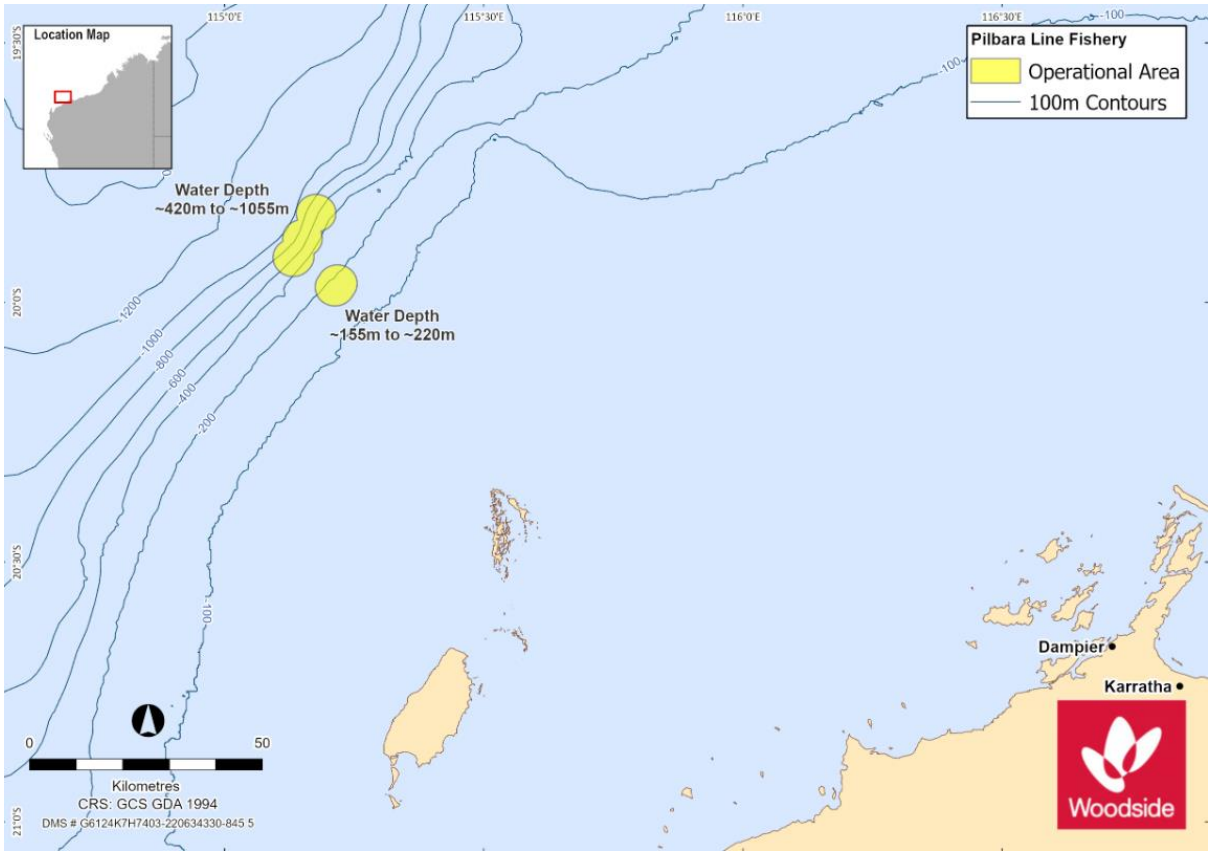
Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan in order for this information to remain confidential to NOPSEMA.

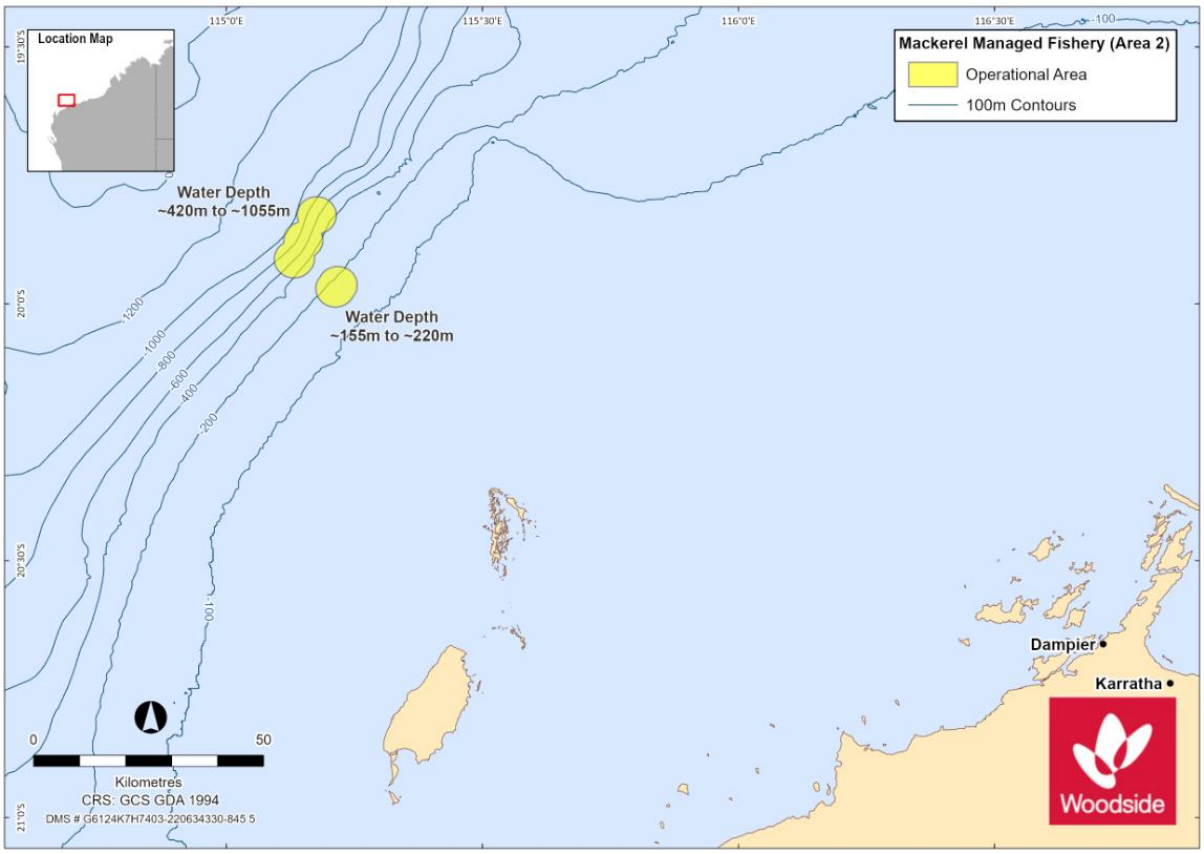
1.20 Commonwealth fisheries map sent to AFMA, DCCEEW, North West Slope and Trawl Fishery, CFA, ASBTIA, Tuna Australia and PPA (2 June 2022)



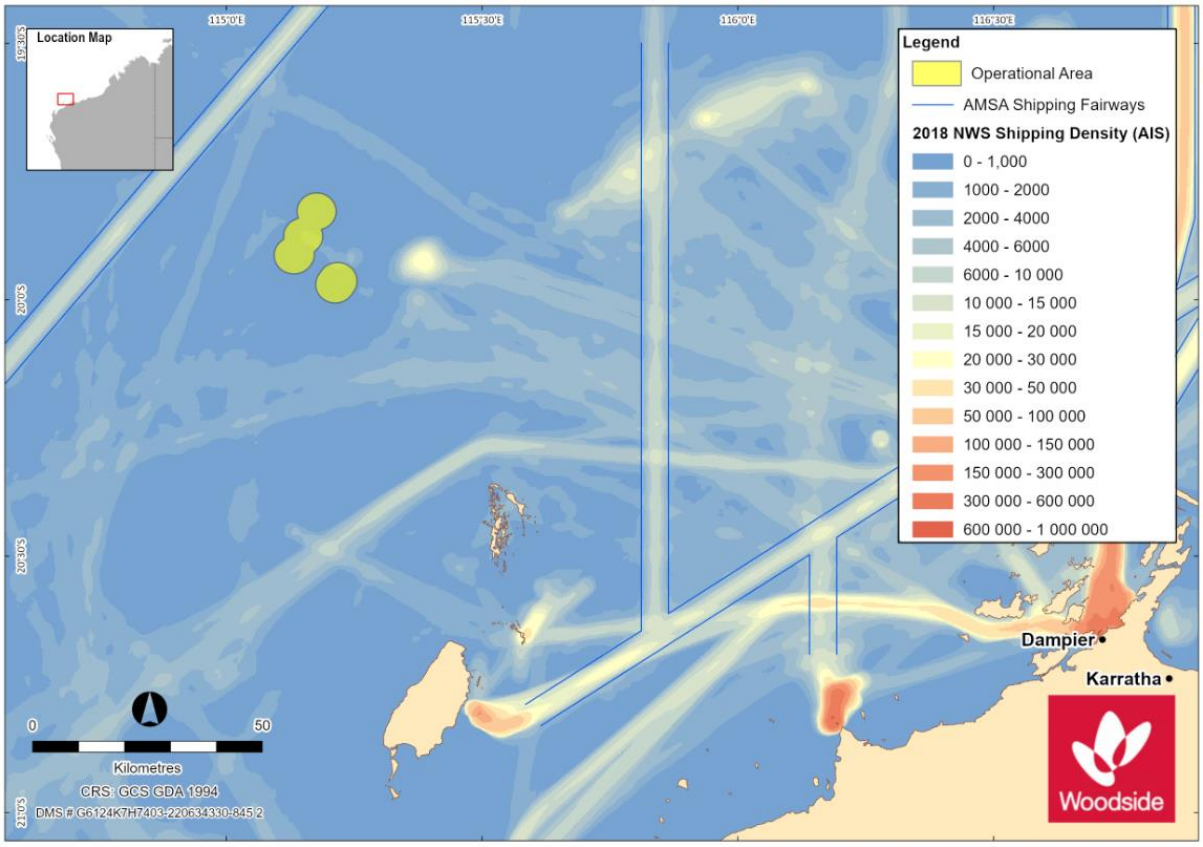
1.21 State fisheries map sent to DPIRD, WAFIC, Mackerel Managed Fishery (Area 2), Pilbara Trap Fishery, Pilbara Line Fishery (2 June 2022)



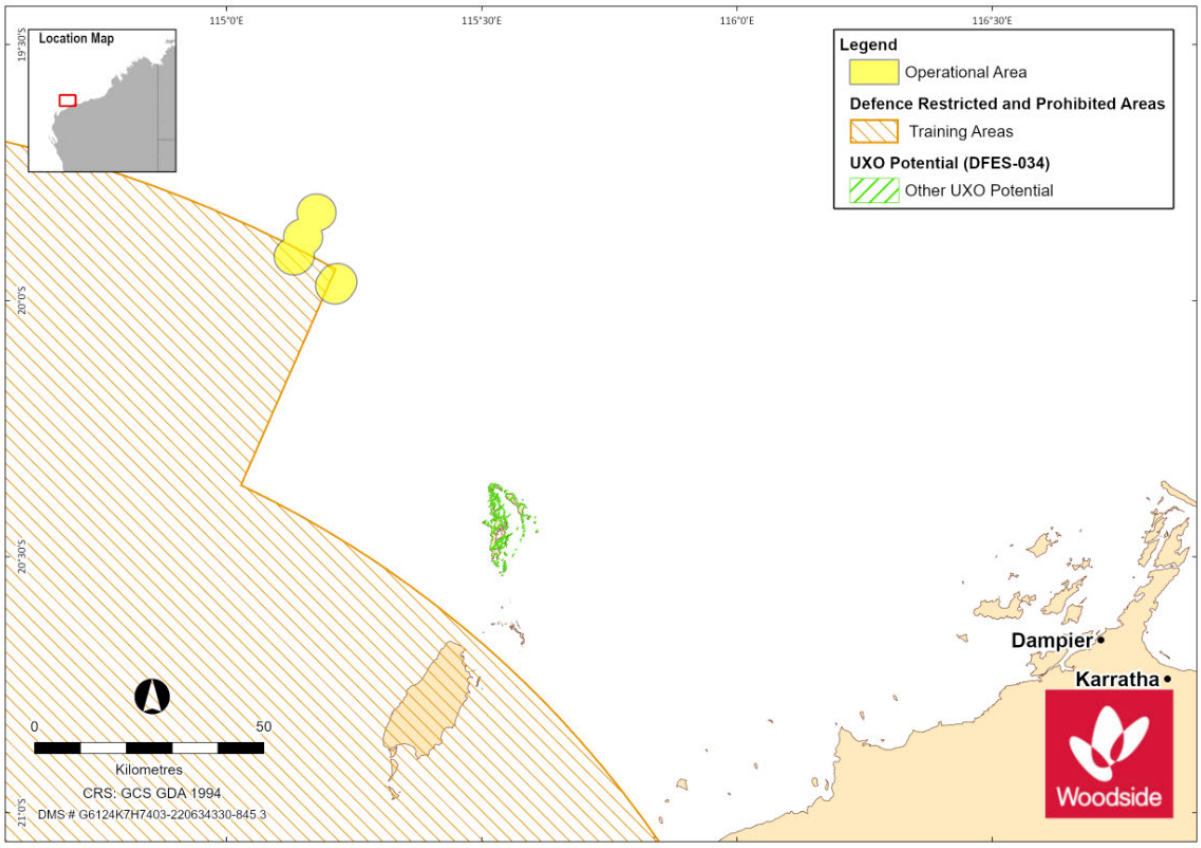




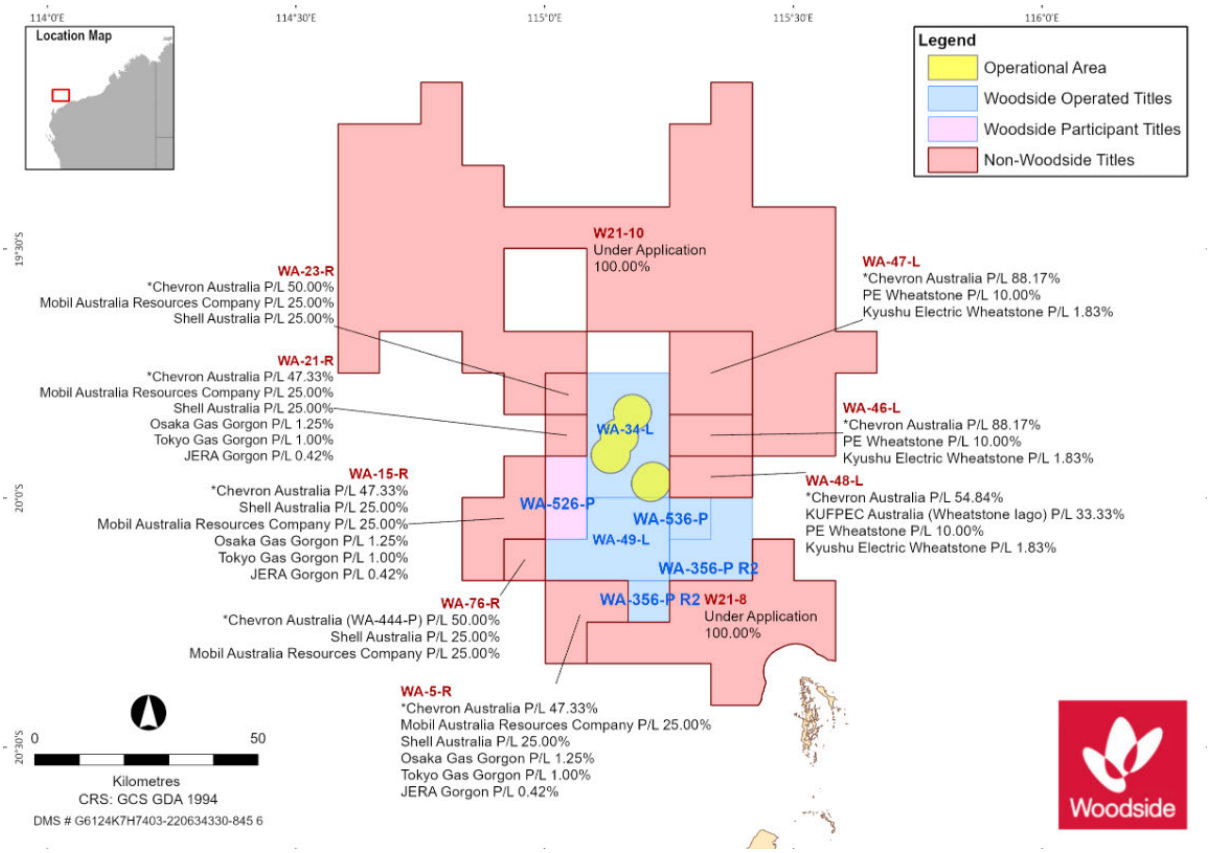
1.22 Shipping lane map sent to AHO and AMSA – Marine Safety (2 June 2022)



1.23 Defence zone map sent to DoD (2 June 2022)



1.24 Titleholder map sent to Chevron Australia, Mobil Australia Resources Company, Shell Australia, Osaka Gas Gorgon, Tokyo Gas Gorgon, JERA Gorgon, PE Wheatstone, Kyushu Electric Wheatstone, KUFPEC Australia (Wheatstone Iago) (2 June 2022)



2. Additional Consultation (June 2022)

2.1 Email sent to AFMA (20 June 2022)

Dear AFMA

Woodside previously consulted you (email below) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and relevant fisheries map is attached.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **2 July 2022**.

Regards,

2.2 Email sent to DCCEEW *(formerly DAWE)* (20 June 2022)

Dear DAWE

Woodside previously consulted you (email below) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and relevant fisheries map is attached.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **2 July 2022**.

Regards,

2.3 Email sent to CFA, ASBTIA and Tuna Australia (20 June 2022)

Dear Fishery Stakeholder

Woodside previously consulted you (email below) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and relevant fisheries map is attached.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **2 July 2022**.

Regards,

2.4 Email sent to North West Slope and Trawl Fishery Licence Holders (4 licence holders) (20 June 2022)

Dear North West Slope and Trawl Fishery

Woodside previously consulted you (email below) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and relevant fisheries map is attached.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **2 July 2022**.

Regards,

2.5 Email sent to DPIRD (20 June 2022)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed

activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and relevant fisheries map is attached.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **2 July 2022**.

Regards,

2.6 Email sent to WAFIC (20 June 2022)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and relevant fisheries map is attached.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **2 July 2022**.

Regards,

2.7 Letter sent to Mackerel Managed Fishery (Area 2) (10 licence holders) (20 June 2022)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

Woodside

Woodside Energy Ltd.
ACN 005 482 986
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T +61 8 9348 4000
F +61 8 9214 2777
www.woodside.com.au

20 June 2022

Dear Mackerel Managed Fishery

Woodside previously consulted you (letter attached) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and relevant fisheries map is attached.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **2 July 2022**.

Regards,

Woodside Feedback

Woodside Energy

Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com

Attached: Consultation letter (2 June 2022), Consultation Information Sheet and Fishery Map

2.8 Email sent to Pilbara Trap Fishery (6 licence holders) and Pilbara Line Fishery (8 licence holders) (20 June 2022)

Dear Fishery Stakeholder

Woodside previously consulted you (email below) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

An information sheet (also on our website) and relevant fisheries map is attached.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **2 July 2022**.

Regards,

2.9 Email sent to Director of National Parks (29 June 2022)

Dear Director of National Parks

Woodside previously consulted you (email below) on its plans to submit a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan to drill and develop one Pluto production well, PLA08.

Some remaining XNA02 subsea installation activities, currently included in the accepted WA-34-L Pyxis Drilling and Subsea Installation Environment Plan, may be carried forward into this revision depending on timing of activities and Environment Plan submission.

Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project.

The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m of flexible jumper lines. Activities are currently anticipated to be completed around Q2 – Q4 2023. Remaining XNA02 subsea installation activities are planned for Q3 2022. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

A Consultation Information Sheet is attached, which provides background on the proposed activity, including a summary of potential key risks and associated management measures. The Information Sheet is also available on our website.

Should you require additional information or have a comment to make about the proposed activity, please provide your feedback by **13 July 2022**.

3. Activity update consultation (February 2023)

3.1 Woodside Activity Update Consultation Information Sheet (sent to all relevant persons)

Woodside Energy

STAKEHOLDER CONSULTATION

INFORMATION SHEET

February 2023

WA-34-L PYXIS DRILLING AND SUBSEA INSTALLATION ENVIRONMENT PLAN REVISION

CARNARVON BASIN, NORTH-WEST AUSTRALIA

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 that 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.

Overview

Woodside is submitting a revision to the previously accepted WA-34-L Pyxis Drilling and Subsea Installation EP to drill and develop one Pluto production well, PLA08.

If required, Woodside will also include contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) within Permit Area WA-34-L to monitor and maintain their integrity.

The proposed PLA08 well will be tied back to the Pluto platform and operated under the previously accepted Pluto Facility Operations EP.

The activities will be undertaken in Commonwealth waters around 170 km north west of Dampier in permit area WA-34-L to support ongoing production from the Pluto LNG Project. The proposed PLA08 well will be located at approximately 820 m water depth and will be tied back to the existing Pluto manifold by approximately 300 m flexible jumper lines. Activities are currently anticipated to be completed around Q2 - Q4 2023. The timing and duration of the proposed activities is subject to change due to project schedule requirements, vessel availability, weather or unforeseen circumstances.

Project vessels

Activities will be completed using a range of project vessels. The proposed PLA08 development well drilling will be performed by a dynamically positioned MODU. If drilling is performed by a MODU, the MODU may be supported by installation vessels for installing the subsea infrastructure and light well intervention vessel for well intervention, subsea installation or contingent activities.

The project vessels may be supported by general support vessels, including anchor handling vessel(s) and general supply/support vessels. The project vessels will operate on dynamic positioning (DP) and will not anchor/moor on the seabed.

It is anticipated that vessels will operate 24 hours per day for the duration of the activities.

Drilling operations for the proposed production well are currently expected to take approximately 50 days to complete, including mobilisation, demobilisation and contingency. Installation of subsea connections and pre-commissioning is anticipated to commence when the well has been drilled and is expected to have a duration of approximately four weeks (including mobilisation, demobilisation and contingency).

If required, well intervention activities will take up to 70 days per well and may be undertaken at any time during the in-force period of this EP.

Communications with mariners

A 500 m radius Operational Area will be applied around the proposed PLA08 well location and a 1500m radius Operational Area will be applied around the proposed subsea installation location (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used.

A temporary 500 m petroleum safety exclusion zone will apply during any MODU 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. The PLA08 well will continue to be marked on navigational charts.

Background

The previously accepted EP included the drilling of two Pyxis hub wells (PYA01 and PL-PYA02) and two Xena infill production wells (XNA02 and XNA03) and performing subsea installation and pre-commissioning to enable hydrocarbons from these wells to be produced through the existing nearby Pluto field flowlines.

The XNA03 well has been removed from the petroleum activities program and is proposed to be replaced with the PLA08 well. All other wells within the scope of the previously accepted EP have been, or will be, drilled and completed in accordance with the previous EP and are not included in the scope of this EP revision.

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 revised EP.

In preparing the EP, our intent is to minimise environmental and social impacts associated with the proposed activities, and we are seeking any interest or comments you may have to inform our decision making.

Joint Venture

Woodside Burrup Pty Ltd is operator on behalf of its Pluto LNG joint venture partners, Tokyo Gas Pluto Pty Ltd and Kansai Electric Power Australia Pty Ltd.

We welcome your feedback by 17 March 2023.

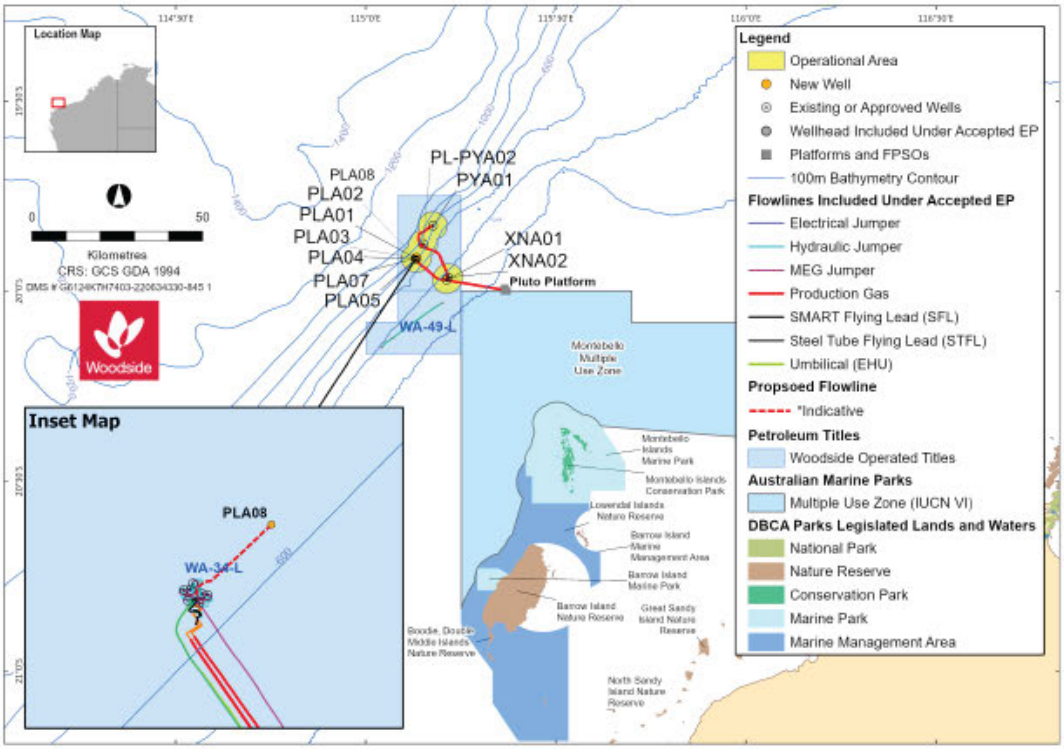


Figure 1. Petroleum Activity Program Operational Area

Table 1. Activity summary

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision	
Commencement date	• Planned drilling, completions, subsea installation and pre-commissioning activities for PLA08 and are anticipated around Q2 – Q4 2023. • Timing of activities is subject to approvals, vessel availability and weather constraints.
Approximate estimated duration	• Drilling activities are expected to take ~50 days to complete. • Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to ~3-4 weeks. • If required, well intervention activities will take up to 70 days per well to complete. • Activities may occur intermittently over a two-year period.

PLA08 Infrastructure	• One subsea xmas tree
	• One subsea control module and foundation skid
	• One production flexible ~350 m
	• One MEG Jumper ~350 m
	• Hydraulic flying lead (HFLs) and electric flying leads (EFLs):
	  • One HFL from Pluto Production Manifold to SCM Support Structure ~300 m
	  • Two HFLs from SCM Support Structure to XT ~100 m each
	  • Two EFLs from Pluto Production Manifold to SCM Support Structure ~350 m each
	  • Three EFLs from SCM Support Structure to XT ~100 m each
	• ~12 mattresses/grout bags and mud mats

Vessels	• Dynamically positioned MODU • Subsea installation vessels • Light well intervention vessel • Support vessels including, anchor handling vessels and activity support vessels

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision	
Exclusion zones	• A 500 m radius Operational Area will be applied around the proposed PLA08 well location. • A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. • A 4000 m radius Operational Area will apply around a moored MODU, if used. • A temporary 500 m petroleum safety exclusion zone will apply during MODU activities. • An interactive map showing the location of the proposed activities will be available on the Woodside website and will be updated throughout the proposed activities.
Distance to nearest town	• ~170 km north west of Dampier
Distance to nearest marine park/nature reserve	• ~45 km north west of the Montebello Islands Marine Park (WA) • ~1.2 km north west of the Montebello Marine Park – Multiple Use Zone (Cwlth)

Table 2. Approximate locations

Well	Approx. Water Depth (m)	Latitude	Longitude	Exclusion zones	Permit Area
Proposed New Wells					
PLA08	~820 m	19° 54' 42.003" S	115° 08' 02.424" E	Temporary 500 m radius	WA-34-L
Existing Subsea Infrastructure					
PYA manifold	~844 m	19°52'46.2896"S	115°09'00.0179"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
XNA manifold	~182 m	19°57'52.6141"S	115°12'54.6816"E		
Existing or Approved Wells					
PLA01 well	~830 m	19°54'49.220"S	115°07'54.497"E	Temporary 500 m radius, if contingency activities are required	WA-34-L
PLA02 well	~830 m	19°54'48.226"S	115°07'54.151"E		
PLA03 well	~830 m	19°54'48.200"S	115°07'54.765"E		
PLA04 well	~830 m	19°54'48.566"S	115°07'55.798"E		
PLA05 well	~830 m	19°54'48.694"S	115°7'56.3530"E		
PLA06 well	~830 m	19°54'48.686"S	115°07'55.577"E		
PLA07 well	~830 m	19°54'47.584"S	115°07'55.000"E		
PYA01 well	~985 m	19°49'40.371"S	115°10'34.956"E		
PL-PYA02 well	~862 m	19°52'34.908"S	115°09'00.666"E		
XNA01 well	~180 m	19°58'13.579"S	115°12'46.195"E		
XNA02 well	~182 m	19°57'49.116"S	115°13'02.735"E		

Environment That May Be Affected (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where the WA-34-L drilling and subsea installation activity could potentially have an environmental consequence (direct or indirect impact). The broadest extent of the EMBA takes into consideration planned and unplanned activities, and for this EP is determined by a highly unlikely release of hydrocarbons to the environment as a result of well loss of integrity. This is depicted in **Figure 2**.

The EMBA does not represent the extent of predicted impact of the highly unlikely hydrocarbon release. Rather, the EMBA represents the merged area of many possible paths a highly unlikely hydrocarbon release could travel depending on the weather and ocean conditions at the time of the release. This means in the highly unlikely event 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.

For this EP, Woodside has defined the EMBA by combining the potential spatial extent of surface and in-water (dissolved and entrained) hydrocarbons, resulting from a worst-case credible spill; loss of well integrity.

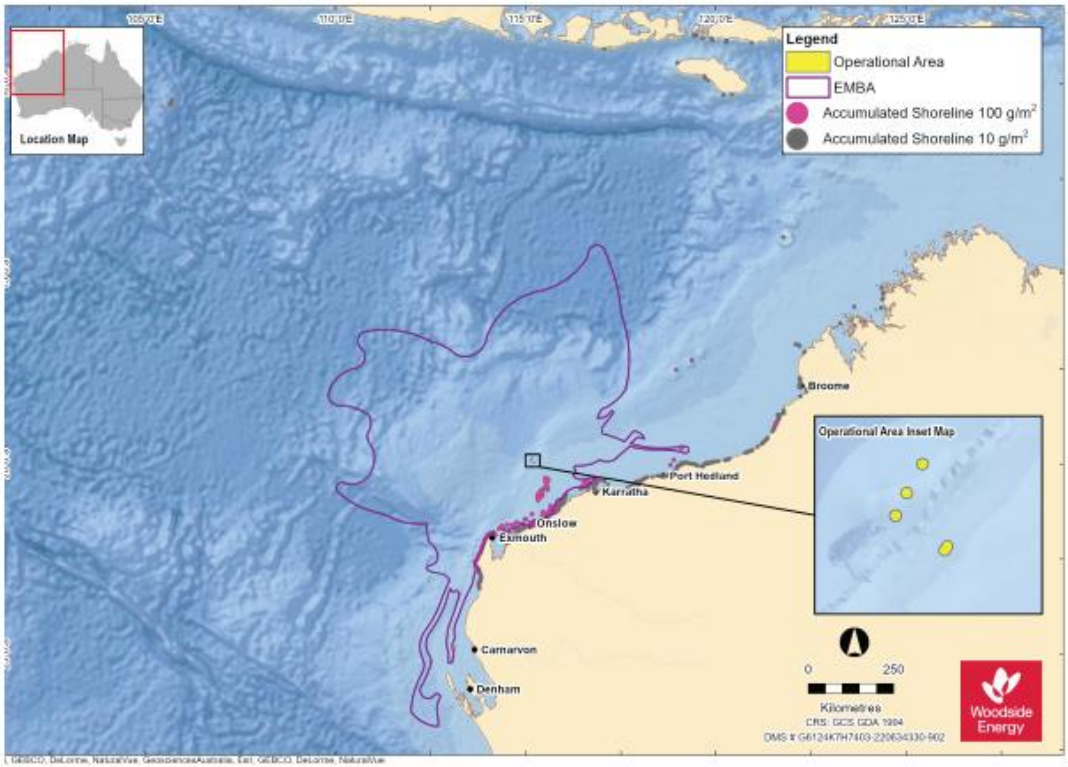


Figure 2. Environment that May Be Affected by the WA-34-L Drilling and Subsea Installation Activity

Mitigation and Management Measures

Woodside has undertaken an assessment to identify potential impacts and risks to the environment arising from the WA-34-L drilling and subsea installation activity.

A number of mitigation and management measures for the activity are outlined in **Table 3**. Further details will be provided in the EP.

Table 3. Summary of key risks and/or impacts and preliminary management measures for the WA-34-L drilling and subsea installation activity.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts and Risks	Preliminary Mitigation and/or Management Measures[1]
Planned			
Physical presence - interactions with other marine users	• Several vessel types will be required to complete the activity including a MODU (operating on Dynamic Positioning (DP)), installation vessel and support vessels. • The physical presence and movement of project vessels within the Operational Area has the potential to displace other marine users. • The presence of subsea infrastructure also has the potential to interfere with or displace third party vessels • The activity may not be executed as a single campaign or in a consecutive sequence meaning the presence of the MODU, subsea installation vessels and other vessels may occur at any time during the two-year approval period of the EP.	• Other vessels in the Operational Area, which may include commercial or recreational fishing and shipping and defence vessels, may experience temporary and localised displacement during the activity. • The Pilbara Line Fishery, the Pilbara Trap Fishery and the North-West Slope Trawl Fishery were the fisheries considered to be active in the vicinity of the Operational Area. The Operational Area is located in water depths ranging from between about 170m to 990 m, the shallower extent of which is within the depth range where typical fishing efforts for some relevant fisheries may occur. • Tourism and recreation within the Operational Area are expected to be limited. The Montebello Islands are the closest location for frequent tourism activities, located approximately 50 km from the Operational Area. Recreational fishing may occur in the Operational Area, though given the water depths and distance from shore, frequency and intensity of recreational fishing effort is expected to be low. Given the location, and short-term nature of activities, it is expected that any impacts would be localised with no lasting effect. • The Operational Areas do not overlap any shipping fairways and as such impacts to shipping are unlikely.	• Vessels adhere to regulatory requirements for navigational safety. • Establish a 500 m petroleum safety zone around MODU and the installation vessel which is communicated to marine users. • Notify relevant government departments, fishing industry representative bodies and licence holders of activities prior to commencement and on completion of activities. • Notify the Australian Hydrographic Service (AHS) prior to commencement of the activity to enable them to update maritime charts ensuring marine users are aware of the activity. • Notify Department of Defence of activities no less than five weeks before the scheduled activity commencement date. • Consult with relevant persons so they are informed of the proposed activities.

1 This EP is currently under assessment - these mitigation and management measures are subject to change through the consultation and assessment process and may not represent content in the publicly available EP or in the final plan once accepted.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts and Risks	Preliminary Mitigation and/or Management Measures[1]
Physical presence – disturbance to benthic habitat from drilling and ROV operations, and subsea infrastructure	• Seabed disturbance may result from: 1. Drilling operations (from installation of the blowout preventer (BOP) and conductor) 2. Installation of subsea infrastructure and supporting structures may result in the localised disturbances to benthic habitats including loss of habitat and a scour around the subsea infrastructure during the lifespan of the equipment. 3. The use of Remotely Operated Vehicles (ROVs) which may also result in suspension of sediment causing increased turbidity as a result of working close to, or occasionally on, the seabed.	• Habitat modification as a result of seabed disturbance from drilling operations, subsea installation activities and ROV operations (excluding drill cuttings and fluids) could occur within localised radius of the well 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. • Due to the localised area of seabed disturbance and habitat modification it is unlikely to impact on the ecological value of the Continental Slope Demersal Fish Communities Key Ecological Feature (KEF).	• Infrastructure will be placed on the seabed within the predefined design footprint using positioning technology to limit seabed disturbance. • Infrastructure wet parked (temporarily placed) on the seabed will be tracked and removed. • MODU well site locations consider seabed sensitivities.
Routine acoustic emissions	• MODU, support vessels and installation vessels may generate noise in the air and underwater due to the operation of thruster engines, propellers, and on-board machinery etc. • Underwater noise may also be generated by positioning equipment (subsea transponders).	• Elevated underwater noise may affect marine fauna, including marine mammals, turtles and fish in three main ways: 1. By causing direct physical effects, including injury or hearing impairment. Hearing impairment may be temporary or permanent. 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. 3. By masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey). • It is not credible that permanent and temporary thresholds would be exceeded for pygmy blue whales transiting through the Operational Area during migration seasons. • Activities within the migration Biologically Important Areas (BIAs) during migration seasons for pygmy blue whales may result in a behavioural response from individuals or groups of whales transiting in proximity to MODU/vessels. • Marine turtle presence is expected to be infrequent due to the water depths of the Operational Area, and potential impacts from predicted noise levels from the project vessels (including MODU and support vessels) are expected to be localised and short term. • It is reasonable to expect fish, sharks and rays may demonstrate avoidance or attraction behaviour to the noise generated by the activity with no lasting effect.	• Comply with regulatory requirements for interactions with marine fauna to prevent adverse interactions. • Implement an adaptive management procedure prior to and during MODU and installation vessel moves. • Cetacean and whale shark sightings will be reported to support greater environmental knowledge.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts and Risks	Preliminary Mitigation and/or Management Measures[1]
Routine and non-routine discharges – MODU and project vessels	• Sewage, greywater and macerated food waste will be discharged from project vessels and MODU. • Bilge water, deck drainage and 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, localised impacts to water quality. • 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. • 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.	• Marine discharges will be managed according to regulatory requirements. • Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process.
Routine and non-routine discharges – drill cuttings and drilling fluid	• Routine discharge of Water Based Mud (WBM) and/or treated Non-water based mud (NWBM and drill cuttings to the seabed and marine environment will occur. • Discharges of other fluids may occur as required such as wash water from mud pits, vessel tank wash fluids and well clean-out fluids. • Discharges of well annular fluids from temporarily abandoned wells may also occur.	• Drill cuttings and retained drilling fluid discharges are expected to increase turbidity and Total Suspended Sediment levels above ambient concentrations above the seabed (for top-hole well sections) or in the upper surface layers (for bottom-hole well sections). This reduction in water quality will be temporary (limited to the operational discharges during drilling) and subject to rapid dispersion and dilution by prevailing seabed currents. • It is expected that potential impacts to plankton species will be highly localised and return to previous conditions within a relatively short period of time due to the open nature of the marine environment and associated environmental conditions, the content and dispersive nature of drilling muds within the marine environment and the high population replenishment of these organisms. • Potential impacts to benthic communities are expected to be largely limited to an area surrounding the well location. The low sensitivity of the benthic communities/ habitats within and in the vicinity of the Operational Area, combined with the low toxicity of WBMs and residual NWBM and the highly localised nature and scale of predicted physical impacts to seabed biota, mean predicted impact is considered to be slight. • Potential impacts to the Continental Slope Demersal Fish Community KEF, which overlaps the Operational Area, relate to ecological impacts to the seabed habitat and benthic communities. The fish that constitute the KEF are mobile and expected to move away from areas affected by drill cuttings and fluids before experiencing impacts that result in injury or mortality. The extremely small portion of the overall KEF area predicted to be impacted, in combination with the predicted recovery of the affected benthic communities, mean that predicted impact is considered to be localised with no lasting effects.	• All chemicals intended or likely to be discharged into the marine environment reduced to ALARP using the Woodside chemical assessment process. • NWBM base oils selected based on expected toxicity. • NWMB will only be used where written justification process has been followed and bulk NWBM will be retained for disposal onshore or maintained on rig for re-use. • 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. • Drill cuttings returned to the MODU will be discharged below the water line to reduce carriage and dispersion to other areas.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts and Risks	Preliminary Mitigation and/or Management Measures[1]
Routine and non-routine discharges – cement, cementing fluids, subsea well fluids, produced water and unused bulk product	• Routine discharge of cement and cementing fluids to the seabed and marine environment. • Routine discharge of subsea well fluids, completion fluids, produced water and well intervention/workover fluids. • Potential non-routine discharge of unused bulk product.	• Cement operations during drilling involve routine and non-routine discharges that can result in turbidity in the water column. Reduction in water quality will be temporary (limited to the cement operational discharges during drilling) and subject to rapid dispersion and dilution by prevailing currents. • The highly localised physical footprint of cement on the seabed at the well site is not expected to affect the overall diversity or ecosystem function of the benthic communities of the area. • Given the small volumes associated with subsea control fluids discharge and limited exposure times due to rapid dilution, potential impacts from these fluids is expected to be minor, localised and short term. • Well intervention fluids are typically inert and of low toxicity. These fluids may include subsea control fluid, completions fluids and well annular fluids. Changes to water quality are expected to be localised and temporary as discharges would be discrete and short in duration.	• Chemicals intended or likely to be discharged into the marine environment reduced to ALARP using Woodside's chemical assessment process. • Fluids contaminated with hydrocarbons will be treated to meet specified discharge limits prior to discharge or contained. If discharge specifications are not met, fluids will be returned to shore. • During well unloading and completion activities, if produced water is not flared, it will be processed through a water filtration treatment package prior to discharge to the environment. • No bulk cement, bentonite or barite will be discharged without a documented environmental assessment.
Routine and non-routine discharges to the marine environment: flowline and subsea installation fluids	• Routine discharge of flowline and subsea installation fluids to the marine environment from hydrotesting of subsea infrastructure and tie in of flowlines and monoethylene glycol (MEG) jumper.	• Impacts from routine and non-routine discharges of these fluids will be localised to the immediate vicinity of the release location with short-lasting impacts, given the low potential for toxicity and bioaccumulation of MEG, and small volumes discharged, rapid dilution and low sensitivity of the receiving environment. • Gas and condensate gas released from manifolds during verification testing will become dispersed as bubbles in the water column which will rise to the surface. Receptors that may be impacted by the condensate release during verification testing are in-water receptors within the immediate vicinity of the release location, including plankton and pelagic fishes and are predicted to result in localised impacts with no lasting effect.	• Chemicals intended or likely to be discharged into the marine environment reduced to ALARP using Woodside's chemical assessment process. • ROV inspection during hydrotest test to identify any leakage.
Atmospheric emissions and greenhouse gas (GHG) emissions	• Atmospheric emissions and GHG emissions will be generated by the project vessels and MODU from internal combustion engines and incineration activities. • Well flowback if carried out, may result in flaring and/or venting of hydrocarbons. • Contingent venting of gas during drilling in the unplanned event of a well-kick may also result in release of some GHG emissions.	• Emissions from project vessels and MODU could result in temporary, localised reductions in air quality in the immediate vicinity. • Given the offshore location of the activity, short duration and the low volumes of atmospheric emissions which will be generated, biodiversity, ecological integrity, social amenities and human health will not be impacted and potential impact to air quality is considered negligible. • Given the nature and scale of GHG emissions from vessel and MODU fuel usage for this activity, the potential GHG impact and risk from this activity is considered negligible.	• Comply with regulatory requirements for marine air pollution and GHG emissions reporting. Vessel speed will be managed to reduce fuel consumption where practicable. • Wells drilled in compliance with the accepted Well Operations Management Plan (WOMP), including implementation of barriers to prevent a loss of well integrity. • Flaring restricted to a duration necessary to achieve the well objectives, eliminating unnecessary flared volumes and corresponding GHG emissions.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts and Risks	Preliminary Mitigation and/or Management Measures[1]
External lighting on the MODU and project vessels	• Project vessels and the Mobile Offshore Drilling Unit (MODU) will use external lighting to navigate and conduct safe operations at night. • Vessel lighting will also be used to communicate the MODU and vessel presence to other marine users (i.e. navigation/warning lights). • Light may also be emitted from flaring during well unloading.	• Light emissions may affect fauna (such as marine turtles and birds) in two main ways: 1. Behaviour: artificial lighting has the potential to create a constant level of light at night that can override natural levels and cycles. 2. Orientation: if an artificial light source is brighter than a natural source, the artificial light may override natural cues, leading to disorientation. • Given the distance from shore, low sensitivity of receptors in the deep offshore waters (between approximately 170 m and 990 m) and the negligible contribution of light emissions to the environment from the activity, light emissions to marine turtles are unlikely to result in more than slight, localised behavioural disturbance to isolated transient individuals, with no lasting effect to the species. • The Operational Area may be occasionally visited by seabirds and overlaps the Wedgetail Shearwater Foraging BIA. Potential impacts are expected to be limited to localised behavioural disturbance to isolated individuals, with no significant impact to seabird foraging.	• Lighting limited to the minimum required for navigational and safety requirements, except for emergency events. • Flaring restricted to a duration necessary to achieve the well objectives, eliminating unnecessary flared volumes and corresponding light emissions. • Implementation of the Woodside Seabird Management Plan.
Unplanned			
Unplanned hydrocarbon release – loss of well control	• Accidental loss of hydrocarbons to the marine environment due to loss of well control caused by failure of well barriers. • Accidental loss of well containment could credibly occur during drilling or well intervention and workover activities.	• 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. • Pluto condensate is a relatively volatile and non-persistent natured hydrocarbon. Up to about 93% of the Pluto condensate could evaporate within the first 24 hours. • Potential impacts across the whole EMBA were assessed as including receptors such as plankton, fish, sea snakes, marine mammals, seabirds and migratory shorebirds, tourism, recreation, commercial fisheries and cultural heritage (for example). • Considering receptor sensitivity, this unplanned event has the potential to result in a 'Major' consequence or less.	**Preventing loss of well control** • Wells drilled in compliance with the accepted WOMP including implementation of barriers to prevent a loss of well control. • Checks completed during well operations to establish a minimum acceptable standard of well integrity. • An approved Source Control Emergency Response Plan will be prepared prior to drilling each well including feasibility and specific considerations for relief well. • Subsea BOP specification, installation and testing compliant with internal Woodside Standards and international requirements. **Spill response arrangements** • Arrangements supporting the Oil Pollution Emergency Preparation document (OPEP) will be tested to ensure the OPEP can be implemented as planned. • Emergency response activities would be implemented in line with the OPEP.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts and Risks	Preliminary Mitigation and/or Management Measures[1]

Unplanned hydrocarbon release – vessel collision	• Project vessels will use marine diesel fuel, meaning a vessel collision involving a project vessel or third-party during the activity may potentially result in the release of marine diesel.
	• For a collision to result in the worst-case scenario diesel release, several factors must occur as follows:
	  • Identified causes of vessel interaction must result in a collision.
	  • The collision has enough force to penetrate the vessel hull and in the exact location of the fuel tank.
	  • The fuel tank must be full or at least of volume which is higher than the point of penetration.
		• In the highly unlikely event of a vessel collision causing a release of hydrocarbons, impacts to water quality and marine ecosystems could occur.
		• Modelling of a surface release of marine diesel within ~2 km from the Operational Areas was used to understand potential impacts.
		• Marine diesel is a relatively volatile, non-persistent nature hydrocarbon with up to 41% evaporating within the first 24 hours.
		• Potential impacts across the whole EMBA were assessed including receptors such as plankton, fish, marine mammals, seabirds and migratory shorebirds, tourism, recreation and commercial fisheries (for example).
		• Taking into account receptor sensitivity, the receptors were rated as having a potential consequence level of minor or less (slight or negligible).
			Preventing vessel collision
			• Comply with regulatory requirements for the prevention of vessel collisions and safety and emergency arrangements.
			• Consult with relevant persons so that other marine users are informed and aware, reducing the likelihood of a collision.
			• Establish temporary exclusion zones around vessels which are communicated to marine users to reduce the likelihood of collision.
			• Maintain a support vessel on standby as required during the activity to assist in third-party vessel interactions to reduce the likelihood of a collision.
			Spill response arrangements
			• Arrangements supporting the OPEP will be tested to ensure the OPEP can be implemented as planned.
			• Emergency response activities would be implemented in line with the OPEP.

Unplanned hydrocarbon release - bunkering	• Accidental loss of hydrocarbons to the marine environment during planned 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.	• Marine diesel surface release expected to be confined to within several kilometres of the release site, and well within the EMBA identified for the vessel collision scenario. • The biological consequences of such a small volume spill on identified open water sensitive receptors relate to the potential for slight impacts to megafauna, plankton and fish populations that are within the spill-affected area. • Taking into account receptor sensitivity, the receptors were rated as having a potential consequence level of slight or less (negligible).	**Preventing unplanned hydrocarbon release due to bunkering** • Comply with regulatory requirements for the prevention of marine pollution. • Liquid chemical and fuel storage areas bunded or secondarily contained when they are not being handled or temporarily moved. • Appropriate bunkering equipment kept and maintained. • Compliance with Contractor procedures for the management of bunkering/helicopter operations to reduce the likelihood and potential severity of a spill. **Spill response arrangements** • Maintain and locate spill kits in proximity to hydrocarbon storage and deck areas for use to contain and recover deck spills. • Arrangements supporting the OPEP will be tested to ensure the OPEP can be implemented as planned. • Emergency response activities would be implemented in line with the OPEP.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts and Risks	Preliminary Mitigation and/or Management Measures[1]
Unplanned discharge – drilling fluids	• Accidental discharge of drilling fluids (WBM/NWBM/base oil) and cement to marine environment due to failure of slip joint packers, bulk transfer hose/fitting, emergency disconnect system or from routine MODU operations.	• Unplanned discharges of drilling fluids have a worst-case credible spill scenario of up to 8 m^3. • Unplanned discharge of cement would typically be approximately <100 L. • These discharges would be to the sea surface and would rapidly dilute through mixing by surface currents and wave action. Any release of NWBM or WBM would be confined to open waters and would not reach any sensitive receptors. • Given the small volumes, and the offshore location of the Operational Area, any change to water quality resulting from unplanned discharge of drilling fluids is expected to be negligible and temporary.	• Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process. • Deck drainage collected via a closed drainage system where there is a potential for loss of primary containment of oil and chemicals on the MODU. • No overboard disposal of bulk NWBM. • Compliance with Contractor procedures for the management of drilling fluids to reduce the likelihood and potential severity of a spill.
Unplanned discharge – deck and subsea spills	• Accidental discharge of hydrocarbons/chemicals from MODU or project vessels deck activities and equipment and from subsea ROV hydraulic leaks.	• Unplanned discharges of non-process chemicals and hydrocarbons may decrease the water quality in the immediate vicinity of the release. Only small volumes (approximately <100 L) would be expected to potentially occur, resulting in very short-term impacts to water quality, and limited to the immediate release location. • No significant impacts from the accidental discharges described would be anticipated due to the offshore/open water locations, low sensitivity of surrounding water quality and high level of dilution into the open water marine environment of the Operational Area.	• Comply with regulatory requirements for the prevention of marine pollution. • Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily. • Spill kits positioned in high-risk locations around the vessel (near potential spill points such as transfer stations). • Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process. • Installation vessels have self-containing hydraulic oil drip tray management system.
Unplanned discharge of solid hazardous/ non-hazardous solid waste/ equipment	• Accidental 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. • 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.	• Comply with regulatory requirements for the prevention of marine pollution and handling of hazardous wastes. • Implement waste management procedures which provide for safe handling and transportation, segregation and storage and appropriate classification of waste generated. • Solid waste/equipment dropped to the marine environment will be recovered where safe and practicable to do so. • 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.

Potential Impact/Risk	Description of Source of Potential Impact/Risk	Description of Potential Impacts and Risks	Preliminary Mitigation and/or Management Measures[1]
Physical presence: vessel collision with marine fauna	• Vessel movements have the potential to result in collisions between MODU/project vessel (hull and propellers) and marine fauna. • The factors contributing 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) and the type of animal potentially present and their behaviours.	• Vessel disturbance presents a potential threat to marine mammals, marine reptiles and fish, sharks and rays. • The risk of vessel collision with marine mammals is present year-round but is seasonally elevated for species such as pygmy blue whales during migration periods and within migration BIAs. Given the short duration of activities within the Operational Area, and the slow speeds at which project vessels operate during installation (if not stationary), collisions are considered highly unlikely.	• Comply with regulatory requirements for interactions with marine fauna to reduce the likelihood of a collision occurring.
Physical presence: dropped object resulting in seabed disturbance	• Objects accidentally dropped overboard from the MODU or project vessels may result in seabed disturbance.	• Unplanned seabed disturbance may result in localised changes to water and sediment quality or a localised temporary impact to benthic communities. • Potential impacts to KEFs which intersect the Operational Area of the activity are expected to be limited to the footprint of a dropped object resulting in potential highly localised and temporary change in habitat.	• MODU/installation vessel inductions include control measures for dropped object prevention. • Dropped objects to be recovered and relocated where safe and practicable to do so. • 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.
Accidental introduction of invasive marine species (IMS)	• MODU/vessels transiting to the Operational Area may be subject to marine fouling whereby organisms attach to the MODU/vessel hull. • IMS could be present as biofouling on the MODU/vessel hull or on immersible equipment (survey equipment, ROV, etc.) and could be translocated to the Operational Area. • Organisms can also be drawn into ballast tanks during onboarding of ballast water.	• It is not credible for IMS to be introduced and established on the seabed or subsea structures in the Operational Area as these deep waters (between approximately 170 m and 990 m) are not conducive to the settlement and establishment of IMS.	• 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. • Woodside's IMS risk assessment process will be applied to project vessels and immersible equipment entering the Operational Area.

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 17 March 2023 via:

E: Feedback@woodside.com.au

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) 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 our EP for the proposed activity, which will be submitted to NOPSEMA for acceptance in accordance with the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (Cth)*.

Please let us know if your feedback for this activity is sensitive and we will make this known to NOPSEMA upon submission of the EP in order for this information to remain confidential to NOPSEMA.

3.2 Woodside bespoke Consultation Information Sheet (sent to all relevant person Traditional Custodians)

Woodside Energy

STAKEHOLDER CONSULTATION

INFORMATION SHEET

February 2023

PYXIS DRILLING AND SUBSEA INSTALLATION SUMMARY INFORMATION SHEET

This is a summary of the activity in plain English. More detailed information is included in the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (EP) Information Sheet. This EP is an update to a previously accepted Pyxis EP to propose a new well.

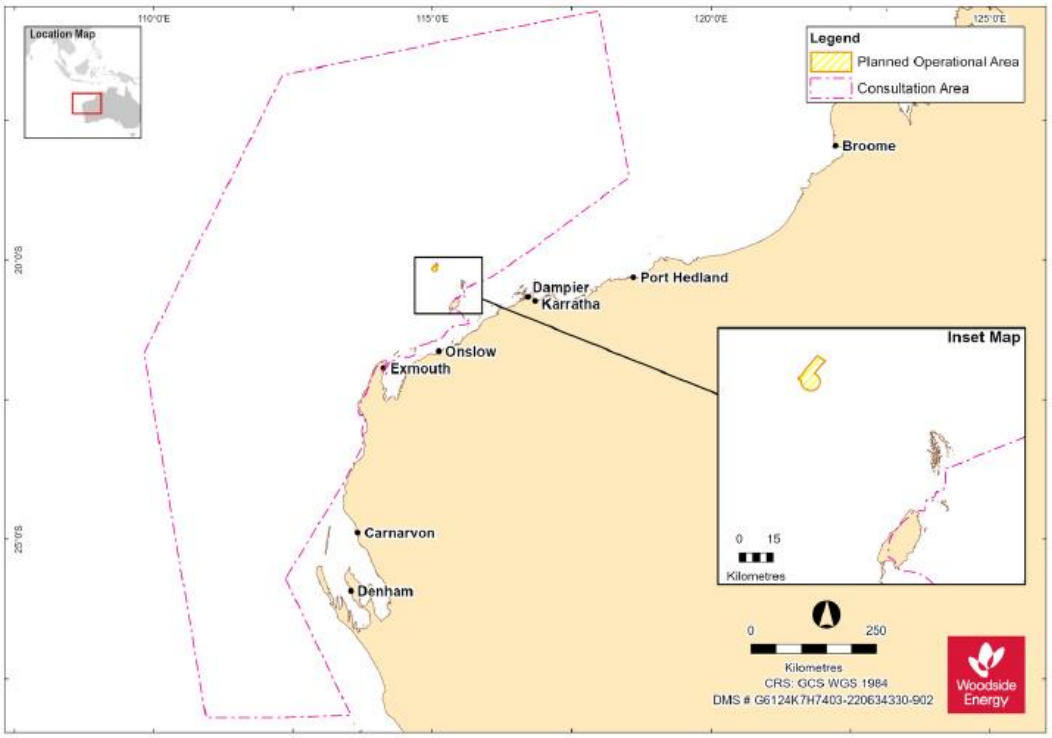
Overview

Woodside plans to drill and complete one new Pluto gas production well called PLA08. Subsea equipment will be installed to connect this well to the existing Pluto subsea infrastructure. It may also carry out maintenance activities on existing Pluto, Pyxis and Xena gas production wells as required.

This work will take place in Commonwealth waters, approximately 170 km north-west of Dampier in title area WA-34-L. The proposed PLA08 production well will be located at a water depth of approximately 820m.

Woodside is planning to start the PLA08 Drilling and Subsea Installation work upon acceptance of the EP, and the aim is to start work around the second half of 2023. The activity is expected to be completed within a 2-year period.

A map showing the location of this work is below.



Work Method

To undertake the Drilling and Completions activities, Woodside will conduct inspections and monitor the sea floor, drill the holes, and build the wells using a drill rig and support boats. Once the drilling has taken place, completion activities will be carried out which will include installing equipment down the hole.

Once this is complete, equipment will be installed on the seabed to connect the well to the existing Pluto subsea infrastructure. This will be done by a subsea installation vessel.

Woodside may conduct re-drilling and maintenance of the existing wells as necessary.

Environmental Impacts and Management

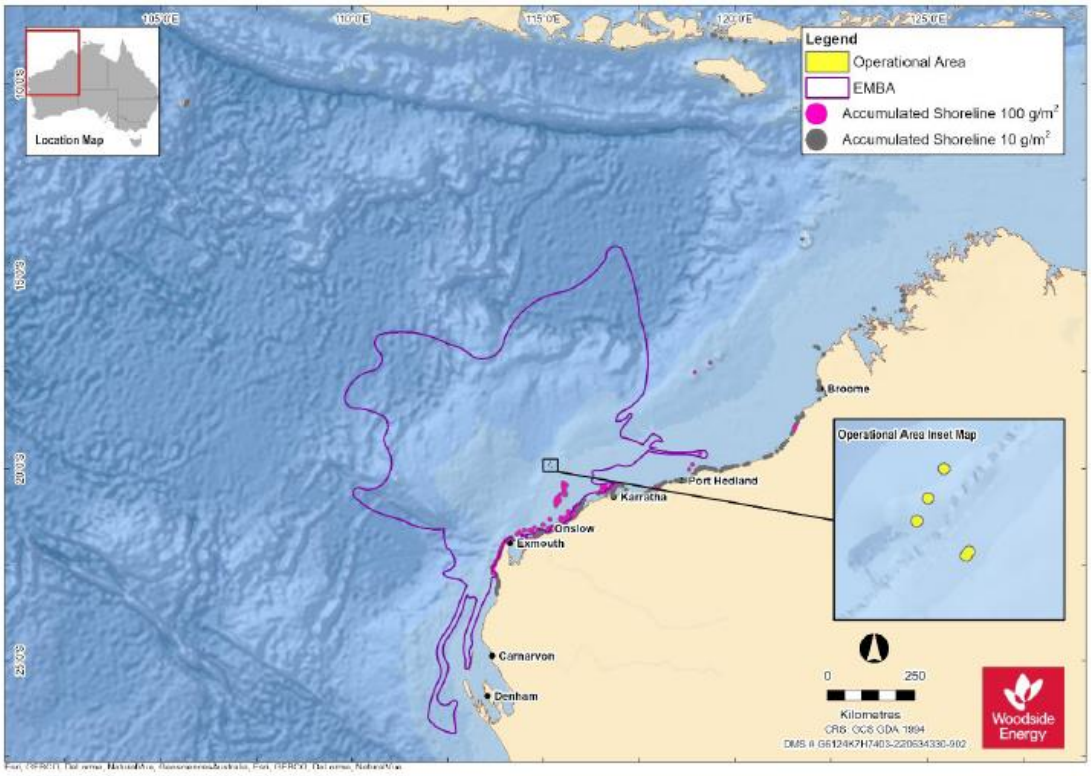
This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as practical.

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 the 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 attached Information Sheet, Table 3.

The total area over which unplanned events could have environmental impacts is shown in the map below. This is referred to as the environment that may be affected (EMBA). The location in which the Pyxis Drilling and Subsea Installation activities will occur, known as the Operational Area, is also shown on the map below. In the highly unlikely event such as a fuel spill from a vessel collision, 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.



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 have any concerns, you can tell Woodside by calling **1800 442 977** or sending an email to **Feedback@woodside.com.au.** Please contact Woodside before **17th March 2023** so your questions or concerns can be considered during the environmental approval process.

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

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.

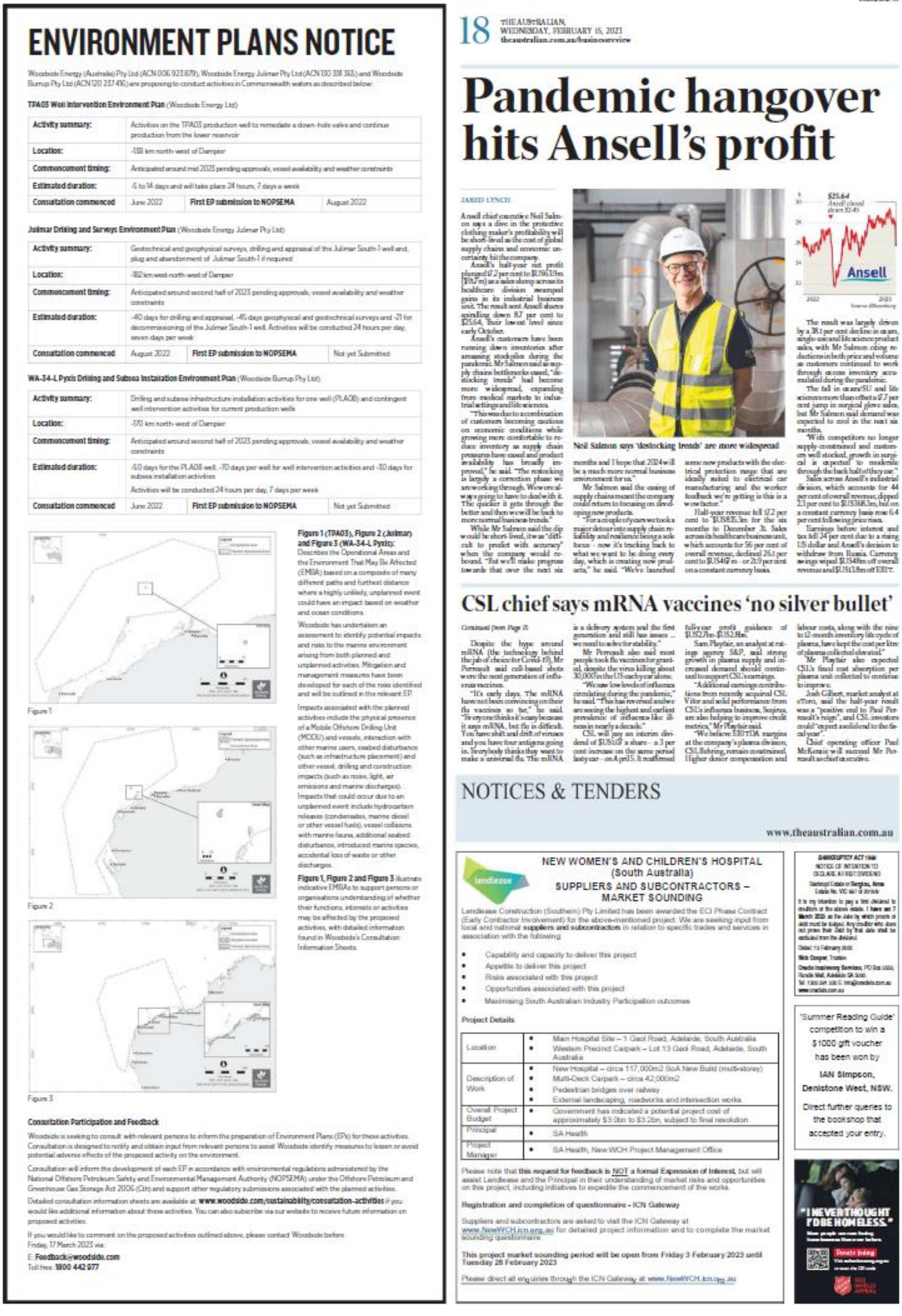
There are always potential risks with projects like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside 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.

Further Information

You can find the detailed Consultation Information Sheet for proposed activity on our website: https://www.woodside.com/sustainability/consultation-activities.

3.3 Advertisement in The Australian, The West Australian, Pilbara News, North West Telegraph, Midwest Times (15 February 2023) and the Geraldton Guardian (17 February 2023)



ENVIRONMENT PLANS NOTICE

Woodside Energy (Australia) Pty Ltd (ACN 006 923 879), Woodside Energy Julimar Pty Ltd (ACN 130 391 365) and Woodside Burrup Pty Ltd (ACN 120 237 416) are proposing to conduct activities in Commonwealth waters as described below:

TPA03 Well Intervention Environment Plan (Woodside Energy Ltd)

Activity summary:	Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir		
Location:	~138 km north-west of Dampier		
Commencement timing:	Anticipated around mid 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~5 to 14 days and will take place 24 hours, 7 days a week		
Consultation commenced	June 2022	**First EP submission to NOPSEMA**	August 2022

Julimar Drilling and Surveys Environment Plan (Woodside Energy Julimar Pty Ltd)

Activity summary:	Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well and, plug and abandonment of Julimar South-1 if required		
Location:	~182 km west-north-west of Dampier		
Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~40 days for drilling and appraisal, ~45 days geophysical and geotechnical surveys and ~21 for decommissioning of the Julimar South-1 well. Activities will be conducted 24 hours per day, seven days per week		
Consultation commenced	August 2022	**First EP submission to NOPSEMA**	Not yet Submitted

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (Woodside Burrup Pty Ltd)

Activity summary:	Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells		
Location:	~170 km north-west of Dampier		
Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~50 days for the PLA08 well, ~70 days per well for well intervention activities and ~30 days for subsea installation activities Activities will be conducted 24 hours per day, 7 days per week		
Consultation commenced	June 2022	**First EP submission to NOPSEMA**	Not yet Submitted

Figure 1

Figure 2

Figure 3

Figure 1 (TPA03), Figure 2 (Julimar) and Figure 3 (WA-34-L Pyxis): 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 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 the planned activities include the physical presence of a Mobile Offshore Drilling Unit (MODU) and vessels, interaction with other marine users, seabed disturbance (such as infrastructure placement) and other vessel, drilling and construction impacts (such as noise, light, air emissions and marine discharges). Impacts that could occur due to an unplanned event include hydrocarbon releases (condensates, 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, Figure 2 and Figure 3 illustrate 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.

Consultation Participation and Feedback

Woodside is seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for these 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.

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E: **Feedback@woodside.com**
Toll free: **1800 442 977**

18 THE AUSTRALIAN, WEDNESDAY, FEBRUARY 15, 2023

Pandemic hangover hits Ansell's profit

Neil Salmon says 'destocking trends' are more widespread

CSL chief says mRNA vaccines 'no silver bullet'

NOTICES & TENDERS

www.theaustralian.com.au

NEW WOMEN'S AND CHILDREN'S HOSPITAL (South Australia)
SUPPLIERS AND SUBCONTRACTORS – MARKET SOUNDING

ENVIRONMENT PLANS NOTICE

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Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~40 days for drilling and appraisal, ~45 days geophysical and geotechnical surveys and ~21 for decommissioning of the Julimar South-1 well. Activities will be conducted 24 hours per day, seven days per week		
Consultation commenced	August 2022	**First EP submission to NOPSEMA**	Not yet Submitted

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Activity summary:	Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells		
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Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~50 days for the PLA08 well, ~70 days per well for well intervention activities and ~30 days for subsea installation activities Activities will be conducted 24 hours per day, 7 days per week		
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Figure 1

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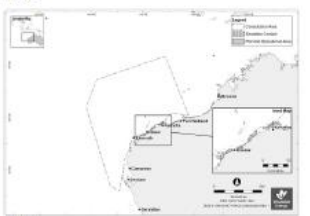

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THE WEST AUSTRALIAN CLASSIFIEDS

WEDNESDAY, FEBRUARY 15, 2023 – 33

PUBLIC NOTICES

DECEASED ESTATES

Perth Airport

Perth Airport Abandoned Vehicles

At the discretion of Perth Airport Pty Ltd, under the Airports (Control of On-Airport Activities) Regulations 1997 the following abandoned vehicles will be disposed of if not claimed by 5.00pm (WST) Thursday 9 March 2023.

VIN Number	REGISTRATION	YEAR	MAKE/ MODEL	COLOUR	STATE
KNAJA652BV6429612	No Plates	1998	Kia Sportage	White	WA
6T153BK360X087960	No Plates	2009	Toyota Camry	Silver	TAS
JN1TBNT30A0105487	No Plates	2005	Nissan Xtrail	Silver	WA
6FPAAAJLCMSP15868	9FD696	1995	Ford Falcon Ute	White	WA
JTDBT153400196466	1BFO432	2001	Toyota Echo	Green	WA
6FPAAAJGSW2Y56677	1BBT345	2002	Ford Falcon	Grey	WA
JTDJW133X00202098	MHW0086	2003	Toyota Echo	Grey	WA
6G1YK62F83L136896	No Plates	2003	Holden Commodore Ute	Green	VIC
JT711SRA000080167	No Plates	1998	Toyota Townace	White	WA
JAATFR17HM7103039	8FD420	1991	Holden Rodeo	White	WA
JTFDN966600002299	No Plates	2003	Toyota Hilux	Blue	WA
KMHUA21JPNU038116	No Plates	1992	Hyundai Excel	White	WA

If you can demonstrate a rightful claim to a vehicle listed, please contact Perth Airport between 8.00am and 5.00pm from Monday to Friday on 9478 8888.

ENVIRONMENT PLANS NOTICE

Woodside Energy (Australia) Pty Ltd, Woodside Energy Julimar Pty Ltd and Woodside Energy Pty Ltd are proposing to conduct activities in Commonwealth waters as described below:

Well Intervention Environment Plan (Woodside Energy Ltd)

Activity summary	[illegible]		
Location	[illegible] km north-west of Dampier		
Commencement timing	Anticipated around mid 2023 pending approvals, vessel availability and weather constraints		
Estimated duration	[illegible] days and will take place 24 hours, 7 days a week		
Consultation commenced	June 2022	**First EP submission to NOPSEMA**	August 2022

Julimar Drilling and Survey Environment Plan (Woodside Energy Julimar Pty Ltd)

Activity summary	Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well and, plug and abandonment of Julimar South-1 if required		
Location	[illegible] km north-west of Dampier		
Commencement timing	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration	~60 days for drilling and appraisal, ~[illegible] days geophysical and geotechnical surveys and [illegible] for decommissioning of the Julimar South-1 well. Activities will be conducted 24 hours per day, seven days per week		
Consultation commenced	August 2022	**First EP submission to NOPSEMA**	Not yet Submitted

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (Woodside Energy Pty Ltd)

Activity summary	Drilling and subsea installation and [illegible] activities for new well [illegible] and contingent well intervention [illegible] production wells		
Location	[illegible] km north-west of Dampier		
Commencement timing	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration	~[illegible] days for the [illegible] well, ~[illegible] days per well for well intervention activities and ~[illegible] days for subsea installation activities. Activities will be conducted 24 hours per day, 7 days per week		
Consultation commenced	June 2022	**First EP submission to NOPSEMA**	Not yet Submitted

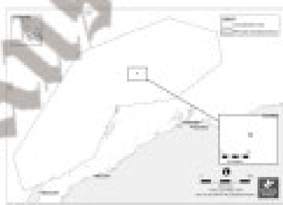

Figure 1

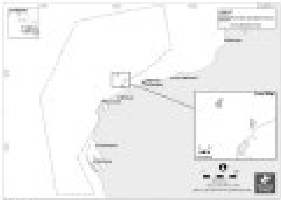

Figure 2

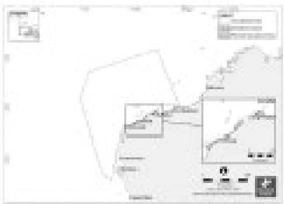

Figure 3

Figure 1, Figure 2 and Figure 3 (WA-34-L Pyxis) Describe the Operational Area and the Environment That May Be Affected (EMBA) based on a composite of many different paths and likelihood distances where a highly unlikely unplanned event could have an impact based on weather and ocean conditions.

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PUBLIC NOTICES

Building Regulations 2012

Town of Port Hedland

AMENDMENT TO CLAUSE 1, SCHEDULE 4 OF THE BUILDING REGULATIONS 2012

Notice is hereby given that the Town of Port Hedland (the Town) has initiated the above-mentioned Amendment to the Regulations.

Schedule 4, Clause 1 of the Building Regulations sets out areas of the state (being specific regional or remote areas) where a building permit is not required for certain work. The proposed amendment will remove Port Hedland from Schedule 4, Clause 1.

Further information can be found on the Town's website at www.porthedland.wa.gov.au.

Comments or objections should be lodged with the Town on or before close of business on 22 March 2023, in writing addressed to Development Services, Town of Port Hedland, PO Box 41, Port Hedland WA 6721 or via email: eplanning@porthedland.wa.gov.au

Land Administration Act 1997

Town of Port Hedland

NOTICE OF PUBLIC ADVERTISEMENT OF PEDESTRIAN ACCESS WAY CLOSURE - LOT 3280 STEAMER AVENUE, SOUTH HEDLAND

Notice is hereby given that the Town of Port Hedland (Town) has received an application to close the above-mentioned pedestrian access way.

Details of the proposal are available to view at the Town's Civic Centre during office hours up to and including close of business on 8 March 2023. Any queries can be directed to Development Services on 9158 9300. The proposal can also be viewed on the Town of Port Hedland website at: https://www.porthedland.wa.gov.au/planning-building-and-environment/planning/public-consultation.aspx

Submissions on the proposal may be lodged in writing addressed to Development Services, Town of Port Hedland, PO Box 41, Port Hedland WA 6721 or via email: eplanning@porthedland.wa.gov.au

Submissions should be lodged with the Town on or before close of business on 8 March 2023.

Carl Askew
Chief Executive Officer

PERSONAL

ADVERTISING INDEMNITY & WARRANTY

WEST AUSTRALIAN REGIONAL NEWSPAPERS

The advertiser (or agent) indemnifies the Company (and its employees and agents) against all actions, proceedings, claims, demands, losses, damages, costs and expenses arising out of or in connection with the publication of the advertisement (including any relating to defamation, malicious falsehood, infringement of copyright, trademark or design, or breach of the Trade Practices Act 1974, the Consumer Credit Code, or the Fair Trading Act 1987) and warrants that publication of the advertisement will not give rise to any legal, equitable or statutory rights against the Company and will not breach any laws or regulations including the prohibitions relating to advertising in the Trade Practices Act 1974, the Consumer Credit Code, and the Fair Trading Act 1987.

All advertisements are accepted on the following terms and conditions:

RIGHT TO REFUSE: The Company has the right to refuse to publish or republish any advertisement without giving any reason.

ENGAGEMENT AND MARRIAGE NOTICES: Must be signed by one of the people concerned or by one parent of the couple.

ADULT SERVICES, PERSONAL NOTICES AND GARAGE SALES: Must be paid at time of lodgement.

CANCELLATIONS AND ALTERATIONS: Same deadlines as insertions.

DISCLAIMER OF LIABILITY: No liability will be incurred by the Company by reason of any amendment to or error or inaccuracy in, or the partial or total omission of, an advertisement (single or multiple insertion) or by reason of any delay or default or from any other cause whatsoever. If an error occurs which in the opinion of the Company clearly lessens the value of the advertisement and which is in no way the fault of the advertiser and the advertiser notifies the Company of the error prior to the advertisement deadline on the first day the error was published, then a refund will be provided on the cost of the advertisement proportionate to the Company's opinion of its reduced value.

ADJUSTMENT AND CLAIMS: The advertiser must notify the Company of any error in the invoice for an advertisement within 30 days from the end of the month in which the advertisement was published. The Company will not consider claims for an invoice error lodged outside this period.

ADULT SERVICES

ENVIRONMENT PLANS NOTICE

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Location:	~182 km west-north-west of Dampier		
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Consultation commenced	August 2022	**First EP submission to NOPSEMA**	Not yet Submitted

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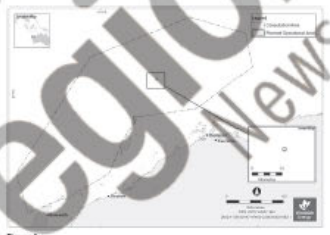

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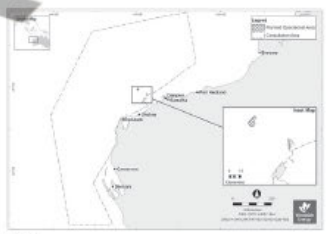

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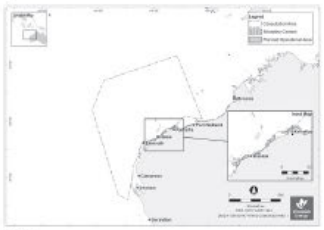

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EMPLOYMENT

BOEING

About Us

Boeing Defence Australia is shaping the future of aerospace and delivering some of the nation's most important programs for the Australian Defence Industry.

Joining us is a chance to make your mark, working with a diverse team that is united in pushing the boundaries of imagination and excellence.

The Opportunity

We are seeking Multiple Skillsets to support data centre, satellite antenna and facilities infrastructure as a part of the Maintenance and Support Services team located at our Geraldton site. Current Opportunities include;

- Configuration Management Specialist
- ICT Installation Technician
- Drafting & Documentation Officer
- Air Conditioning & Refrigeration Mechanic
- Environment Health & Safety Advisor
- Mechanical Fitter
- Facilities & Grounds Supervisor
- General Hand - Facilities & Grounds
- Cleaner
- Painter / Maintainer - Facilities

Culture

At Boeing, we innovate and collaborate to make the world a better place. From the seabed to outer space, you can contribute to work that matters with a company where diversity, equity and inclusion are core values. We're committed to fostering an environment for every teammate that's welcoming, respectful and inclusive, with great opportunity for professional growth. Find your future with us.

We are committed to building a diverse and inclusive workplace. Female applicants, people of Aboriginal or Torres Strait Island descent and veterans are encouraged to apply.

Benefits

- Flexible working options
- Salary packaging
- Employee Incentive Program
- Study assistance
- Global opportunities

Security Clearance

Applicants must be Australian Citizens to meet Australian Government security requirements. You will be required to successfully undergo an Australian Government positive vetting (PV) security clearance.

More information on the security clearance vetting process is available on the Australian Government Security Vetting Agency (AGSVA) website (*https://www.defence.gov.au/security/clearances*).

Equal Opportunity Employer

Boeing is an Equal Opportunity Employer. Employment decisions are made without regard to race, colour, religion, national origin, gender, sexual orientation, gender identity, age, physical or mental disability, genetic factors, military/veteran status or other characteristics protected by law.

If you are ready to join an innovative industry leader and would like to register your interest in working for Boeing, go to the Boeing Defence Australia Careers web page to apply.

https://jobs.boeing.com/ (search city: Geraldton, Western Australia)

Government of Western Australia
Legal Aid WA

Solicitor – Carnarvon Satellite Office

Fixed Term - Full Time – 12 months (possible permanency and/or extension)

Specified Calling Level 3/4, up to $139,705 gross per annum + super + salary sacrifice + benefits + district/air conditioning allowance and subsidised housing.

Are you a talented, enthusiastic and experienced solicitor? In this role you will:

- Operate independently from our satellite office in Carnarvon
- Deliver a range of services across civil, family and criminal law areas.

If you want to know more go to www.jobs.wa.gov.au and search for job vacancy no. LA23028.

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LAWA_13466

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Location:	~182 km west-north-west of Dampier		
Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~40 days for drilling and appraisal, ~45 days geophysical and geotechnical surveys and ~21 for decommissioning of the Julimar South-1 well. Activities will be conducted 24 hours per day, seven days per week		
Consultation commenced	August 2022	**First EP submission to NOPSEMA**	Not yet Submitted

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (Woodside Burrup Pty Ltd)

Activity summary:	Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells		
Location:	~170 km north-west of Dampier		
Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~50 days for the PLA08 well, ~70 days per well for well intervention activities and ~30 days for subsea installation activities Activities will be conducted 24 hours per day, 7 days per week		
Consultation commenced	June 2022	**First EP submission to NOPSEMA**	Not yet Submitted

Figure 1

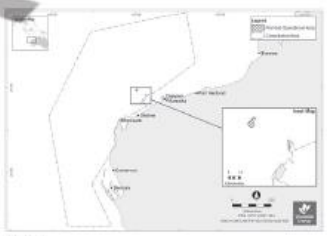


Figure 2

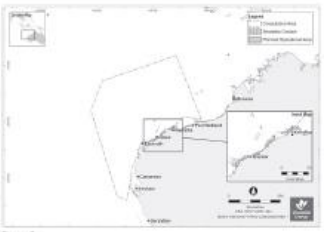


Figure 3

Figure 1 (TPA03), Figure 2 (Julimar) and Figure 3 (WA-34-L Pyxis): 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 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 the planned activities include the physical presence of a Mobile Offshore Drilling Unit (MODU) and vessels, interaction with other marine users, seabed disturbance (such as infrastructure placement) and other vessel, drilling and construction impacts (such as noise, light, air emissions and marine discharges). Impacts that could occur due to an unplanned event include hydrocarbon releases (condensates, 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, Figure 2 and Figure 3 illustrate 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.

Consultation Participation and Feedback

Woodside is seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for these 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 these 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 Friday, 17 March 2023 via:

E: **Feedback@woodside.com**
Toll free: **1800 442 977**

Trades & Services

9482 2300 Place an ad: regionalclassifieds@wanews.com.au or go to geraldtonguardian.com.au

PLUMBING

Classifieds

9482 2300 Place an ad: regionalclassifieds@wanews.com.au or go to geraldtonguardian.com.au

DEATHS

BURNS (Latham James): 30.12.1936 - 11.02.2023
Formerly of Cunderdin, Balla and Lathlain.

Dearly loved husband of Kay for 61 years.
Loved Dad of Sharyn and Andrew, Brad and Raylene.
Treasured Pop to Emily and Dorian, Luke, Chelsea, Tom and Celeste.
Love you forever.

Private Family Cremation will be held for Latham, and a Celebration of his Life will be held later at a time to be confirmed.

BURNS (Latham): Great Friend and neighbour of Bill and Barbara and the Hamville Family. Will be sadly missed.

Forever in Our Hearts

HARRIS Carmel Rose (nee McCartney): 18.5.1932 - 12.2.2023
Our beautiful and much-loved Mum passed peacefully away on 12th February 2023.
Beloved Wife of Keith (dec). Dearly loved Mum of Michael, Carol, Eric, Brett and Peter.
Loved Mother-in-Law of Susan, Dave and Gayle.
Much loved Nanna of 12 and Special Great Nanna of 17.
Forever in our hearts and thoughts.

Our family would like to sincerely thank Dr Ray Borchard, St John of God Nursing Staff and the Palliative Care Nurses for the amazing care given to our Mum and the wonderful support given to her family.

HARRIS (Carmel Rose): Loved Mum to Brett and Gayle. Awesome Nanna to Keegan and Luke, Erin and Callum, Aela. Precious Little Nanna to Avira, Harper and Ezra.
We will greatly miss your lovely gentle presence. Thank you for your love selflessness and for the treasured memories we will hold dear always.
Rest easy now.

HARRIS (Carmel Rose): 18.5.32 - 12.2.23
Dearly loved Mother of Michael, Mother in law to Sue, Nana of Luke and Ash, Matthew, Christopher and Rhiannon. Little Nana of Jaxon, Sienna, Amelie, Leon, James, Lilly and Fletcher. Gentle Soul now resting in Gods loving arms. Treasured memories are ours to keep and forever in our hearts.

Forever in Our Hearts

HARRIS (Carmel Rose): 18.5.1932 - 12.2.2023
Much loved Mum of Carol and Dave.
Devoted Nanna to Daniel and Susan, Andrew and Lauren, Adrian and Kristal, Owen and Nina. Special little Granny to Emily and Eva, Ryleigh, Kash and Knox and Kalani.
Our love for you has no boundaries, special memories to keep.
Reunited with Dad now and resting in God's loving care.

HARRIS (Carmel): Cherished memories. Rest peacefully Little Granny. Love Andy, Loz and Ryleigh.

FUNERAL NOTICES

HARRIS: Her Family respectfully advise Relatives and Friends, that the Funeral Service lovingly celebrating the life of Mrs Carmel Rose Harris, late of Beachlands, will be held at the Geraldton Crematorium, on Friday (24.02.2023) beginning at 2.00p.m.

evereve Funeral Services
GERALDTON 0964 3767 NFDA

MAZZA: Family and friends of the late Colin Peter Mazza are respectfully informed that a Funeral Service to pay tribute to Colin's life will take place at GERALDTON Crematorium, TUESDAY (21.02.2023) at 10.00am.

VASIC-PIDGEON: Her Family respectfully advise Relatives and Friends, that the Funeral Service lovingly celebrating the life of Mrs Trina Michelle Vasic-Pidgeon, late of Bluff Point, will be held at the Geraldton Crematorium, on Monday (27.02.2023) beginning at 10.00a.m.

evereve Funeral Services
GERALDTON 0964 3767 NFDA

FUNERAL DIRECTORS

PUBLIC NOTICES

mainroads WESTERN AUSTRALIA

Speed Limit Change Chapman Road, City of Greater Geraldton

Main Roads WA advises road users that changes to the speed limit on **Chapman Road will occur on Monday 20 February 2023.**

The existing 60km/h speed zone will be reduced to 50km/h for 2kms from Phelps St to Cecily St. The proposed changes will be implemented as part of Main Roads ongoing review of speed limits in the Mid West region and commitment to road safety. Motorists are reminded that speeding is an offence. Further information can be obtained by contacting. Main Roads on 9956 1200.

ENVIRONMENT PLANS NOTICE

Woodside Energy (Australia) Pty Ltd (ACN 006 923 679), Woodside Energy Julimar Pty Ltd (ACN 150 391 365) and Woodside Burrup Pty Ltd (ACN 120 237 485) are proposing to conduct activities in Commonwealth waters as described below.

TPA03 Well Intervention Environment Plan (Woodside Energy Ltd)

Activity summary:	Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir		
Location:	~138 km north-west of Dampier		
Commencement timing:	Anticipated around mid 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~5 to 14 days and will take place 24 hours, 7 days a week		
Consultation commenced	June 2022	**First EP submission to NOPSEMA**	August 2022

Julimar Drilling and Surveys Environment Plan (Woodside Energy Julimar Pty Ltd)

Activity summary:	Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well and, plug and abandonment of Julimar South-1 if required		
Location:	~162 km west-north-west of Dampier		
Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~40 days for drilling and appraisal, ~45 days geophysical and geotechnical surveys and ~21 for decommissioning of the Julimar South-1 well. Activities will be conducted 24 hours per day, seven days per week		
Consultation commenced	August 2022	**First EP submission to NOPSEMA**	Not yet Submitted

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (Woodside Burrup Pty Ltd)

Activity summary:	Drilling and subsea infrastructure installation activities for one well (PLA02) and contingent well intervention activities for current production wells		
Location:	~170 km north-west of Dampier		
Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints		
Estimated duration:	~50 days for the PLA02 well, ~70 days per well for well intervention activities and ~30 days for subsea installation activities Activities will be conducted 24 hours per day, 7 days per week		
Consultation commenced	June 2022	**First EP submission to NOPSEMA**	Not yet Submitted

Figure 1

Figure 2

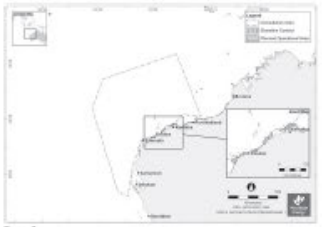


Figure 3

Figure 1 (TPA03), Figure 2 (Julimar) and Figure 3 (WA-34-L Pyxis): Depicts 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 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 the planned activities include the physical presence of a Mobile Offshore Drilling Unit (MODU) and vessels, interaction with other marine users, seabed disturbance (such as infrastructure placement) and other vessel, drilling and construction impacts (such as noise, light, air emissions and marine discharge). Impacts that could occur due to an unplanned event include hydrocarbon releases (condensates, 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, Figure 2 and Figure 3 illustrate 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.

Consultation Participation and Feedback

Woodside is seeking to consult with relevant persons to inform the preparation of Environment Plans (EPs) for these 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 environment 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 these 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 Friday, 17 March 2023 via:

E: **Feedback@woodside.com**
Toll free: **1800 442 977**

3.4 Email sent to ABF, AFMA, AHO, AMSA – Marine Safety, AMSA – Pollution, DPIRD, DCCEEW / DAFF, Director of National Parks, DBCA, DISR, DMIRS (15 February 2023)

Dear Stakeholder

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have additional feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and

	infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements,	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

		vessel availability, weather or unforeseen circumstances.	
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.4.1 Follow up email sent to ABF, AFMA, AHO, AMSA – Marine Pollution, DPIRD, DCCEEW / DAFF – Fisheries and Biosecurity, Director of National Parks, DISR and DMIRS (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.5 Email sent to DNP - Christmas Island National Park Marine and Island Parks Branch (23 March 2023)

Dear [redacted],

I have been passed your contact details by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts as a stakeholder, or representing stakeholders potentially relevant to one of our proposed activities.

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision

Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes Christmas Island.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.

Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.5.1 Follow up email sent to DNP - Christmas Island National Park Marine and Island Parks Branch (17 April 2023)

Dear [redacted],

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

If you have feedback specific to the proposed activities described under the proposed EP, please provide your feedback by **24 April 2023**.

Kind regards,

3.6 Email sent to AHO (15 February 2023)

Dear Stakeholder

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have additional feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and

	the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

		schedule requirements, vessel availability, weather or unforeseen circumstances.	
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.6.1 Follow up email sent to AHO (7 March 2023)

Dear AHO,

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (TPA03 EP);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (Julimar EP); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP).

The Shipping Lane figure for the proposed activities Operational Areas is attached. A separate figure showing the Environment that May Be Affected (EMBA) for the proposed activities is also been attached for reference.

Please let us know should you have any feedback relating to the proposed activities by 17 March 2023.

Kind Regards,

3.7 Email sent to DoD, DoT (15 February 2023)

Dear Stakeholder

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

Woodside is also consulting on the following additional activity in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**).

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have additional feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

	production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete.

		Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels.

			The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.7.1 Follow up email sent to DoD (7 March 2023)

Dear Department of Defence

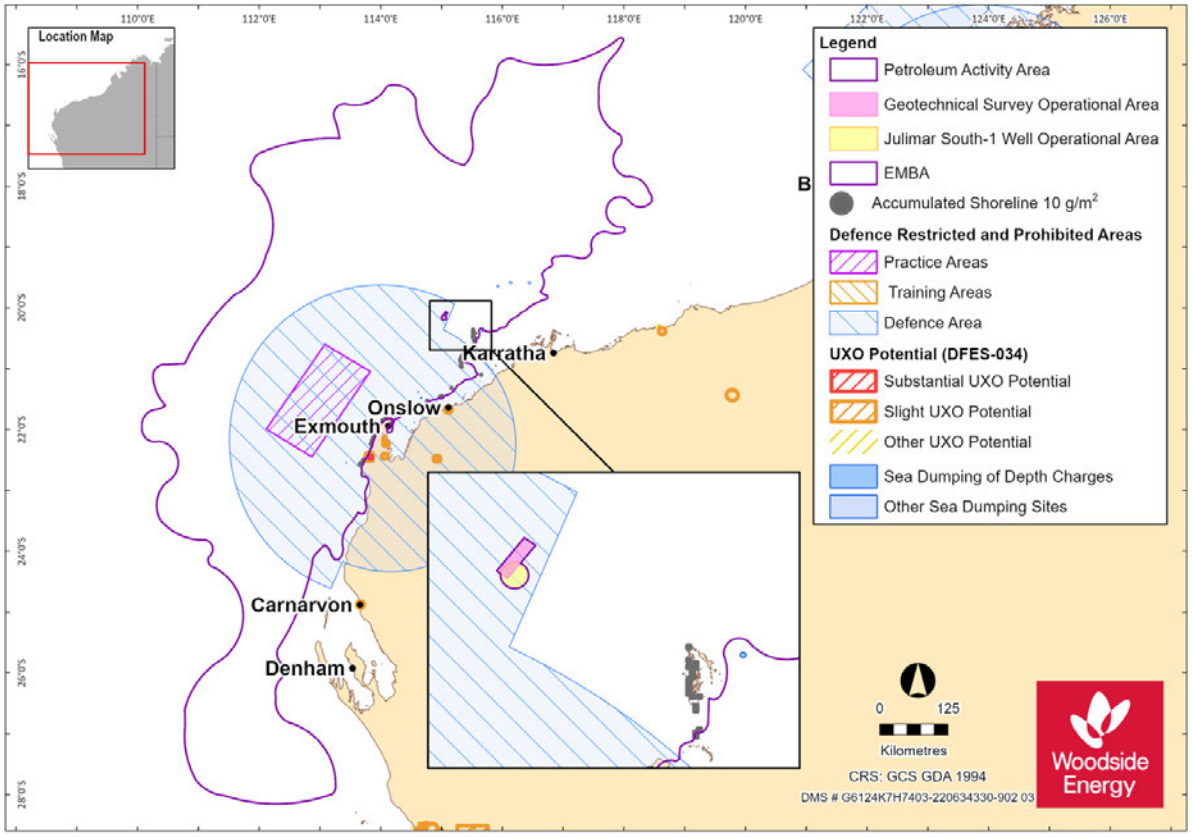
Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

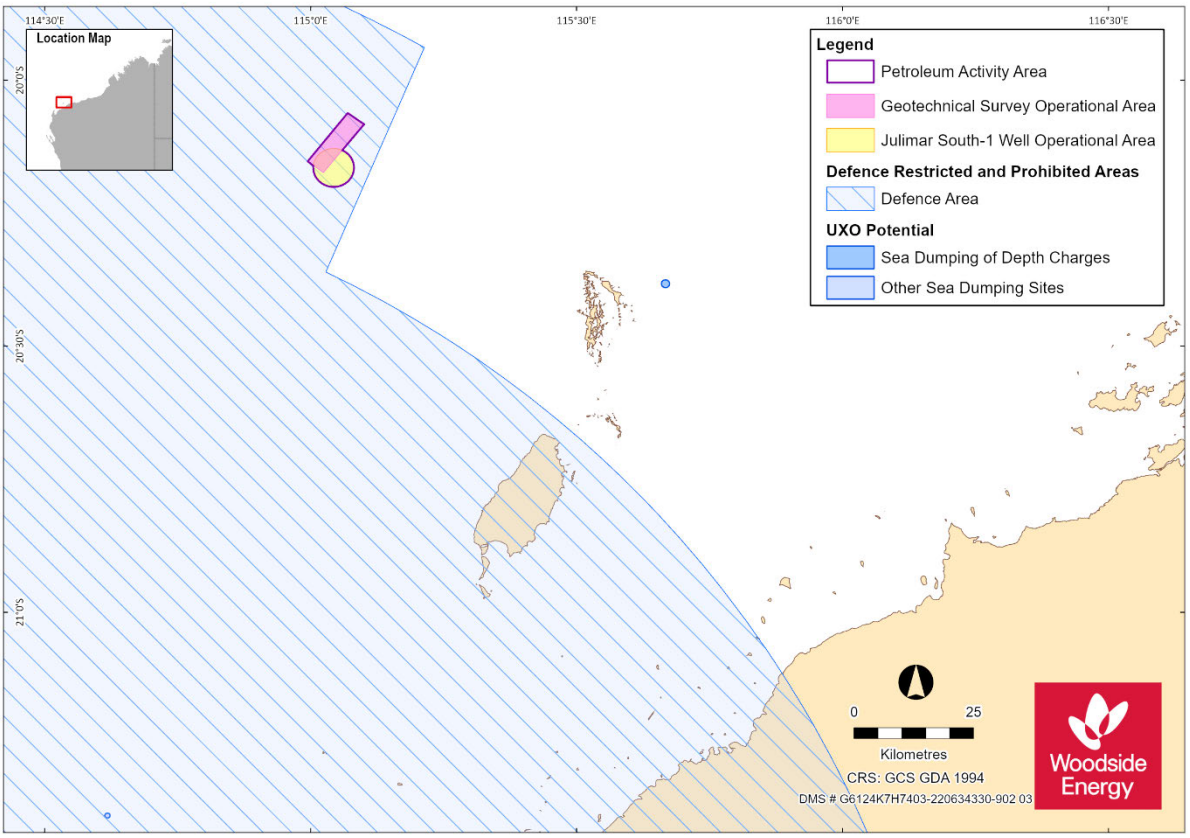
- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

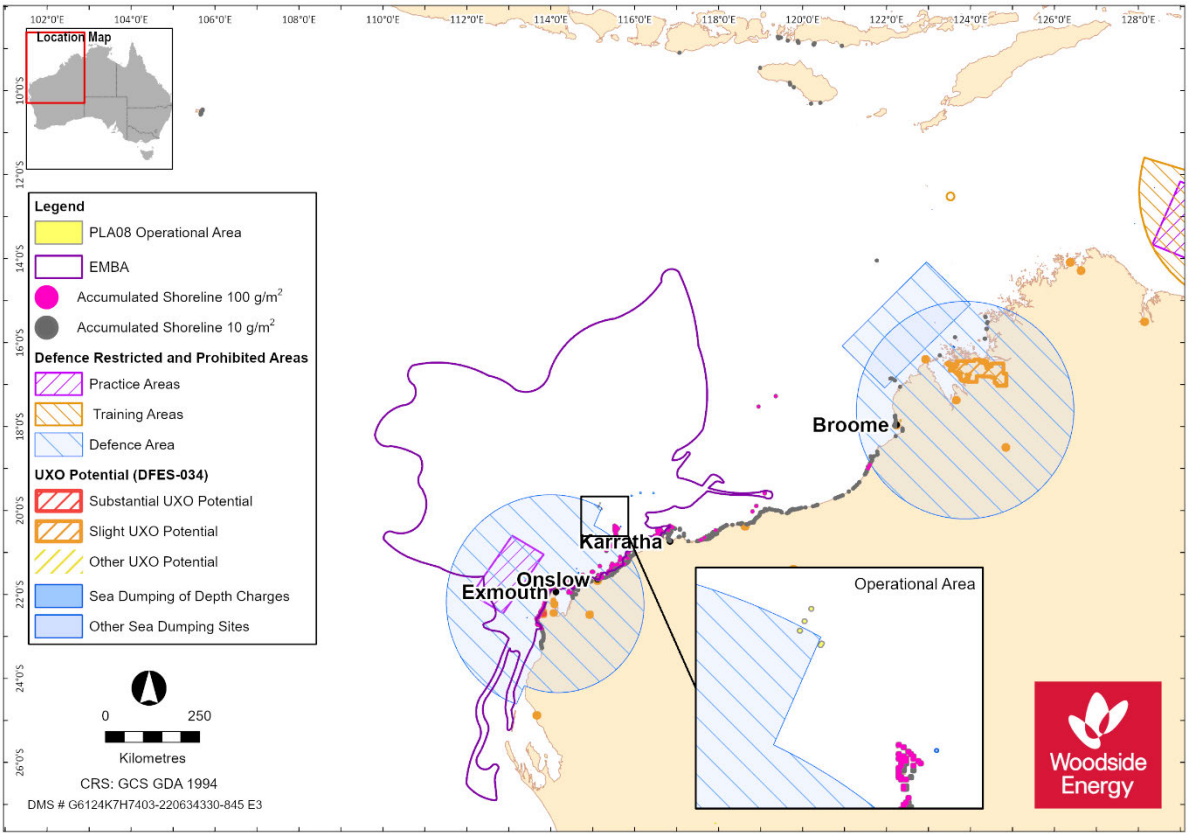
The Defence figure for the proposed environment plans as relevant to their Petroleum Activities Program and associated Operational Areas is attached. A separate figure showing the Environment that May Be Affected (EMBA) for each environment plan is also attached for reference.

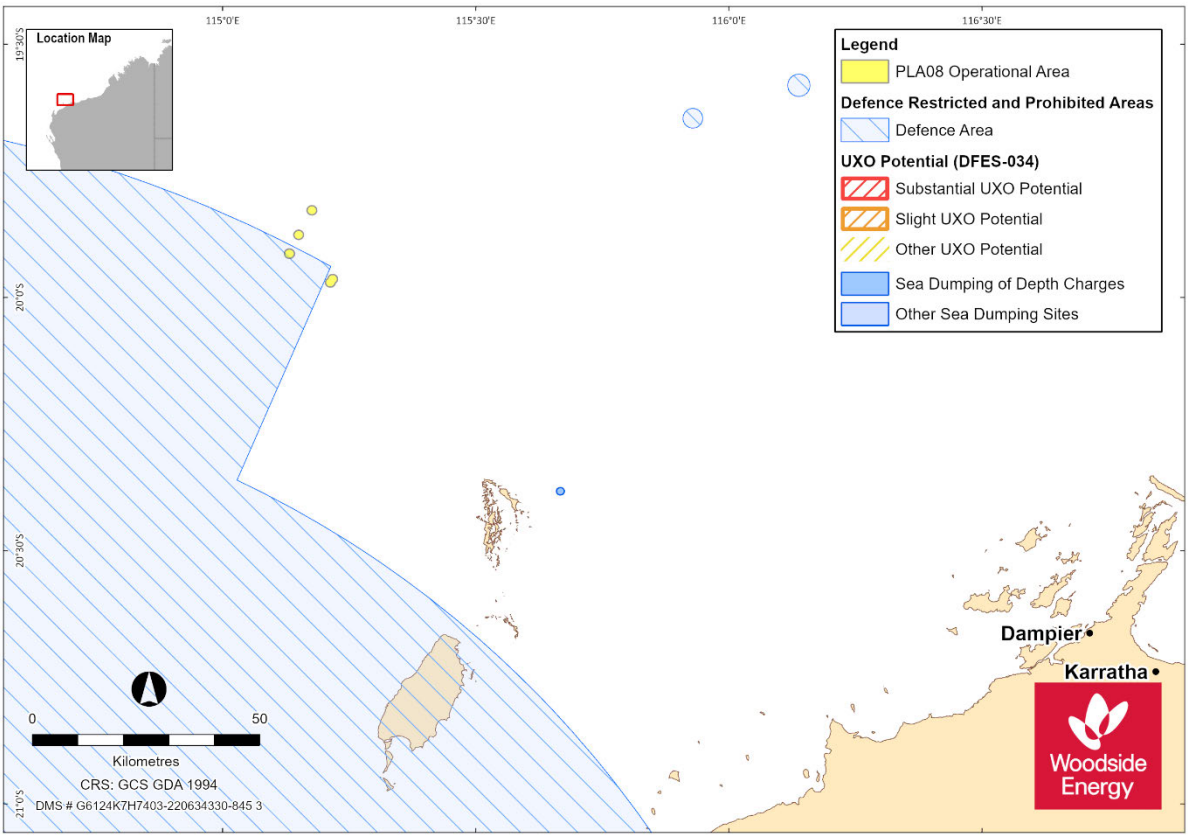
We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

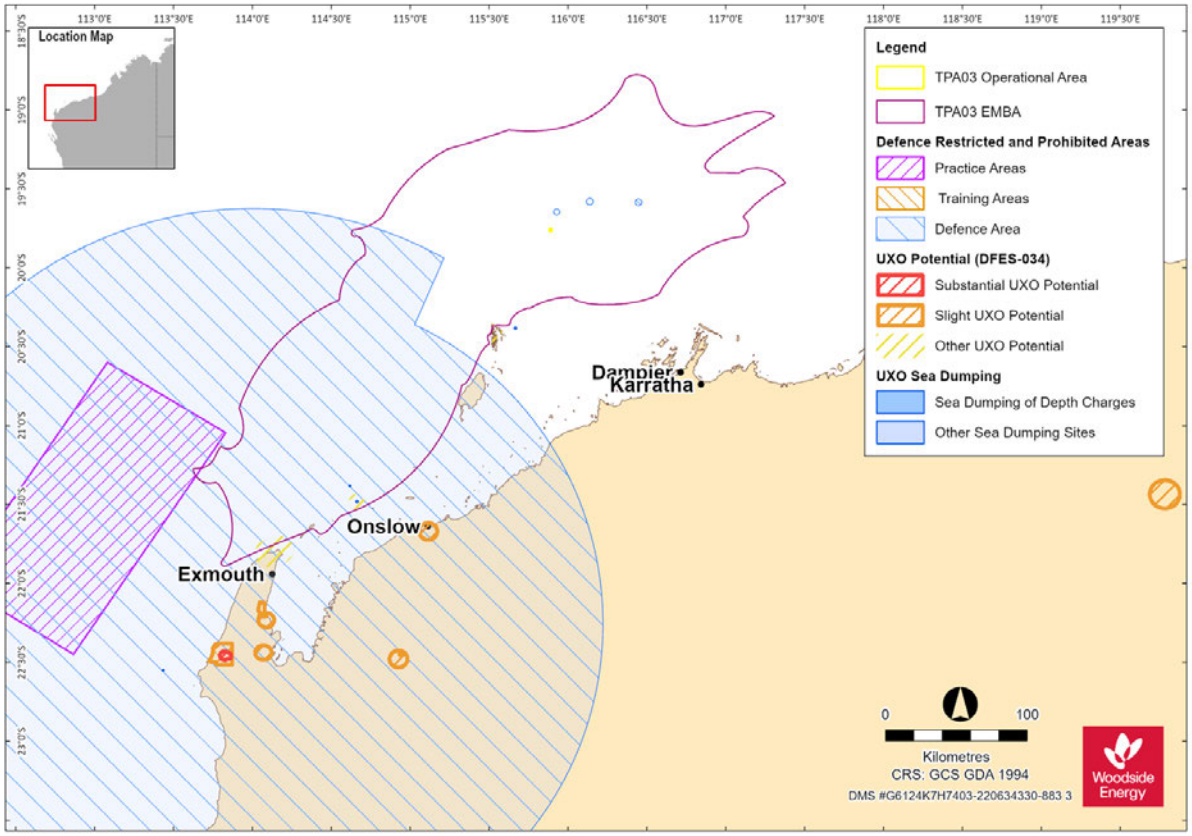
Kind regards,

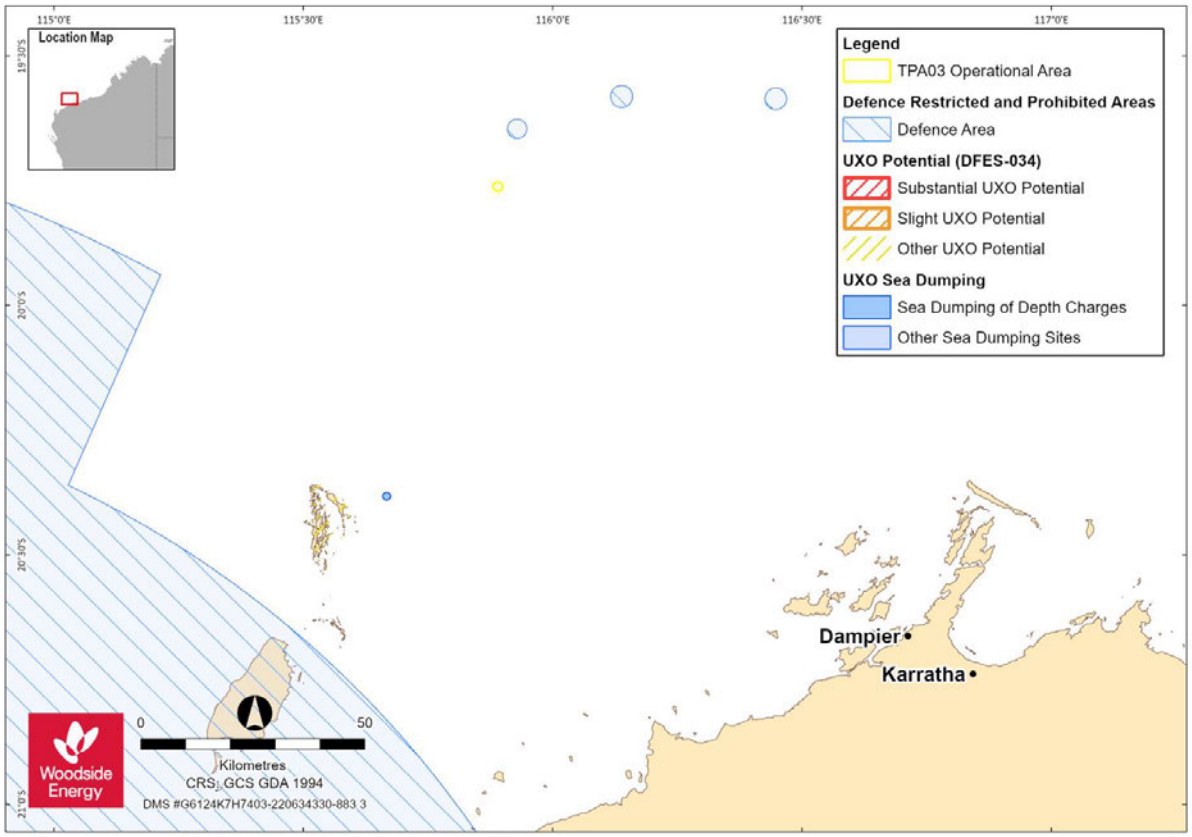



Location Map
Legend
Petroleum Activity Area
Geotechnical Survey Operational Area
Julimar South-1 Well Operational Area
Defence Restricted and Prohibited Areas
Defence Area
UXO Potential
Sea Dumping of Depth Charges
Other Sea Dumping Sites
0
25
Kilometres
CRS: GCS GDA 1994
DMS # G6124K7H7403-220634330-902 03
Woodside Energy


Location Map
Legend
PLA08 Operational Area
EMBA
Accumulated Shoreline 100 g/m2
Accumulated Shoreline 10 g/m2
Defence Restricted and Prohibited Areas
Practice Areas
Training Areas
Defence Area
UXO Potential (DFES-034)
Substantial UXO Potential
Slight UXO Potential
Other UXO Potential
Sea Dumping of Depth Charges
Other Sea Dumping Sites
0
250
Kilometres
CRS: GCS GDA 1994
DMS # G6124K7H7403-220634330-845 E3
Broome
Karratha
Onslow
Exmouth
Operational Area
Woodside Energy


115°0'E
115°30'E
116°0'E
116°30'E
19°30'S
20°0'S
20°30'S
21°0'S
Location Map
Legend
PLA08 Operational Area
Defence Restricted and Prohibited Areas
Defence Area
UXO Potential (DFES-034)
Substantial UXO Potential
Slight UXO Potential
Other UXO Potential
Sea Dumping of Depth Charges
Other Sea Dumping Sites
Dampier
Karratha
0
50
Kilometres
CRS: GCS GDA 1994
DMS # G6124K7H7403-220634330-845 3
Woodside Energy


Location Map
Legend
TPA03 Operational Area
TPA03 EMBA
Defence Restricted and Prohibited Areas
Practice Areas
Training Areas
Defence Area
UXO Potential (DFES-034)
Substantial UXO Potential
Slight UXO Potential
Other UXO Potential
UXO Sea Dumping
Sea Dumping of Depth Charges
Other Sea Dumping Sites
Dampier
Karratha
Onslow
Exmouth
0
100
Kilometres
CRS: GCS GDA 1994
DMS #G6124K7H7403-220634330-883.3
Woodside Energy


Location Map
Legend
TPA03 Operational Area
Defence Restricted and Prohibited Areas
Defence Area
UXO Potential (DFES-034)
Substantial UXO Potential
Slight UXO Potential
Other UXO Potential
UXO Sea Dumping
Sea Dumping of Depth Charges
Other Sea Dumping Sites
Dampier
Karratha
0
50
Kilometres
CRS: GCS GDA 1994
DMS #G6124K7H7403-220634330-883.3
Woodside Energy

3.8 Email sent to DPLH (15 February 2023)

Dear Stakeholder

Woodside is planning to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

	completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

		schedule requirements, vessel availability, weather or unforeseen circumstances.	
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels.

	Vessels will operate 24 hours per day for the duration of the activities.	Vessels will operate 24 hours per day for the duration of the activities.	Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.8.1 Follow up email sent to DPLH (7 March 2023)

Dear DPLH

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.8.2 Follow up email sent to DPLH (9 May 2023)

Dear DPLH,

Woodside previously consulted the DPLH on its following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Should DPLH have any feedback on the above proposed activities, please let us know.

Regards,

3.9 Email sent to Pilbara Ports Authority (15 February 2023)

Dear [redacted]

Woodside is planning to undertake the following activity in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

A Consultation Information Sheet is attached, which provides additional background on the proposed activity, including a summary 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 revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to this proposed activity described, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m

Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with this activity, or any other issues relevant to this location, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.9.1 Follow up email sent to Pilbara Ports Authority (7 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.10 Email sent to Ningaloo Coast World Heritage Advisory Committee (NCWHAC) (15 February 2023)

Dear [redacted]

Woodside is planning to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m	PLA08: ~820 m

		Proposed Julimar South-1 well location ~ 163 m	
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08

		A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.10.1 Follow up email sent to Ningaloo Coast World Heritage Advisory Committee (NCWHAC) (7 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards

3.11 Email sent to North West Slope and Trawl Fishery (4 licence holders), Western Deepwater Trawl Fishery (5 licence holders) (15 February 2023)

Dear Stakeholder

Woodside is planning to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**); and
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**).

Woodside has previously consulted you on its plans for drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also

included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have additional feedback on revised PLA08 EP and/or any specific feedback for each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

		be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days.

		approximately 21 days to complete, if required.	If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.11.1 Follow up email sent to North West Slope and Trawl Fishery (4 licence holders) and Western Deepwater Trawl Fishery (5 licence holders) (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.12 Email sent to Western Tuna and Billfish Fishery (4 Licence Holders) (15 February 2023)

Dear Stakeholder,

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	Julimar EP	**PLA08 EP**
Summary:	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~160 km north-west of Dampier	~170 km north-west of Dampier

Approx. Water Depth (m):	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.12.1 Follow up email sent to Western Tuna and Billfish Fishery (4 Licence Holders) (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.13 Email sent to Commonwealth Fisheries Association (CFA) (15 February 2023)

Dear Stakeholder,

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated

management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development,	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

		completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days.

		approximately 21 days to complete, if required.	If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.14 Email sent to Australian Southern Bluefin Tuna Industry Association (ASBTIA) (15 February 2023)

Dear Stakeholder,

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	Julimar EP	**PLA08 EP**
Summary:	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

	Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used.

		A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.14.1 Follow up email sent to Australian Southern Bluefin Tuna Industry Association (ASBTIA) (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under

the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.15 Email sent to Tuna Australia (13 March 2023)

Dear [redacted]

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **12 April 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention

	production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **12 April 2023**.

Regards

3.16 Email sent to Pearl Producers Association (PPA) (15 February 2023)

Dear Stakeholder,

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to

	forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is

		Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur ntermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on ocation. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea nstallation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used ncluding, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.16.1 Follow up email sent to Pearl Producers Association (PPA) (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.17 Letter sent to Marine Aquarium Managed Fishery (12 licence holders), Mackerel Managed Fishery (Area 1, 2 and 3) (52 licence holders), Pilbara Crab Managed Fishery (1 licence holder), West Coast Deep Sea Crustacean Managed Fishery (7 licence holders), Specimen Shell Managed Fishery (29 licence holders), Pearl Oyster Managed Fishery (9 licence holders), Land Hermit Crab Managed Fishery (4 licence holders), Onslow Prawn Managed Fishery (30 licence holders), Western Australian Sea Cucumber Managed Fishery (6 licence holders), Exmouth Gulf Prawn (15 licence holders), Kimberley Crab Managed Fishery (3 licence holders), Kimberley Prawn Managed Fishery (121 licence holders), Northern Demersal Scalefish Fishery (8 licence holders) and Nickol Bay Prawn Managed Fishery (14 licence holders) (17 February 2023)

Dear [Stakeholder]

Woodside is providing this update on the following activity in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Please see the relevant QR code below which links directly to the Consultation Information Sheet which provides additional background on the proposed activity, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website www.woodside.com. You can also subscribe to receive updates on our consultation activities by subscribing through our Consultation Activities page.

PLA08 EP:

As we are inviting consultation with you on the EP above, for ease of reference, we have included the information in this letter. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EP.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

Feedback:

If you have any issues or concerns with this activity, or any other issues relevant to this location, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.

Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

State-managed fisheries implications:

We note the following overlapping State managed fisheries below.

- Kimberley Crab Managed Fishery
- Kimberley Prawn Managed Fishery
- Mackerel Managed Fishery (Area 1)
- Northern Dermersal Scalefish Fishery
- Pearl Oyster Managed Fishery

3.17.1 Follow up letter sent to Marine Aquarium Managed Fishery (12 licence holders), Mackerel Managed Fishery (Area 2 and 3) (34 licence holders), Pilbara Crab Managed Fishery (1 licence holder), West Coast Deep Sea Crustacean Managed Fishery (7 licence holders), Specimen Shell Managed Fishery (29 licence holders), Pearl Oyster Managed Fishery (9 licence holders), Land Hermit Crab Managed Fishery (4 licence holders), Onslow Prawn Managed Fishery (30 licence holders), Western Australian Sea Cucumber Managed Fishery (6 licence holders), Exmouth Gulf Prawn (15 licence holders), Kimberley Crab Managed Fishery (3 licence holders), Kimberley Prawn Managed Fishery (121 licence holders), Northern Demersal Scalefish Fishery (8 licence holders) and Nickol Bay Prawn Managed Fishery (14 licence holders) (9 March 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: feedback@woodside.com

Woodside Energy (Australia) Pty Ltd
ACN 086 883 879
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T +61 8 9348 4000
www.woodside.com

09 March 2023

Attn: [Stakeholder]
[Company]
[Address]

Dear Stakeholder

Woodside previously consulted you (correspondence dated 17 February 2023) on Woodside's following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (EP) (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Please see the relevant QR codes below which link directly to Consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com.

TPA03 EP: **Julimar EP:** **PLA08 EP:**

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed environment plans.

Kind 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

3.18 Letter sent to Gascoyne Demersal Scalefish Fishery (53 licence holders), West Coast Demersal Scalefish Fishery (12 licence holders), West Coast Rock Lobster Managed Fishery (723 licence holders), Shark Bay Crab Fishery (31 licence holders), Shark Bay Prawn Fishery (18 licence holders), Shark Bay Scallop Fishery (29 licence holders) (17 February 2023)

Dear [Stakeholder]

Woodside is providing this update on the following activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Please see the relevant QR codes below which link directly to Consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com. You can also subscribe to receive updates on our consultation activities by subscribing through our Consultation Activities page.

Julimar EP:

PLA08 EP:

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have included the information in this one letter. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Activity:

	Julimar EP	**PLA08 EP**
Summary:	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

	well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08

	A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

State-managed fisheries implications:

We note the following overlapping State managed fisheries below.

- Gascoyne Demersal Scalefish Managed Fishery
- Shark Bay Crab Managed Fishery
- Shark Bay Prawn Managed Fishery
- Shark Bay Scallop Managed Fishery
- West Coast Demersal Scalefish (Interim) Managed Fishery
- West Coast Rock Lobster Managed Fishery

3.18.1 Follow up letter sent to Gascoyne Demersal Scalefish Fishery, West Coast Demersal Scalefish Fishery, West Coast Rock Lobster Managed Fishery, Shark Bay Crab Fishery, Shark Bay Prawn Fishery, Shark Bay Scallop Fishery (9 March 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: feedback@woodside.com

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ACN 006 923 879
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T +61 8 9348 4000
www.woodside.com

9 March 2023

Attn: [Stakeholder]
[Company]
[Address]

Dear Stakeholder

Woodside previously consulted you (correspondence dated 17 February 2023) on Woodside's following proposed activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Please see the relevant QR codes below which link directly to Consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com.

Julimar EP:

PLA08 EP:

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed environment plans.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities: **www.woodside.com/sustainability/consultation-activities**.

Kind 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

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E: feedback@woodside.com

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ACN 006 923 679
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T +61 8 9348 4000
www.woodside.com

09 March 2023

Attn: [Stakeholder]
[Company]
[Address]

Dear Stakeholder

Woodside previously consulted you (correspondence dated 17 February 2023) on Woodside's proposed activities for the drilling and subsea infrastructure installation activities to develop one well (PLA08) and contingent well intervention activities for current production wells.

The proposed PLA08 well is in Commonwealth waters, approximately 170 km northwest of Dampier, and under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Please see the relevant QR code below which links directly to the Consultation Information Sheet which provides additional background on the proposed activity, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website www.woodside.com.

PLA08 EP:

The revised PLA08 EP has not yet been submitted to NOPSEMA.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed environment plans.

You can also subscribe on our website to receive Consultation Information Sheets for proposed activities:
www.woodside.com/sustainability/consultation-activities.

Kind 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

3.19 Email sent to Christmas Island Fisheries Advisory Committee (23 March 2023)

Dear [redacted],

I have been passed your contact details by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts as a stakeholder, or representing stakeholders potentially relevant to one of our proposed activities.

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes Christmas Island. We are also seeking

contact details for a representative of another entity our stakeholder mapping identified - the Christmas Island Line Fishery. Does your organisation represent this stakeholder, or can you provide alternate details?

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place.

	A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.19.1 Follow up email sent to Christmas Island Fisheries Advisory Committee (17 April 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

If you have feedback specific to the proposed activities described under the proposed EP, please provide your feedback by **24 April 2023**.

Woodside is also seeking to understand whether the Christmas Island Line Fishery remains an active commercial fishery around Christmas Island so we can consult licence holders

regarding this proposed activity. We would be grateful for any advice the Christmas Island Fisheries Advisory Committee is able to provide regarding this fishery and its licence holders.

As per the Department of Primary Industries and Regional Development (DPIRD) 2020/21 State of the fisheries report (link to the report here, page 287) and DPIRD Fishcube data, we understand that the Christmas Island Line Fishery has been an active commercial fishery around Christmas Island in the last five years. However, we haven't been able to source contact information relating to this fishery from relevant government departments so would appreciate your assistance.

We looks forward to hearing from you.

Kind regards,

3.20 Letter sent to Kimberley Gillnet and Barramundi Managed Fishery (4 licence holders) and FBL Condition 74 Fish Trapping (8 licence holders) (28 February 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

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

28 February 2023

Dear Fishery Stakeholder

Woodside is providing this update on the following activity in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Please see the relevant QR code below which links directly to the Consultation Information Sheet which provides additional background on the proposed activity, including summaries of potential key impacts and risks, and associated management measures. This is also available on our website www.woodside.com. You can also subscribe to receive updates on our consultation activities by subscribing through our Consultation Activities page.

PLA08 EP:

As we are inviting consultation with you on the EP above, for ease of reference, we have included the information in this letter. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EP.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

Feedback:

If you have any issues or concerns with this activity, or any other issues relevant to this location, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **30 March 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

State-managed fisheries implications:

We note the following overlapping State managed fisheries below.

- Kimberley Crab Managed Fishery
- Kimberley Prawn Managed Fishery
- Mackerel Managed Fishery (Area 1)
- Northern Demersal Scalefish Fishery
- Pearl Oyster Managed Fishery

Attachment A: Feedback Form

FEEDBACK	PLA08 EP

3.20.1 Follow up letter sent to Kimberley Gillnet and Barramundi Managed Fishery (4 licence holders) (31 March 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

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

31 March 2023

Dear Fishery Stakeholder

Woodside previously consulted you (correspondence dated 28 February 2023) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
QR code	Please see the relevant QR code below which link directly to Consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

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

3.20.2 Follow up letter sent to FBL Condition 74 Fish Trapping (8 licence holders) (19 April 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

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

19 April 2023

Dear Fishery Stakeholder

Woodside previously consulted you (correspondence dated 28 February 2023) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
QR code	Please see the relevant QR code below which link directly to Consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

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

3.21 Letter sent to Exmouth Gulf Beach Seine and Mesh Net Managed Fishery (6 licence holders) (27 February 2023)

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

27 February 2023

Dear Fishery Stakeholder

Woodside is planning to undertake the following activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing on our website.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback on the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **29 March 2023**.

Activity:

	Julimar EP	**PLA08 EP**
Summary:	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

Permit area:	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	An approximate 50 km² Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **29 March 2023**.

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

APPENDIX A

FEEDBACK	**Julimar EP**	**PLA08 EP**

Attached: Julimar EP and PLA08 EP Consultation Information Sheets

3.21.1 Follow up letter sent to Exmouth Gulf Beach Seine and Mesh Net Managed Fishery (6 licence holders) (31 March 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

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

31 March 2023

Dear Fishery Stakeholder

Woodside previously consulted you (correspondence dated 27 February 2023) on its plans to undertake the following activities in Commonwealth waters:

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Activity:

	Julimar EP	**PLA08 EP**
Summary:	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
QR codes: *Please see the relevant QR codes below which link directly to Consultation Information Sheets which provide additional background on the proposed activities,*		

including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com.		

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Regards

Woodside Feedback

Woodside Energy

Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com

APPENDIX A

FEEDBACK	**Julimar EP**	**PLA08 EP**

3.22 Email sent to Pilbara Line Fishery (8 licence holders), Pilbara Trap Fishery (6 licence holders) and Pilbara Trawl Fishery (6 licence holders) (8 March 2023)

Dear Fishery Stakeholder,

Woodside previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

	infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-

		Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

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

APPENDIX A

FEEDBACK	**TPA03 EP**	**Julimar EP**	**PLA08 EP**

3.22.1 Follow up email sent to Pilbara Line Fishery (8 licence holders), Pilbara Trap Fishery (6 licence holders) and Pilbara Trawl Fishery (6 licence holders) (31 March 2023)

Dear Fishery Stakeholder,

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977.

Kind regards,

3.23 Email sent to WAFIC (16 February 2023)

Dear [redacted]

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

	(GWA) Facility Operations EP (March 2022).	• If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take	Drilling activities for the proposed PLA08 well are currently expected to take

		approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will

			not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.
Regards

3.23.1 Follow up email sent to WAFIC (7 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.24 Email sent to Exmouth Recreational Marine Users (49 licence holders), Karratha Recreational Marine Users (9 licence holders) and Commercial Divers (11 licence holders) (16 February 2023)

Dear Stakeholder,

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

	shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements,	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

		vessel availability, weather or unforeseen circumstances.	
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels.

	Vessels will operate 24 hours per day for the duration of the activities.	Vessels will operate 24 hours per day for the duration of the activities.	Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.24.1 Follow up email sent to Exmouth Recreational Marine Users (49 licence holders) and Karratha Recreational Marine Users (9 licence holders) (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under

the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards

3.25 Letter sent to Gascoyne Recreational Marine Users (65 licence holders), Pilbara/Kimberley Recreational Marine Users (95 licence holders) (17 February 2023)

Dear [Stakeholder]

Woodside is providing this update on the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (EP) (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Please see the relevant QR codes below which link directly to Consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com. You can also subscribe to receive updates on our consultation activities by subscribing through our Consultation Activities page.

TPA03 EP: **Julimar EP:** **PLA08 EP:**

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have included the information in this one letter. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas	WA-34-L

		WA-5-R, WA-76-R and WA-526-P	
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

3.25.1 Follow up letter sent to Gascoyne Recreational Marine Users (65 licence holders), Pilbara/Kimberley Recreational Marine Users (95 licence holders) (9 March 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: feedback@woodside.com

Woodside Energy (Australia) Pty Ltd
ACN 006 923 879
Mia Yellagonga
11 Mount Street
Perth WA 6000
Australia
T +61 8 9348 4000
www.woodside.com

9 March 2023

Attn: [Stakeholder]
[Company]
[Address]

Dear Stakeholder

Woodside previously consulted you (correspondence dated 17 February 2023) on Woodside's following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (EP) (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Please see the relevant QR codes below which link directly to Consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com.

TPA03 EP: **Julimar EP:** **PLA08 EP:**

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

We would appreciate any feedback you may have by **17 March 2023** to support the development of our proposed environment plans.

Kind 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

3.26 Letter sent to Christmas Island Recreational Marine User – Shorefire Christmas Island (8 March 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

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

8 March 2023

Dear [redacted]

Woodside is planning to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells in Commonwealth waters, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**). The activities are located ~170 km north-west of Dampier.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes your organisation.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, 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 the subject of the EP. The worst-case credible spill scenario for this EP is a vessel collision resulting in a release of marine diesel.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing on our website.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **7 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days.

	If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **7 April 2023**.

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

Attached: Consultation Information Sheet

3.26.1 Follow up letter sent to Christmas Island Recreational Marine User – Shorefire Christmas Island (31 March 2023)

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

31 March 2023

Dear [redacted]

Woodside previously consulted you (correspondence dated 8 March 2023) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells in Commonwealth waters, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**). The activities are located ~170 km north-west of Dampier.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
QR code	Please see the relevant QR code below which link directly to Consultation Information Sheets which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website www.woodside.com.

/

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **7 April 2023**.

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

3.27 Email sent to Christmas Island Recreational Marine Users (3 licence holders) – (8 March 2023)

Dear Stakeholder,

Woodside is planning to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells in Commonwealth waters, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**). The activities are located ~170 km north-west of Dampier.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes your organisation.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, 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 the subject of the EP. The worst-case credible spill scenario for this EP is a vessel collision resulting in a release of marine diesel.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **7 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier

Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **7 April 2023**.

Regards

3.27.1 Follow up email sent to Christmas Island Recreational Marine Users (3 licence holders) – (31 March 2023)

Dear Stakeholder

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP).

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by 7 April 2023.

Kind regards,

3.28 Email sent to Recfishwest, Marine Tourism WA, WA Game Fishing Association (16 February 2023)

Dear Stakeholder,

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	Julimar EP	PLA08 EP

Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m

Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply

		MODU to manage vessel movements.	around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.28.1 Follow up email sent to Recfishwest, Marine Tourism WA and WA Game Fishing Association (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

3.29 Email sent to Chevron, Western Gas, Exxon Mobil, Shell, BP Developments Australia, Carnarvon Energy Ltd, PE Wheatstone, Kyushu Electric Wheatstone, ENI Australia, Fugro Exploration, Finder Energy, Jadestone Energy, KUFPEC, Santos, Coastal Oil and Gas, Bounty Oil and Gas, Sapura Energy, Sapura-OMV, Kato Energy, Inpex, JX Nippon, FAR, Mitsui, Mepau, Lightmark Enterprises and Vermilion Energy (16 February 2023)

Dear Stakeholder,

Woodside plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period).	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

		• If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to

		Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.29.1 Follow up email sent to Chevron, Western Gas, Exxon Mobil, Shell, BP Developments Australia, Carnarvon Energy Ltd, PE Wheatstone, Kyushu Electric Wheatstone, ENI Australia, Fugro Exploration, Finder Energy, Jadestone Energy, KUFPEC, Santos, Coastal Oil and Gas, Bounty Oil and Gas, Sapura Energy, Sapura-OMV, Kato Energy, Inpex, JX Nippon, FAR, Mitsui, Mepau, Lightmark Enterprises and Vermilion Energy (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.30 Email sent to JX Nippon Oil & Gas Exploration Corporation (24 February 2023)

Dear [redacted],

Thank you for your response.

Please see attached environment plan consultations that Woodside has sent to JX, but unfortunately has received bounce back messages.

We would be grateful if you could please pass these onto the appropriate JX representative for their consideration and feedback, if any.

We would also be grateful if you could please advise us of the appropriate representative's contact details for future correspondence.

Cheers,

3.30.1 Follow up email sent to JX Nippon Oil & Gas exploration Corporation (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (TPA03 EP);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (Julimar EP); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP).

We would appreciate any feedback you may have by 17 March 2023 to support our development of the proposed environment plans.

Kind regards,

3.30.2 Follow up email sent to JX Nippon Oil & Gas exploration Corporation (10 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period has closed to provide feedback on the following proposed activities in Commonwealth waters:

- seabed intervention and trunkline installation activities for the section of the Trunkline in Commonwealth waters under the Scarborough Seabed Intervention and Trunkline Installation EP (**SITI EP**).
- 4D baseline marine seismic survey (MSS) activities over the Scarborough and Jupiter field under the Scarborough 4D Baseline Marine Seismic Survey EP (**Seismic EP**).
- seabed site surveys and installation of subsea production infrastructure under the Subsea Infrastructure Installation EP (**Subsea EP**).

The feedback period is also closing soon for the following proposed activities in Commonwealth waters:

- activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**).

- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).
- subsea decommissioning activities for the Griffin field under the **Griffin Decommissioning and Field Management EP, Griffin Gas Export Pipeline EP** and **Griffin Field Deviation EP**.
- subsea decommissioning activities for the Stybarrow field under the **Stybarrow Plug and Production EP, Stybarrow Decommissioning and Field Management EP** and **Stybarrow Field Deviation EP**.

Please find the attached Consultation Information Sheets relating to the above proposed environment plans (EPs). The Consultation Information Sheets provide background on the proposed activities, including maps, summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

Should JX have feedback on the proposed activities, please let us know. Feedback received after the feedback dates (see emails attached) will continue to be assessed and responded to, as required, through the life of the relevant EP.

As we have invited consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

3.31 Email sent to Buru Energy and Energy Resources Limited (8 March 2023)

Dear Stakeholder,

Woodside plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **7 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **7 April 2023**.

Regards

3.31.1 Follow up email sent to Buru Energy and Energy Resources Limited (31 March 2023)

Dear Stakeholder

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP).

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by 7 April 2023.

Kind regards,

3.32 Email sent to APPEA, NERA (16 February 2023)

Dear Stakeholder,

Woodside plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier

Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea

	manage vessel movements.	JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.32.1 Follow up email sent to APPEA, NERA (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

3.33 Email sent to Kimberley Land Council (KLC) (16 February 2023)

Good afternoon [redacted]

Thank you for your time the other day and your offer of assistance in relation to the Woodside environmental consultations.

I undertook to provide you with a forward plan for EPs for this year, however, I currently only have the first quarter. In the first quarter there are three EPs where Traditional Owners in the KLC region appear to be adjacent to the "the environment that may be affected" (EMBA). Please refer to the below.

As discussed, we are not seeking to consult with the KLC but seeking to consult with Traditional Owners adjacent to the EMBA. We would appreciate any guidance on how best to reach out to the various groups who may also be currently impacted by floods.

The three EPs below are:
Scarborough Seabed Installation and Trunkline Installation (SCA SITI). In relation to this I have attached an overview sheet in relation to the Scarborough project and the SCA SITI specific information sheet. I understand Shanine Ryan from Woodside has already reached out to the 3 groups indicated for that EP;
Drill and complete one new Pluto production well (PLA08) and may also carry out maintenance activities on existing production wells. This work will take place in Commonwealth waters, approximately 170 km north-west of Dampier. The proposed PLA08 production well will be located at a water depth of approximately 820m. We will provide information sheets on this shortly.
The decommissioning Stybarrow subsea development wells and removal of infrastructure. We will provide information sheets on this shortly.

As discussed, [redacted] will commence calling out to the groups for PLA08 and Stybarrow shortly and may be in contact to determine best way forward.

[redacted]	SCA SITI	PLA08 Drilling and subsea intervention	Stybarrow P&A

[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			
[redacted]			

Please let me know if you have any questions or concerns. I can be contacted on the number below and [redacted].

Kind regards

3.34 Email sent to Robe River Kuruma Aboriginal Corporation (RRKAC) (20 February 2023)

Further to our recent communications, I attach Summary Information sheets for the following three projects:

- Julimar Appraisal Drilling and Survey Environment Plan
- TPA-03 Well Intervention Environment Plan Environment Plan
- WA-34-L Pyxis Drilling and Subsea Installation Environment Plan

In preparation for the activities in each of the work programs, 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 Environmental Plan.

We have a number of detailed Consultation Information Sheets, available on our website, which provide further background on the proposed approaches, including a summary of potential key risks and associated management measures for the primary activity and alternative options.

Woodside is seeking to understand the nature of the interests that Robe River Kuruma Aboriginal Corporation (RRKAC) and its members may have in the 'environment that may be affected' (EMBA) of each these activities. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by **20 March 2023**. Please also let us know how you would like us to engage with you as soon as possible.

RRKAC 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 RRKAC members as required. Woodside would be pleased to speak with RRKAC members in addition to the RRKAC Board / office holders.

We look forward to hearing from you.

Kind regards

3.34.1 Follow up email sent to Robe River Kuruma Aboriginal Corporation (RRKAC) (24 February 2023)

Hello [redacted]

I understand you met with [redacted] on 31 January regarding the Environmental Plan (EP) information shared with Robe River Kuruma Aboriginal Corporation (RRKAC) for the Scarborough project activity and Nganghurra RTM and that this information was to be presented at the RRKAC Board meeting this week 21-22 February. [redacted] advised we have a number of EPs we will reach out to RRKAC on.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if RRKAC has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if RRKAC would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside would appreciate feedback on as soon as possible, Woodside is also seeking RRKAC's feedback on these decommissioning and drilling activities by **17 March 2023**.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
    - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
    - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.
  - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
  - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
  - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

Thank you for your time in considering these matters. We look forward to hearing from you.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.35 Email sent to Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) via the Yamatji Marlpa Aboriginal Corporation (YMAC) (21 February 2023)

Dear [redacted]

Firstly, thank you for your assistance in arranging the meeting between NTGAC and Woodside on 16 February. It was a pleasure to meet the NTGAC Board and YMAC staff. We were most grateful for the opportunity to provide information about our plans and to learn of NTGAC's questions. We will write separately to thank the NTGAC Board for the meeting.

As was discussed during our meeting, please find attached information about Woodside's decommissioning and drilling activities. With the exception of removing the Nganhurra Riser Turret Mooring, for which Woodside seeks NTGAC's feedback soonest, Woodside is seeking feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. To recap, these activities are:

Decommissioning Activities:

- Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
  - consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf (woodside.com)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A), and decommissioning.
  - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
  - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
  - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.

    - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
    - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
    - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

Woodside also looks forward to receiving NTGAC's feedback on the four Scarborough project activities as soon as is possible.

In providing this information and requests for feedback, I acknowledge Radhika's email of 20 February outlining NTGAC's request of Woodside to provide funding for YMAC's in-house environmental scientist to undertake a review of the RTM environmental plan. Ju-Lin O'Connor will be in contact with Radhika directly about this in the coming days.

Thanks again [redacted] or your assistance last week, your consideration of these matters and for your work to progress these important consultations.

Yours sincerely

3.36 Email to Yamatji Marlpa Aboriginal Corporation (YMAC) (21 February 2023)

Dear [redacted]

Firstly, thank you for your assistance in arranging the meeting between NTGAC and Woodside on 16 February. It was a pleasure to meet the NTGAC Board and YMAC staff. We were most grateful for the opportunity to provide information about our plans and to learn of NTGAC's questions. We will write separately to thank the NTGAC Board for the meeting.

As was discussed during our meeting, please find attached information about Woodside's decommissioning and drilling activities. With the exception of removing the Nganhurra Riser Turret Mooring, for which Woodside seeks NTGAC's feedback soonest, Woodside is seeking feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. To recap, these activities are:

Decommissioning Activities:

- Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
    - consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf (woodside.com)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A), and decommissioning.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
    - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
    - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.
  - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
  - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
  - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

Woodside also looks forward to receiving NTGAC's feedback on the four Scarborough project activities as soon as is possible.

In providing this information and requests for feedback, I acknowledge Radhika's email of 20 February outlining NTGAC's request of Woodside to provide funding for YMAC's in-house environmental scientist to undertake a review of the RTM environmental plan. Ju-Lin O'Connor will be in contact with Radhika directly about this in the coming days.

Thanks again [redacted] for your assistance last week, your consideration of these matters and for your work to progress these important consultations.

Yours sincerely

[redacted]

3.37 Email sent to Buurabalayji Thalanyji Aboriginal Corporation (BTAC) (22 February 2023)

Dear [redacted]

Firstly, thank you for your correspondence of 20 February regarding consultations about the Scarborough project. We will respond to this correspondence in the coming days and would be most grateful for the opportunity to meet with you to discuss the matters raised in your letter and our relationship more broadly.

Further to my correspondence of 18 January regarding Woodside's plan to remove the Nganhurra Riser Turret Mooring (RTM), and of 20 January regarding Woodside's Scarborough project, please find attached information about Woodside's decommissioning and drilling activities that we are seeking to consult with Buurabalayji Thalanyji Aboriginal Corporation (BTAC) about.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking BTAC's feedback as soon as possible, Woodside is seeking BTAC's feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
  - consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf (woodside.com)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
  - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)

  - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
  - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:
- TPA03 Well Intervention.
  - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
  - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
  - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

We look forward to meeting with you to discuss and respond to the matters raised in your letter, this correspondence, and to discuss other matters important to BTAC and Woodside.

Thank you, [redacted] for yours and [redacted] consideration and work to progress these important consultations. We are looking forward to working with BTAC.

As always, please feel free to contact me on the details below if you require further information or assistance.

Yours sincerely

3.38 Email sent to Yinggarda Aboriginal Corporation (YAC) (22 February 2023)

Dear [redacted]

I hope this message finds you well.

Further to my correspondence of 18 January regarding Woodside's plan to remove the Nganhurra Riser Turret Mooring (RTM), and [redacted] correspondence of 20 January regarding Woodside's Scarborough project, please find attached information about Woodside's decommissioning and drilling activities that we are seeking to consult with Yinggarda Aboriginal Corporation (YAC) about.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking YAC's feedback as soon as possible, Woodside is seeking YAC's feedback on these decommissioning and drilling activities by 17 March. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:
- Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
  - consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf (woodside.com)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
  - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
  - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.

- consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.
  - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
  - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
  - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

In providing this information and requests for feedback, I acknowledge [redacted] correspondence of 6 February and my response of 10 February in which we discussed arrangements for a meeting between YAC and Woodside. Woodside would be most grateful for the opportunity to meet with YAC, at YAC's earliest convenience, and at a location suitable to YAC. Woodside would also be pleased to provide the resources necessary to hold this meeting and we look forward to receiving a budget for consideration. If there is anything else, we can do at this time to facilitate consultation about these planned work activities please let me know.

Thank you [redacted] for yours, YAC's and YMAC's consideration of these matters and work to progress these important consultations.

As always, please feel free to contact me on the details below if you require further information or assistance.

Yours sincerely

3.38.1 Email sent to Yinggarda Aboriginal Corportion (YAC) (20 March 2023)

Dear [redacted]

I hope this message finds you both well.

Further to our earlier correspondence about Woodside's Scarborough, decommissioning and drilling activities and a potential meeting with Yinggarda Aboriginal Corporation (YAC), and further to the meeting between Woodside and YMAC legal representatives on 13 March, I am following up to see whether you have a date and budget for a meeting with YAC to discuss these matters and whether you require any assistance at this time to organise such a meeting. We would be most grateful for the opportunity to meet with YAC and to assist with the meeting arrangements and resourcing.

As always, please feel free to call me on [redacted] if you require any assistance or have any questions about these matters and thank you again for your work on these important matters.

Sincerely

3.39 Email sent Yawuru Native Title Holders Aboriginal Corporation (23 February 2023)

Hi [redacted]

As per our conversation, please find attached fact sheets and below some information and contact points. I will follow up next week to see if there are any immediate concerns and to check you received info.

I am contacting Yawuru Aboriginal Corporation regarding Woodside's plans in relation to activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments 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 Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Yawuru Native Title Holders Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by **15 March 2023**. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

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.

Please feel free to forward this email and, the attached documents to Yawuru Native Title Holders Aboriginal Corporation members as required. Woodside would be pleased to speak with Yawuru Native Title Holders Aboriginal Corporation members in addition to the Yawuru Native Title Holders Aboriginal Corporation Board / office holders if desired.

Regards

3.40 Email sent to Dambimangari Aboriginal Corporation Aboriginal Corporation (23 February 2023)

Hi [redacted]

I hope this message finds you well.

I spoke with [redacted] this afternoon and she pointed me to yourself to provide information on some planned activities south of Dampier.

As per my telephone conversation with [redacted] I am contacting you regarding Woodside's plans in relation to activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website -

Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments 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 Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Dambimangari Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

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.

Please feel free to forward this email and, the attached documents to Dambimangari Aboriginal Corporation members as required. Woodside would be pleased to speak with Dambimangari Aboriginal Corporation members in addition to the Dambimangari Aboriginal Corporation Board / office holders if desired.

Kind regards

3.41 Email sent to Murujuga Aboriginal Corporation (MAC) (24 February 2023)

Wayiba[redacted]

I understand that you met with Woodside on Monday 20 February to further discuss the information shared to date on the Nganghurra RTM decommissioning and Scarborough project activity Environmental Plans (EPs). I believe you have been made aware of other EPs we also request your feedback on.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking MAC's feedback as soon as possible, Woodside is also seeking MAC's feedback on these decommissioning and drilling activities by **17 March 2023**.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
    - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
    - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.
  - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
  - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
  - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

Thank you for your time in considering these matters and please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.42 Email sent to Kariyarra Aboriginal Corporation (24 February 2023)

Hello [redacted]

In follow up to our telephone conversation on the 27th January please let me know if you have any questions regarding the Environmental Plan (EP) information shared with you to date for Scarborough and Nganghurra RTM.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if Kariyarra has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if Kariyarra would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking Kariyarra's feedback as soon as possible, Woodside is also seeking Kariyarra's feedback on these decommissioning and drilling activities by **17 March 2023**. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
  - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
  - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
  - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.
  - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
  - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
  - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

If there is anything else, Woodside can do at this time to facilitate consultation if Kariyarra make an assessment that this is required to provide more information about these planned work activities please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.42.1 Follow up email sent to Kariyarra Aboriginal Corporation (24 March 2023)

Good afternoon [redacted]

Just a courtesy follow up to check if you have had the chance to review the emails I've shared on respective activity and if I can assist with any questions you may have.

We welcome the opportunity to provide further detail to you and your board if that is of interest.

Please don't hesitate to contact me if you have any queries.

Kind regards
[redacted]

3.43 Email sent to Wirrawandi Aboriginal Corporation (WAC) (24 February 2023)

Good morning [redacted]

I hope your Friday is going well.

I mentioned I would be sharing more information when we met on Tuesday 21 February, to discuss the Environmental Plan (EP) information shared with you to date for Scarborough and Nganghurra RTM. This is the email with further information for Wirrawandi to consider if they have any interests in the Environment that may be affected (EMBA) relative to the attached information sheets.

It would be greatly appreciated if you could please acknowledge receipt and confirm the opportunity to meet with the Wirrawandi board when they are next due to meet in Perth in March.

This email provides information on Woodside's decommissioning and drilling activities that we are seeking to consult with Wirrawandi about.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking Wirrawandi's feedback as soon as possible, Woodside is seeking Wirrawandi's feedback on these decommissioning and drilling activities by **17 March** 2023. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 18 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.
    - consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf (woodside.com)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.

    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
    - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
    - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.
    - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
    - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
    - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

In providing this information and requests for feedback, I acknowledge that we are working towards presenting to the Wirrawandi board at their next board meeting in March. Woodside would be most grateful for the opportunity to meet at Wirrawandi's earliest convenience, and at a location suitable to Wirrawandi. Woodside would also be pleased to provide the resources necessary to hold this meeting and we look forward to receiving a budget for consideration. If there is anything else, we can do at this time to facilitate consultation about these planned work activities please let me know.

Thank you, [redacted]n for consideration of these matters and work to progress these important consultations.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.44 Email sent to Ngarluma Aboriginal Corporation (NAC) (24 February 2023)

Good morning [redacted]

I mentioned I would be sharing more information when we met on Friday 17 February, to discuss the Environmental Plan (EP) information shared with you to date for Scarborough and Nganghurra RTM. This is the email with further information for NAC to consider if they have any interests in the EMBA (Environment that may be affected) relative to the attached information sheets.

It would be greatly appreciated if you could please acknowledge receipt and confirm the opportunity to meet with the NAC board when they are next due to meet on 29 or 30 March. We welcome the opportunity to spend a whole day with the board on a different day if that works.

This email provides information on Woodside's decommissioning and drilling activities that we are seeking to consult with NAC about.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking NAC's feedback as soon as possible, Woodside is seeking NAC's feedback on these decommissioning and drilling activities by **17 March** 2023. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Removal of the Nganhurra Riser Turret Mooring (RTM). Information about the RTM was previously emailed on 20 January. For ease of reference, the summary information is attached and the consultation information sheet for the RTM can be found at the link below.

    - consultation-information-sheet---nganhurra-operations-cessation-environment-plan-revision.pdf (woodside.com)
- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
    - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
    - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.
    - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
    - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
    - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

In providing this information and requests for feedback, I acknowledge that we are working towards presenting to the NAC board at their next board meeting in March. Woodside would be most grateful for the opportunity to meet with NAC, at NAC's earliest convenience, and at a location suitable to NAC. Woodside would also be pleased to provide the resources necessary to hold this meeting and we look forward to receiving a budget for consideration. If there is anything else, we can do at this time to facilitate consultation about these planned work activities please let me know.

Thank you, [redacted] for consideration of these matters and work to progress these important consultations.

Please feel free to contact me on the details below if you require further information or assistance.

Regards

3.45 Email sent to Yindjibarndi Aboriginal Corporation (YAC) (24 February 2023)

Hello [redacted]

I understand you last spoke with [redacted] on 25 January regarding the Environmental Plan (EP) information shared with YAC for the Scarborough project activity and Nganghurra RTM.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if YAC has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if YAC would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which I understand YAC has verbally advised they have no interests, Woodside is also seeking YAC's feedback on these decommissioning and drilling activities by **17 March 2023**.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
    - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
    - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- TPA03 Well Intervention.
    - Consultation Information Sheet - TPA03 Well Intervention Environment Plan (woodside.com)
- WA-34-L Pyxis Drilling and Subsea Installation.
    - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
    - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

Thank you for your time in considering these matters. We look forward to hearing from you.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.46 Email sent to Wanparta Aboriginal Corporation (24 February 2023)

Hello [redacted]

In follow up to your email received on 31 January please let me know if you have received any questions from the Wanparta Directors regarding the Environmental Plan (EP) information shared with you to date for Scarborough and Nganghurra RTM.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if Wanparta has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if Wanparta would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking Wanparta's feedback as soon as possible, Woodside is also seeking Wanparta's feedback on these decommissioning and drilling activities by 17 March 2023.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. Plug and abandonment (P&A) of the wells.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
- Griffin decommissioning.
    - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
    - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.

- Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

If there is anything else, Woodside can do at this time to facilitate consultation, if Wanparta make an assessment that this is required to provide more information about these planned work activities, please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.47 Email sent to Karajarri Traditional Lands Association (Aboriginal Corporation) (24 February 2023)

Good afternoon

In follow up to email correspondence sent to you on 27 January regarding the Environmental Plan (EP) information shared to date for the Scarborough project activity and the Nganghurra Riser Turret Mooring (RTM) removal, please can you advise if you have any queries relating to this activity at your earliest convenience.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if Karajarri Traditional Lands Association (KTLA) has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if the KTLA would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking KTLA's feedback as soon as possible, Woodside is also seeking KTLA's feedback on these decommissioning and drilling activities by **17 March 2023**.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. Plug and abandonment (P&A) of the wells.
  - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
  - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

If there is anything else, Woodside can do at this time to facilitate consultation, if the directors of KTLA make an assessment that this is required to provide more information about these planned work activities, please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.48 Email sent to Nyangumarta Warrarn Aboriginal Corporation (NWAC) (24 February 2023)

Dear [redacted]

I thought I would take this opportunity to follow up on our previous email correspondence sent to you on 27 January regarding the Environmental Plan (EP) information shared to date for the Scarborough project activity and the Nganghurra Riser Turret Mooring (RTM) removal. If you have any queries relating to this activity please let me know at your earliest convenience.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if Nyangumarta Warrarn Aboriginal Corporation (NWAC) has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if the NWAC directors would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking NWAC's feedback as soon as possible, Woodside is also seeking NWAC's feedback on these decommissioning and drilling activities by 17 March 2023.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. Plug and abandonment (P&A) of the wells.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
    - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

If there is anything else, Woodside can do at this time to facilitate consultation, if the directors of NWAC make an assessment that this is required to provide more information about these planned work activities, please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.49 Email sent to Bardi Jawi Niimidiman Aboriginal Corporation (24 February 2023)

Hi [redacted]

Nice talking to you earlier and as per our conversation, please find attached Fact Sheets and relevant info below.

I am contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments 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 Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Bardi Jawi Niimidiman Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

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.

Please feel free to forward this email and, the attached documents to Bardi Jawi Niimidiman Aboriginal Corporation members as required. Woodside would be pleased to speak with Bardi Jawi Niimidiman Aboriginal Corporation members in addition to the Bardi Jawi Niimidiman Aboriginal Corporation Board / office holders if desired.

Kind regards

3.50 Email sent to Nyangumarta Karajarri Aboriginal Corporation (NKAC) (24 February 2023)

Hello [redacted]

Thankyou for your email received on 30 January advising that you have forwarded the Environmental Plan (EP) information shared to date for Scarborough and the Nganghurra RTM on to the respective Nyangumarta Karajarri Aboriginal Corporation (NKAC) directors.

This email provides further information on Woodside's decommissioning and drilling activities that we are seeking to understand if NKAC has any interests in the Environment that may be affected (EMBA) relative to the attached information sheets and if the NKAC directors would like us to consult further on these EPs.

With the exception of removing the Nganhurra RTM and the Scarborough project, for which Woodside is seeking NKAC's feedback as soon as possible, Woodside is also seeking NKAC's feedback on these decommissioning and drilling activities by 17 March 2023.

The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. Plug and abandonment (P&A) of the wells.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
    - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

If there is anything else, Woodside can do at this time to facilitate consultation, if the directors of NKAC make an assessment that this is required to provide more information about these planned work activities, please let me know.

Thank you for your time in considering these matters.

Please feel free to contact me on the details below if you require further information or assistance.

Kind regards

3.51 Email sent to Gogolanyngor Aboriginal Corporation (28 February 2023)

Hi

After speaking with [redacted], I am sending through 5 individual emails to be passed on by KLC to the respective PBC's, in relation to activities planned by Woodside Energy. We would appreciate if these emails and information sheets could be passed on at your earliest to provide information to the individual Aboriginal Corporations and their members.

Could I please ask, that I am notified once all the five Aboriginal Groups have been sent the email and information sheets.

Thank you

Info for Gogolanyngor Aboriginal Corporation

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation

Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments 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 Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Gogolanyngor Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

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.

Please feel free to forward this email and, the attached documents to Gogolanyngor Aboriginal Corporation members as required. Woodside would be pleased to speak with Gogolanyngor Aboriginal Corporation members in addition to the Gogolanyngor Aboriginal Corporation Board / office holders if desired.

Kind regards

3.52 Email sent to Nimanburr Aboriginal Corporation (28 February 2023)

Hi

Infor for Nimanburr Aboriginal Corporation

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments 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 Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Nimanburr Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

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.

Please feel free to forward this email and, the attached documents to Nimanburr Aboriginal Corporation members as required. Woodside would be pleased to speak with Nimanburr Aboriginal Corporation members in addition to the Nimanburr Aboriginal Corporation Board / office holders if desired.

Kind regards

3.53 Email sent to Nyul Nyul PBC Aboriginal Corporation (28 February 2023)

Hi

Infor for Nyul Nyul PBC Aboriginal Corporation.

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments 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 Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Nyul Nyul Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this

activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

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.

Please feel free to forward this email and, the attached documents to Nyul Nyul Aboriginal Corporation members as required. Woodside would be pleased to speak with Nyul Nyul Aboriginal Corporation members in addition to the Nyul Nyul Aboriginal Corporation Board / office holders if desired.

Kind regards

3.54 Email sent to Wanjina-Wunggurr (Native Title) Aboriginal Corporation (28 February 2023)

Hi

After speaking with [redacted] I am sending through 5 individual emails to be passed on by KLC to the respective PBC's, in relation to activities planned by Woodside. We would appreciate if these emails and information could be passed on at your earliest to provide information to the individual Aboriginal Corporations and their members.

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments 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 Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Wunjina-Wunggurr Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by **15 March 2023**. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

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.

Please feel free to forward this email and, the attached documents to Wunjina-Wunggurr Aboriginal Corporation members as required. Woodside would be pleased to speak with Wunjina-Wunggurr Aboriginal Corporation members in addition to the Wunjina-Wunggurr Aboriginal Corporation Board / office holders if desired.

Kind regards

3.55 Email sent to Myala Inninalang Aboriginal Corporation (28 February 2023)

Hi

Infor for Myala Inninalang Aboriginal Corporation.

Dear XXXXXX

I hope this message finds you well.

We are contacting you regarding Woodside's plans in relation to near future activities:

- The Stybarrow plug and abandonment (P&A) of the wells as part of the decommissioning, the Summary Information sheet is attached and further information can be found here on Woodside's website - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com);
- The Pyxis drilling and subsea installation activity the Summary Information sheet is attached and ad further information can be found here on Woodside's website - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)

In preparation for the activities, Woodside has undertaken assessments 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 Environmental Plan (EP).

Woodside is seeking to understand the nature of the interests that Mayala Inninalang Aboriginal Corporation and its members may have in the 'environment that may be affected' (EMBA) by this activity. The EMBA is the total area over which unplanned events could have environmental impacts, as set out in the Summary Information sheet attached.

If you would like to speak with us, please let us know by 15 March 2023. Please also let us know how you would like us to engage with you as soon as possible.

If there is any support or specific information that you require as part of our engagement, please let me know.

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.

Please feel free to forward this email and, the attached documents to Mayala Inninalang Aboriginal Corporation members as required. Woodside would be pleased to speak with Mayala Inninalang Aboriginal Corporation members in addition to the Mayala Inninalang Aboriginal Corporation Board / office holders if desired.

Kind regards

3.56 Email sent to Malgana Aboriginal Corporation (17 March 2023)

Dear [redacted]

Further to our recent conversations and plans to meet, please additional decommissioning and drilling activities for consideration at the meeting. The plain English summary of each of these activities is attached, and I have provided a link to the more detailed consultation information sheets below. These activities are:

Decommissioning Activities:

- Stybarrow. This involves two work activities that are subject to separate environment plans; plug and abandonment (P&A) of the wells and decommissioning the infrastructure.
    - consultation-information-sheet---stybarrow-plug-and-abandonment-environment-plan.pdf (woodside.com)
    - Consultation Information Sheet - Stybarrow Decommissioning Environment Plans (woodside.com)
- Griffin decommissioning.
    - consultation-information-sheet---griffin-decommissioning-environment-plans.pdf (woodside.com)

Drilling Activities:

- WA-34-L Pyxis Drilling and Subsea Installation.
    - Consultation Information Sheet - WA-34-L Pyxis Drilling and Subsea Installation Environment Plan (woodside.com)
- Julimar Appraisal Drilling.
    - Consultation Information Sheet - Julimar Appraisal Drilling and Survey Environment Plan (woodside.com)

We look forward to meeting with you and receiving feedback from Malgana about these activities.

Kind regards

[redacted]

3.57 Email sent to Nanda Aboriginal Corporation (NAC) (17 March 2023)

Hi [redacted]

Thank you for the meeting with YMAC legal on 13 March. It was a pleasure to meet you all.

I am following up to see whether you have a date and budget for a meeting with Nanda AC (NAC) and to notify you of additional EPs for consideration by the NAC Board outlined below.

1. Woodside's proposal to plug and abandon (P&A) a former production well that was used for the Stybarrow project approximately 50km North West of Exmouth. The Stybarrow project is no longer operating and Woodside is in the process of completing the decommissioning of this project. In preparation for this P&A 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 the Environmental Plan (EP).

   Please see link to the Consultation Information Sheet for this activity, and attached plain English overview. These documents provide further background on this proposed work, including a summary of potential key risks and associated management measures.

2. Woodside plans to drill and complete one new Pluto gas production well called PLA08. Subsea equipment will be installed to connect this well to the existing Pluto subsea infrastructure. It may also carry out maintenance activities on existing Pluto, Pyxis and Xena gas production wells as required. This work will take place in Commonwealth waters, approximately 170 km north-west of Dampier in title area WA-34-L. The proposed PLA08 production well will be located at a water depth of approximately 820m.WA-34-L Pyxis Drilling and Subsea Installation.

   Please see link to the Consultation Information Sheet for this activity, and attached plain English overview. These documents provide further background on this proposed work, including a summary of potential key risks and associated management measures.

Woodside is seeking to understand the nature of the interests that NAC and its members may have in relation to these activities. Please feel free to contact me if you require further information or assistance in relation to this matter. We are also happy to discuss appropriate mechanisms for consultation.

NAC can provide feedback directly to me on the details below, to Feedback@woodside.com.au, by calling Woodside's feedback number 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 document to NAC members as required. Woodside would be pleased to speak with NAC members in addition to the NAC Board/office holders.

Kind regards

3.58 Email sent to Western Australian Museum (16 February 2023)

Dear Stakeholder,

Woodside plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

		abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-

		are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.59 Email sent to Shire of Exmouth (16 February 2023)

Hi [redacted]

(You will also have received this email as a member of the Exmouth CLG)

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L

Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be

	around the HWIV to manage vessel movements.	A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.59.1 Follow up email sent to Shire of Exmouth (7 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.60 Email sent to Shire of Ashburton (18 February 2023)

Dear [redacted]

Another email on Woodside environment plan activities for the Shire to review please. We're meeting with Ken on 2 March and will provide an update on our activities during this meeting also.

Woodside is providing the Shire with updated advice on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **20 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron	WA-34-L

		operated title areas WA-5-R, WA-76-R and WA-526-P	
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.

Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **20 March 2023**.

Regards

3.60.1 Follow up email sent to Shire of Ashburton (8 March 2023)

Hi [redacted]

It was good to meet with you both last week. Thanks for your time and the brief discussion had on environment plan consultation.
As requested, we will continue to send advice to the Shire of Ashburton (via both of you).
Please find below and attached consultation advice that we're seeking feedback from the Shire on by 20 March 2023. Please get in touch if you require additional information at this time.

Regards

3.61 Email sent to City of Karratha (17 February 2023)

Dear [redacted]

Woodside has previously consulted the City of Karratha on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

Woodside would also like to provide an update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information on progressive decommissioning of Griffin and Stybarrow fields to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021. The Griffin Field is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m. The Stybarrow Field is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Updated consultation Information Sheets for each of the activities listed above are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) at the bottom of this email which you may wish to use to provide your feedback specific to the proposed EPs.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**	**Griffin Field Decommissioning Activities**	**Stybarrow Field Decommissioning Activities**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.	**Removal Activities** • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised,	**Plugging and Abandonment (P&A) Activities** • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly.

	has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.		recovery of the RTM may require sections of it to be towed to shallower water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. **In Situ Activities** Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids.	• Unblocking of the H4 flowline, if deemed feasible. **Removal Activities** • Removal of subsea equipment (wellheads, trees, manifolds, risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). **In Situ Activities** • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be

					removed following its drilling and abandonment in 2003.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L	WA-10-L	WA-32-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier	94 km northeast of Exmouth, Western Australia.	53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m	Approx. 120 m.	Approx. 810 – 850 m.
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	**Removal Activities** • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General	**Plugging and Abandonment (P&A) Activities** • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. **Removal Activities** • Earliest facilities and DTM removal is estimated to be Q4 2023, subject

				Direction 832.	to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.	**Removal Activities** Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete.	**Plugging and Abandonment (P&A) Activities** • P&A activities are anticipated to take approximately 6 – 9 months. **Removal Activities** Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around	A 500 m radius Operational Area will be applied around the dynamically positioned MODU.	**Removal Activities** • The temporary Operational Area includes the area encompassi	**P&A Activities** • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill

	exclusion zone will apply around the HWIV to manage vessel movements.	the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.	ng an approximate 1,500 m radius around the equipment. • A temporary 500 m exclusion zone will apply around the project vessels during removal and potential tow activities.	centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities. **Removal Activities** • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels	MODU General supply/support vessels Survey / AHT vessel	A dynamically positioned MODU is intended to be used for	**Removal Activities** • Construction support vessel (CSV) and	**P&A activities** • Semi-Submersible Mobile Offshore Drilling Unit (MODU)

	The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. An anchor handling tug (AHT) to support the towing of the RTM to sheltered water.	• The MODU will be supported by 2 to 3 offshore support vessels. **Removal Activities** • CSV and HLV for recovery and activities. • AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Best regards,

3.61.1 Follow up email sent to City of Karratha (8 March 2023)

Hi [redacted]

Woodside is sending this email by way of a reminder that the consultation period to provide feedback on the following proposed activities in Commonwealth waters, is closing soon:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (TPA03 EP);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (Julimar EP);
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP);
- Decommissioning of the Griffin field under the Griffin Decommissioning and Field Management EP, Griffin Gas Export Pipeline EP and Griffin Field Deviation EP; and
- Decommissioning of the Stybarrow field under the Stybarrow Plug and Abandonment EP, Stybarrow Decommissioning and Field Management EP and Stybarrow Field Deviation EP.

We would appreciate any feedback you may have by 17 March 2023 to support our development of the proposed environment plans.

Best regards,

3.62 Email sent to Shire of Carnarvon (10 March 2023)

Dear Shire of Carnarvon

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Shire of Carnarvon.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.62.1 Follow up email sent to Shire of Carnarvon (31 March 2023)

Dear Shire of Carnarvon

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

If you have feedback specific to the proposed activities described under the proposed EP, please provide your feedback by **9 April 2023**.

Kind regards,

3.63 Email sent to Town of Port Hedland (10 March 2023)

Dear Town of Port Hedland

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Town of Port Hedland.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m

Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.63.1 Follow up email sent to Town of Port Hedland (31 March 2023)

Dear Town of Port Hedland
Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision **(PLA08 EP)**.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Kind regards,

3.64 Email sent to Shire of Wyndham-East Kimberley (10 March 2023)

Dear [redacted]

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Shire of Wyndham-East Kimberley.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete.

	Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.65 Email sent to Shire of Derby/West Kimberley (10 March 2023)

Dear Shire of Derby/West Kimberley

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Shire of Derby/West Kimberley.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.65.1 Follow up email sent to Shire of Derby/West Kimberley (31 March 2023)

Dear Shire of Derby/West Kimberley

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP).

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by 9 April 2023.

Kind regards,

3.66 Email sent to Shire of East Pilbara (10 March 2023)

Dear Shire of East Pilbara

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Shire of East Pilbara.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.66.1 Follow up email sent to Shire of East Pilbara (31 March 2023)

Dear Shire of East Pilbara

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision **(PLA08 EP)**.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Kind regards,

3.67 Email sent to Shire of Broome (10 March 2023)

Dear [redacted]

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Shire of Broome.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L

Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.67.1 Follow up email sent to Shire of Broome (31 March 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

If you have feedback specific to the proposed activities described under the proposed EP, please provide your feedback by **9 April 2023**.

Kind regards,

3.68 Email sent to Shire of Shark Bay (10 March 2023)

Dear Shire of Shark Bay

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Shire of Shark Bay.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.68.1 Follow up email sent to Shire of Shark Bay (31 March 2023)

Dear Shire of Shark Bay

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP).

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by 9 April 2023.

Kind regards,

3.69 Email sent to Shire of Christmas Island (10 March 2023)

Dear Shire of Christmas Island

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Shire of Christmas Island.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.

Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.69.1 Follow up email sent to Shire of Christmas Island (23 March 2023)

Dear [redacted],

I have been passed your contact details by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts as a stakeholder, or representing stakeholders potentially relevant to one of our proposed activities.

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes Christmas Island. We are also seeking contact details for a representative of another entity our stakeholder mapping identified - the Christmas Island Line Fishery. Does your organisation represent this stakeholder, or can you provide alternate details?

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been

determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.

Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.69.2 Follow up email sent to Shire of Christmas Island (31 March 2023)

Dear Shire of Christmas Island

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision **(PLA08 EP)**.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Kind regards,

3.69.3 Follow up email sent to Shire of Christmas Island (17 April 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for

current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

If you have feedback specific to the proposed activities described under the proposed EP, please provide your feedback by **24 April 2023**.

Kind regards,

3.70 Email sent to Exmouth Community Liaison Group (16 February 2023)

Dear Exmouth Community Liaison Group,

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir.	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the

	The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements,

	unforeseen circumstances.	activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV)	MODU	A dynamically positioned MODU is intended to be

	General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.70.1 Follow up email sent to Exmouth Liaison Reference Group (7 March 2023)

Dear Exmouth Community Reference Group

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of

Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.71 Email sent to Karratha Community Liaison Group (17 February 2023)

Dear CLG members,

Woodside has previously consulted you on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

Woodside would also like to provide an update on the progressive decommissioning of the Griffin and Stybarrow fields, previously operated by BHP Petroleum Pty Ltd (BHP).

We are providing this information on progressive decommissioning of Griffin and Stybarrow fields to ensure relevant persons are informed about the status of proposed activities, as there have been changes to activity scope and supporting consultation information since consultation commenced for these decommissioning projects in 2021. The Griffin Field is in Commonwealth waters in Petroleum Licence WA-10-L, 65 km northwest of Onslow and 94 km northeast of Exmouth, Western Australia and in water depths of approximately 120 m. The Stybarrow Field is in Commonwealth waters in Petroleum Licence WA-32-L, approximately 53 km northwest of Exmouth, Western Australia and in water depths of approximately 810 – 850 m.

Updated consultation Information Sheets for each of the activities listed above are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) at the bottom of this email which you may wish to use to provide your feedback specific to the proposed EPs.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**	**Griffin Field Decommissioning Activities**	**Stybarrow Field Decommissioning Activities**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.	**Removal Activities** • Removal of subsea equipment (wellheads, trees, distribution skids, risers, flexible flowlines, rigid flowlines, umbilicals, and the pipeline end module (PLEM)). • Removal of the Riser Turret Mooring (RTM) and its moorings. Depending on the vessel utilised, recovery of the RTM may require sections of it to be towed to shallower	**Plugging and Abandonment (P&A) Activities** • Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. • Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. • Cutting and removal of the wellhead and subsea tree assembly. • Unblocking of the H4 flowline, if deemed feasible. **Removal Activities** • Removal of subsea equipment (wellheads, trees, manifolds,

	subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.		water out of the title. • Removal of an exploration wellhead (Ramillies-1 in neighbouring petroleum title WA-12-L). • Ongoing field management activities. • Pigging and subsequent removal of the 26 km of Griffin Gas Export Pipeline (GEP) within Commonwealth waters. **In Situ Activities** Proposal to leave in situ 12 RTM drag anchors (buried), 6 concrete gravity bases and 5 piled foundations for the PLEM and 4 distribution skids.	risers, flexible flowlines, and umbilicals). • Removal of the Disconnectable Turret Mooring (DTM) and its moorings. Recovery of the DTM may require it to be towed to shallower water outside of permit area WA-32-L to support the DTM removal from the marine environment. • Ongoing field management activities (equipment monitoring and inspection). **In Situ Activities** • Proposed leave in situ of the 9 DTM drag anchors (buried), nine suction piles for the riser holdbacks and the historical exploration wellhead, Eskdale-1, which was unable to be removed following its drilling and abandonment in 2003.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title	WA-34-L	WA-10-L	WA-32-L

		area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P			
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier	94 km northeast of Exmouth, Western Australia.	53 km northwest of Exmouth, Western Australia.
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m	Approx. 120 m.	Approx. 810 – 850 m.
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	**Removal Activities** • Earliest proposed removal activity start is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. • Facilities removal must be completed no later than 31 December 2024, pursuant to General Direction 832.	**Plugging and Abandonment (P&A) Activities** • Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. • P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833. **Removal Activities** • Earliest facilities and DTM removal is estimated to be Q4 2023, subject to approvals, vessel availability and weather constraints. Equipment removal must be completed no later than 31 March 2025, pursuant to General Direction 833.

Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.	**Removal Activities** Removal activities are anticipated to take approximately 6 months to complete and GEP removal activities are anticipated to take approximately 2 months to complete.	**Plugging and Abandonment (P&A) Activities** • P&A activities are anticipated to take approximately 6 – 9 months. **Removal Activities** Removal activities are anticipated to take approximately 4-6 months to complete and DTM removal activities are anticipated to take approximately 1 month to complete.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to	**Removal Activities** • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the equipment. • A temporary 500 m	**P&A Activities** • The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. • A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels

			Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.	exclusion zone will apply around the project vessels during removal and potential tow activities.	during P&A activities. **Removal Activities** • The temporary Operational Area includes the area encompassing an approximate 1,500 m radius around the subsea infrastructure and wellheads. • The DTM has an existing 1200 m radius petroleum safety zone which will continue to be in place until it is removed. • A temporary 500 m exclusion zone will apply around the CSV and the associated project vessels during removal activities. A temporary 500 m exclusion zone will apply around the HLV and the associated project vessels during the removal of the DTM.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels.	**Removal Activities** • Construction support vessel (CSV) and Heavy Lift Vessel (HLV) for recovery and pipeline removal activities. An anchor handling tug	**P&A activities** • Semi-Submersible Mobile Offshore Drilling Unit (MODU) • The MODU will be supported by 2 to 3 offshore support vessels. **Removal Activities** • CSV and HLV for recovery and activities.

	hours per day for the duration of the activities.	duration of the activities.	Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	(AHT) to support the towing of the RTM to sheltered water.	• AHTs to support the towing of the DTM to the shallower water location (if required).

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Best regards,

3.71.1 Follow up email sent to Karratha Community Liaison Group (8 March 2023)

Dear CLG members,

Woodside is sending this email by way of a reminder that the consultation period to provide feedback on the following proposed activities in Commonwealth waters, is closing soon:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**);
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**);
- Decommissioning of the Griffin field under the Griffin Decommissioning and Field Management EP, Griffin Gas Export Pipeline EP and Griffin Field Deviation EP; and
- Decommissioning of the Stybarrow field under the Stybarrow Plug and Abandonment EP, Stybarrow Decommissioning and Field Management EP and Stybarrow Field Deviation EP.

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Best regards,

3.72 Email sent to Onslow Chamber of Commerce and Industry (18 February 2023)

Dear [redacted]

I'm hopeful we can meet in early March to discuss some of our environment plan activities please.

Woodside is providing the Chamber with updated advice on its plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **20 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron	WA-34-L

		operated title areas WA-5-R, WA-76-R and WA-526-P	
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.

Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **20 March 2023**.

Regards

3.72.1 Follow up email sent to Onslow Chamber of Commerce and Industry (8 March 2023)

Hi [redacted]

It was good to meet with you last week in Onslow.

I understand from our meeting, that you on-forward EP consultation materials to your Board members for their awareness and further distribution (if required). I also understand that OCCI is unlikely to respond to consultation materials. I intend to periodically check-in on any changes to this process and to understand any informal feedback that OCCI may have heard from members. We will continue to share consultations materials.

If you wish to provide feedback specific to each of the proposed activities described under the relevant EPs, we ask OCCI to please respond by 20 March 2023.

Thanks

3.73 Email sent to Port Hedland Chamber of Commerce and Industry (10 March 2023)

Dear Port Hedland Chamber of Commerce and Industry

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Port Hedland Chamber of Commerce and Industry.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.73.1 Follow up email sent to Port Hedland Chamber of Commerce and Industry (31 March 2023)

Dear Port Hedland Chamber of Commerce and Industry

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision **(PLA08 EP)**.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Kind regards,

3.74 Email sent to Carnarvon Chamber of Commerce and Industry (10 March 2023)

Dear Carnarvon Chamber

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Carnarvon Chamber.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.74.1 Follow up email sent to Carnarvon Chamber of Commerce and Industry (31 March 2023)

Dear Carnarvon Chamber

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision **(PLA08 EP)**.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Kind regards,

3.75 Email sent to East Kimberley Chamber of Commerce and Industry (10 March 2023)

Dear East Kimberley Chamber of Commerce and Industry

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the East Kimberley Chamber of Commerce and Industry.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.75.1 Follow up email sent to East Kimberley Chamber of Commerce and Industry (31 March 2023)

Dear East Kimberley Chamber of Commerce and Industry

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

If you have feedback specific to the proposed activities described under the proposed EP, please provide your feedback by **9 April 2023**.

Kind regards,

3.76 Email sent to Derby Chamber of Commerce and Industry (10 March 2023)

Dear Derby Chamber of Commerce

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Derby Chamber of Commerce.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.76.1 Follow up email sent to Derby Chamber of Commerce and Industry (31 March 2023)

Dear Derby Chamber of Commerce

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters:

- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP).

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by 9 April 2023.

Kind regards,

3.77 Email sent to Broome Chamber of Commerce and Industry (10 March 2023)

Dear Broome Chamber of Commerce and Industry

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the Broome Chamber of Commerce and Industry.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.78 Email sent to 350 Australia, Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Greenpeace Australia Pacific (GAP), Cape Conservation Group (CCG) and Protect Ningaloo (16 February 2023)

Dear Stakeholder,

Woodside plans to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **17 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m	PLA08: ~820 m

		Proposed Julimar South-1 well location ~ 163 m	
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08

		A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **17 March 2023**.

Regards

3.78.1 Follow up email sent to 350 Australia, Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Greenpeace Australia Pacific (GAP), Cape Conservation Group (CCG) and Protect Ningaloo (7 March 2023)

Dear Stakeholder

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **17 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.79 Email sent to UWA (21 February 2023)

Dear [redacted]

Woodside is planning to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

Woodside is seeking your advice regarding any research activities that UWA may be undertaking that may overlap with our proposed activities.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **23 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within	WA-34-L

		the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place.

		MODU to manage vessel movements.	A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **23 March 2023**.

Regards

3.79.1 Follow up email sent to UWA (7 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);

- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **23 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.80 Email sent to WAMSI (21 February 2023)

Dear [redacted]

Woodside is planning to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

Woodside is seeking your advice regarding any research activities that WAMSI may be undertaking that may overlap with our proposed activities.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **23 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well

	Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels.

	Vessels will operate 24 hours per day for the duration of the activities.	Vessels will operate 24 hours per day for the duration of the activities.	Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **23 March 2023**.

Regards

3.80.1 Follow up email sent to WAMSI (7 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **23 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.81 Email sent to CSIRO (21 February 2023)

Dear [redacted]

Woodside is planning to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

Woodside is seeking your advice regarding any research activities that CSIRO may be undertaking that may overlap with our proposed activities.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **23 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required.	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

	The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development, completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete.

		Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **23 March 2023**.

Regards

3.81.1 Follow up email sent to CSIRO (7 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **23 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.82 Email sent to AIMS (21 February 2023)

Dear [redacted]

Woodside is planning to undertake the following activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

Updated consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

Woodside is seeking your advice regarding any research activities that AIMS may be undertaking that may overlap with our proposed activities.

As we are inviting consultation with you on each of the EPs above, for ease of reference, we have attached the information in this one email. In an effort to simplify feedback, we have also included a feedback template (Appendix A) which you may wish to use to provide your feedback specific to the proposed EPs.

Woodside has previously submitted Revision 0 of the TPA03 EP to NOPSEMA which has been available on the NOPSEMA website since August 2022 (https://info.nopsema.gov.au/environment_plans/606/show_public).

Woodside is preparing to submit a further revision of the TPA03 EP to NOPSEMA with recent changes. We confirm the location and duration described in these revisions remain the same, with no material changes.

The Julimar EP and revised PLA08 EP have not yet been submitted to NOPSEMA.

If you have feedback specific to each of the proposed activities described under the relevant EPs, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **23 March 2023**.

Activity:

	TPA03 EP	**Julimar EP**	**PLA08 EP**
Summary:	Well intervention activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir. The TPA03 production well is a dual zone well connected to the Tidepole manifold and forms part of the subsea production infrastructure for the Goodwyn Alpha Platform. Once the TPA03 well intervention has been completed, the well will be shut-in until production is required. The shut-in and subsequent return to production of the well will be managed under the accepted Goodwyn Alpha (GWA) Facility Operations EP (March 2022).	One new appraisal-keeper well, Julimar South-1, will be drilled to further understand reservoir properties. Prior to drilling, anchor hold tests will occur around the Julimar South-1 well location. The well will then be drilled, appraisal activities undertaken and then the reservoir section cemented and suspended pending a development decision. Geotechnical and geophysical surveys will be conducted to support Julimar South-1 well activities and future drilling mooring designs. Development of the Julimar South-1 well is subject to future development decisions • If the well is not developed, it will be plugged and abandoned (P&A) under this EP (during the three year period). • If the well is selected for development,	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.

		completions and end of field life (EOFL) P&A activities would be subject to a future EP.	
Permit area:	WA-5-L	Drilling: WA-49-L Geotechnical and geophysical surveys: Within the WA-49-L title area and neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P	WA-34-L
Location:	~138 km north-west of Dampier	~160 km north-west of Dampier	~170 km north-west of Dampier
Approx. Water Depth (m):	~113 m	Operational Area ~ 130-240 m Proposed Julimar South-1 well location ~ 163 m	PLA08: ~820 m
Schedule:	Planned well intervention activities are anticipated to be completed around Q1 2023 – Q3 2023 Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Drilling is currently anticipated in Q3 2023. However, drilling may be performed at any point within three years of EP acceptance. Anchor hold testing will occur prior to this drilling campaign. Geophysical and Geotechnical survey activities are planned to be performed by the end of 2024 but may be performed at any point during the life of the EP (3 years). Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Well intervention activities are expected to take approximately 1-2 weeks to complete.	Drilling, appraisal and suspension activities are currently anticipated to take approximately 40 days to complete. Geophysical and geotechnical survey activities are currently anticipated to take approximately 45 days to complete. Well P&A activities are currently anticipated to take approximately 21 days to complete, if required.	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.

Exclusionary / Cautionary Zone:	A 1 km radius Operational Area will be applied around the TPA03 drill centre. A temporary 500 m safety exclusion zone will apply around the HWIV to manage vessel movements.	An approximate 50 km^2 Operational Area will apply during geophysical and geotechnical survey activities. A 4 km radius Operational Area will apply around the JULA-P well whilst the MODU is on location. A 500 m safety exclusion zone will apply around the MODU to manage vessel movements.	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	Well Intervention Vessel (WIV) General supply/support vessels The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	MODU General supply/support vessels Survey / AHT vessel The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **23 March 2023**.

Regards

3.82.1 Follow up email sent to AIMS (7 March 2023)

Dear [redacted]

Woodside is sending this email by way of a reminder that the consultation period is closing soon to provide feedback on the following proposed activities in Commonwealth waters:

- Activities on the TPA03 production well to remediate a down-hole valve and continue production from the lower reservoir, under the TPA03 Well Intervention Environment Plan (**TPA03 EP**);
- Geotechnical and geophysical surveys, drilling and appraisal of the Julimar South-1 well (previously called JULA-P) and, plug and abandonment of Julimar South-1, if required, under the Julimar Drilling and Surveys Environment Plan (**Julimar EP**); and
- Drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).

We would appreciate any feedback you may have by **23 March 2023** to support our development of the proposed environment plans.

Kind regards,

3.83 Email sent to Christmas Island Business Association (23 March 2023)

Dear [redacted],

I have been passed your contact details by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts as a stakeholder, or representing stakeholders potentially relevant to one of our proposed activities.

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes Christmas Island.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels.

	The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.83.1 Follow up email sent to Christmas Island Business Association (17 April 2023)

Dear [redacted],

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

If you have feedback specific to the proposed activities described under the proposed EP, please provide your feedback by **24 April 2023**.

Kind regards,

3.84 Email sent to Indian Ocean Territories Regional Development Organisation (RDO) (23 March 2023)

Dear [redacted],

I have been passed your contact details by the Department of Infrastructure, Transport, Regional Development, Communications and the Arts as a stakeholder, or representing stakeholders potentially relevant to one of our proposed activities.

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes Christmas Island.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place.

	A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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)

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.84.1 Follow up email sent to Indian Ocean Territories Regional Development Organisation (RDO) (17 April 2023)

Dear [redacted],

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

If you have feedback specific to the proposed activities described under the proposed EP, please provide your feedback by **24 April 2023**.

Kind regards,

3.85 Email sent to Department of Infrastructure, Transport, Regional Development, Communications and the Arts (DITRDCA) (18 March 2023)

Email to DITRDCA – 18 March 2023

Dear Department of Infrastructure and Regional Development,

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes the East Kimberley Chamber of Commerce and Industry.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **9 April 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their ntegrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m

Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. nstallation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. f required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, f used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well ntervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **9 April 2023**.

Regards

3.86 Email sent to Department of Foreign Affairs and Trade (DFAT) (15 March 2023)

Dear Department of Foreign Affairs and Trade (DFAT)

Woodside is planning to undertake the following activities in Commonwealth waters under the following environment plans:

- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP).
- plug and abandonment (P&A) activities in the Stybarrow field, under the Stybarrow P&A Environment Plan (Stybarrow P&A EP).

An overview of the proposed activities in the PLA08 EP and the Stybarrow P&A EP is set out below.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders who 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 environment plans, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for the PLA08 EP and Stybarrow P&A EP is a well loss of integrity.

The EMBAs for the PLA08 EP and Stybarrow P&A EP traverse international waters and modelling has indicated that there may be a potential for hydrocarbons to accumulate on Indonesian shorelines. Therefore, these EPs may require international consultation and oil spill response requirements. The PLA08 EP Operational Area is located approximately 315 km from international waters and the Stybarrow P&A EP Operational Area is located approximately 313 km from international waters.

Due to the distance of the Operational Area from international waters, any hydrocarbons that reach those waters and/or Indonesian shorelines would likely result in coverage which is fragmented (with low concentrations) and weathered hydrocarbons.

Updated Consultation Information Sheets are attached, which provide additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

Input for DFAT:
With respect to the proposed activities under the PLA08 EP and Stybarrow P&A EP, Woodside requests the following information from DFAT:

- Feedback from DFAT specific to the proposed activities described under the relevant EPs.
- Management of vessels (for example, fishing or shipping vessels), should these vessels be present in the EMBA.

- Confirmation as to whether there are any specific persons or organisations that Woodside should contact whose functions, interests or activities may be affected by the proposed activities in foreign countries and, if so, the relevant contact details
- Implications for oil spill planning and response in international waters. This includes any specific persons or organisations Woodside should contact in the event of unplanned activities where the interests of foreign countries may be impacted to assist with our response planning.

Oil Spill Response Planning and Marine Pollution:
We note DFAT's previous advice (correspondence dated 29 July 2021) during EP consultation regarding oil spill response planning in international waters. In finalising our marine pollution notifications for the PLA08 EP and Stybarrow P&A EP, Woodside seeks confirmation that the following notifications meet DFAT's requirements:

- Woodside will verbally notify AMSA and Western Australian departments responsible for marine pollution as soon as possible after the incident.
- Woodside will follow up its AMSA notification by way of an online report via AMSA's web site.
- Woodside will notify other relevant government departments as soon as practicable. These notifications include DFAT via the sea.law@dfat.gov.au email address if a spill is likely to enter international waters.

Woodside may have proposed activities in the future which may also have EMBAs that reach international waters. These environment plans might have similar international consultation and spill response requirements as well.

We would be grateful for DFAT's feedback and advice by 14 April 2023. Please respond to Woodside at Feedback@woodside.com.au or 1800 442 977.

Activity:

	PLA08 EP	Stybarrow P&A EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.	· Pre-execution activities associated with the well P&A, such as barrier testing and removal of marine growth. · Well P&A of the 10 productions/injection wells by placing cement plugs in the wells to permanently prevent hydrocarbon release. · Cutting and removal of the wellhead and subsea tree assembly. · Unblocking of the H4 flowline, if deemed feasible.
Permit area:	WA-34-L	WA-32-L
Location:	~170 km north-west of Dampier	~53 km northwest of Exmouth, Western Australia.
Operational Area distance to international waters:	~ 315 km	~ 313 km
Approx. Water Depth (m):	PLA08: ~820 m	~ 810 – 850 m.
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule	Earliest P&A start is estimated to be Q4 2023, subject to approvals, MODU and vessel availability and weather constraints. P&A activities must be completed no later than 30 September 2024, pursuant to General Direction 833.

	requirements, vessel availability, weather or unforeseen circumstances.	
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.	P&A activities are anticipated to take approximately 6 – 9 months.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.	The Operational Area includes the area encompassing an approximate 3,000 m radius around each of the four drill centers within WA-32-L. A temporary 500 m exclusion zone will apply around the MODU and the associated project vessels during P&A activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.	Semi-Submersible Mobile Offshore Drilling Unit (MODU) The MODU will be supported by 2 to 3 offshore support vessels.

Feedback:

Your feedback and our response will be included in our Environment Plans which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by 14 April 2023.

Regards,

3.86.1 Follow up email sent to Department of Foreign Affairs and Trade (DFAT) (31 March 2023)

Dear Department of Foreign Affairs and Trade (DFAT)

Woodside previously consulted you (email below) on its plans to undertake the following activities in Commonwealth waters under the following environment plans:

- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**).
- plug and abandonment (P&A) activities in the Stybarrow field, under the Stybarrow P&A Environment Plan (**Stybarrow P&A EP**).

An overview of the proposed activities in the PLA08 EP and the Stybarrow P&A EP is set out below.

Input for DFAT:
With respect to the proposed activities under the PLA08 EP and Stybarrow P&A EP, Woodside requests the following information from DFAT:

- Feedback from DFAT specific to the proposed activities described under the relevant EPs.
- Management of vessels (for example, fishing or shipping vessels), should these vessels be present in the EMBA.
- Confirmation as to whether there are any specific persons or organisations that Woodside should contact whose functions, interests or activities may be affected by the proposed activities in foreign countries and, if so, the relevant contact details
- Implications for oil spill planning and response in international waters. This includes any specific persons or organisations Woodside should contact in the event of unplanned activities where the interests of foreign countries may be impacted to assist with our response planning.

Oil Spill Response Planning and Marine Pollution:
We note DFAT's previous advice (correspondence dated 29 July 2021) during EP consultation regarding oil spill response planning in international waters. In finalising our marine pollution notifications for the PLA08 EP and Stybarrow P&A EP, **Woodside seeks confirmation that the following notifications meet DFAT's requirements**:

- Woodside will verbally notify AMSA and Western Australian departments responsible for marine pollution as soon as possible after the incident.
- Woodside will follow up its AMSA notification by way of an online report via AMSA's web site.
- Woodside will notify other relevant government departments as soon as practicable. These notifications include DFAT via the sea.law@dfat.gov.au email address if a spill is likely to enter international waters.

We would be grateful for DFAT's feedback and advice by **14 April 2023**.

Kind regards,

3.86.2 Follow up email sent to Department of Foreign Affairs and Trade (DFAT) (19 April 2023)

Dear Department of Foreign Affairs and Trade (DFAT)

Woodside is following up on its below environment plan consultation with regard to the following activities in Commonwealth waters:

- drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**); and
- plug and abandonment (P&A) activities in the Stybarrow field, under the Stybarrow P&A Environment Plan (**Stybarrow P&A EP**).

In particular, Woodside requests the following information from DFAT:

- Feedback from DFAT specific to the proposed activities described under the relevant EPs.
- Management of vessels (for example, fishing or shipping vessels), should these vessels be present in the EMBA.
- Confirmation as to whether there are any specific persons or organisations that Woodside should contact whose functions, interests or activities may be affected by the proposed activities in foreign countries and, if so, the relevant contact details
- Implications for oil spill planning and response in international waters. This includes any specific persons or organisations Woodside should contact in the event of unplanned activities where the interests of foreign countries may be impacted to assist with our response planning.

We would be grateful for your feedback and advice at your earliest convenience, and by **28 April 2023**.

Kind regards,

3.87 Email sent to Christmas Island Port (21 April 2023)

Hi [redacted]

Following up our phone call – thanks for your time on Monday. I've included the information on the proposed activity that we discussed below and attached a fact sheet. If you have feedback you can go through the channels below or respond back to me directly.

I noted that you were interested in spill response. Our computer modelling for this activity indicates that in the highly unlikely event of a hydrocarbon release, there is a chance that some oil may accumulate at Christmas Island at 10 g/m^2. If a hydrocarbon release from subsea infrastructure or a vessel spill did occur and was expected to impact Christmas Island State/Port waters, Woodside would notify and work in consultation with regulators and relevant persons including local port authority, WA Department of Transport and AMSA to identify locations at risk of contact and respond to the incident. Woodside has resources and in-place contracts and arrangements to support incident management coordination, and field response activities. More information on Woodside spill response can be found here.

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Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (PLA08 EP) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes Christmas Island.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.
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An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their ntegrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. nstallation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. f required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, f used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well ntervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **21 May 2023**.

3.88 Email sent to Christmas Island Line Fishery (21 April 2023)

Dear [redacted]

Woodside has been provided with your contact details by the Christmas Island Fisheries Advisory Committee as a stakeholder, or representing stakeholders potentially relevant to one of our proposed activities.

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders 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 this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **21 May 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier

Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **21 May 2023**.

Regards
Woodside Feedback

3.88.1 Email sent to Christmas Island Line [redacted]

[redacted] Mr Shane Adams on behalf of Hollywood Charters

Woodside has been provided with your contact details by the Christmas Island Fisheries Advisory Committee as a stakeholder, or representing stakeholders potentially relevant to one of our proposed activities.

WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders 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 this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **21 May 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels.

	Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **21 May 2023**.

Regards
Woodside Feedback

3.88.2 Email sent to Christmas Island Line [redacted]

[redacted]Mr Michael Pride on behalf of Mr TOO Chong Wat

Woodside has been provided with your contact details by the Christmas Island Fisheries Advisory Committee as a stakeholder, or representing stakeholders potentially relevant to one of our proposed activities.

Woodside plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders 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 this environmental plan, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the relevant EP, please respond to Woodside at Feedback@woodside.com.au or 1800 442 977 by **21 May 2023**.

Activity:

	PLA08 EP

Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **21 May 2023**.

Regards
Woodside Feedback

3.88.3 Letter sent to Christmas Island Line Fishery (2 May 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

I

2 May 2023

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

Dear Fishery Stakeholder

Woodside is planning to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells in Commonwealth waters, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**). The activities are located ~170 km north-west of Dampier.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes your organisation.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, 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 the subject of the EP. The worst-case credible spill scenario for this EP is a vessel collision resulting in a release of marine diesel.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing on our website.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977 by **1 June 2023**.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.
Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days.

	If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

Please provide your views by **1 June 2023**.

Regards,

Woodside Feedback

Woodside Energy
Mia [redacted]
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com

Attached: Consultation Information Sheet

3.89 Email sent to Christmas Island Line Fishery (9 [redacted]

[redacted]Mr Michael Pride on behalf of Mr TOO Chong Wat

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Woodside will soon be submitting this EP to the Regulator for assessment. If you have feedback specific to the proposed activities described under the proposed EP, please let us know.

Kind regards,

3.89.1 Email sent to Christmas Island Line Fishery (9 June 2023)

Dear Mr Mark Rochford on behalf of Shorefire Christmas Island

Woodside previously consulted you (email below) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**) in Commonwealth waters.

Woodside will soon be submitting this EP to the Regulator for assessment. If you have feedback specific to the proposed activities described under the proposed EP, please let us know.

Kind regards,

3.89.2 Letter sent to Christmas Island Line Fishery (9 June 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

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

9 June 2023

Dear Fishery Stakeholder

Woodside previously consulted you (correspondence dated 2 May 2023) on its plans to undertake drilling and subsea infrastructure installation activities for one well (PLA08) and contingent well intervention activities for current production wells in Commonwealth waters, under the WA-34-L Pyxis Drilling and Subsea Installation Environment Plan Revision (**PLA08 EP**). The activities are located ~170 km north-west of Dampier.

Following recent changes to Commonwealth Environment Plan consultation requirements, Woodside is now consulting stakeholders whom are located within the environment that may be affected (EMBA) by a proposed petroleum activity, which includes your organisation.

The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this environmental plan, 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 the subject of the EP. The worst-case credible spill scenario for this EP is a vessel collision resulting in a release of marine diesel.

An updated 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. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing on our website.

The revised PLA08 EP has not yet been submitted to NOPSEMA.

Woodside will soon be submitting this EP to NOPSEMA for assessment. If you have feedback specific to the proposed activities described under the proposed EP, we would welcome your feedback at Feedback@woodside.com.au or 1800 442 977.

Activity:

	PLA08 EP
Summary:	Drill and develop the proposed PLA08 production well. Contingent activities including well intervention workover or re-drill the Pluto, Pyxis, and Xena production wells (PLA01 to PLA08, PYA01 and PL-PYA02, and XNA01 and XNA02) to monitor and maintain their integrity, if required.
Permit area:	WA-34-L
Location:	~170 km north-west of Dampier
Approx. Water Depth (m):	PLA08: ~820 m
Schedule:	Planned drilling, completions, subsea installation and pre-commissioning activities for the proposed PLA08 well are anticipated around Q2 – Q4 2023. Timing of activities is subject to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

Duration:	Drilling activities for the proposed PLA08 well are currently expected to take approximately 50 days to complete. Installation of subsea infrastructure and pre-commissioning will commence on completion of drilling and is expected to take up to approximately 30 days. If required, well intervention activities will take up to 70 days per well to complete. Activities may occur intermittently over a two-year period.
Exclusionary / Cautionary Zone:	A 500 m radius Operational Area will be applied around the dynamically positioned MODU. A 1500 m radius Operational Area will be applied around the PLA08 well location and subsea installation locations (PLA08 to Pluto manifold) whilst activities are taking place. A 4000 m radius Operational Area will apply around a moored MODU, if used. A temporary 500 m petroleum safety exclusion zone will apply during MODU activities.
Vessels:	A dynamically positioned MODU is intended to be used for the drilling activities. The MODU may be supported by subsea installation and light well intervention vessels. Support vessels may be used including, anchor handling vessels and activity support vessels. The vessels will operate on dynamic positioning and will not anchor/moor on the seabed. Vessels will operate 24 hours per day for the duration of the activities.

Feedback:

If you have any issues or concerns with these activities, or any other issues relevant to these locations, 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 which 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).

Please let us know if your feedback for any of the activities proposed under an Environment Plan is sensitive and we will make this known to NOPSEMA upon submission of the Environment Plan to ensure this information remains confidential to NOPSEMA.

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

3.90 Geotargeted social media campaign

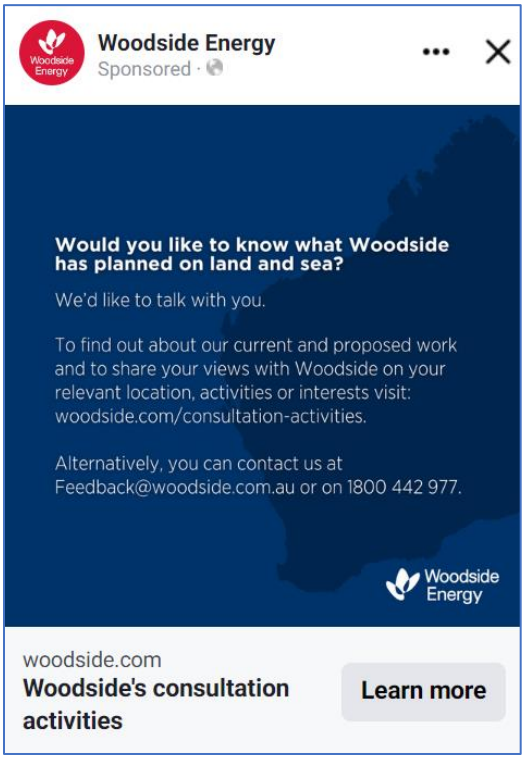
A Facebook information campaign was targeted along the coastline from Geraldton to Derby to ensure it reached all communities adjacent to the EMBA. Geotargeting locations are distributed along the coast, with 80 km radiuses around towns, cities and shires. Geotargeting points were also included for spaces between towns, cities and shires to ensure no areas were missed – you'll see below there are latitude and longitude references for those locations.

As at 3:00pm Thursday 15 June 2023
Ad reach: 29,813 users
Impressions: 207,850 views
Clicks through to *Consultation Information* page: 891 link clicks

Geotargeting locations:

- Broome (+80 km)
- Carnarvon (+80 km)

- Denham (+80 km)
- Exmouth (+80 km)
- Geraldton (+80 km)
- Onslow (+80 km)
- Port Hedland (+80 km)
- Karratha (+80 km)
- Latitude -17 Longitude 122.65 Dampier Peninsula (+80 km)
- Latitude -22.75 Longitude 114.10 Exmouth Gulf (+80 km)
- Latitude -18.96 Longitude 121.94 Gingerah (+80 km)
- Latitude -27.85 Longitude 114.25 Kalbarri National Park (+80 km)
- Latitude -21.32 Longitude 116.03 Mardie (+80 km)
- Pardoo (+80 km)
- Latitude -20.94 Longitude 117.83 Sherlock (+80 km)
- Latitude -26.96 Longitude 113.95 Tamala (+80 km)
- Latitude -19.88 Longitude 121.15 Telfer (+80 km)
- Latitude -17.52 Longitude 123.56 Willare (+80 km)
- Latitude -22.43 Longitude 114.93 Yannarie (+80 km)




Jakarta
TIMOR-
LESTE
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IS.
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Melbourne
Tasma
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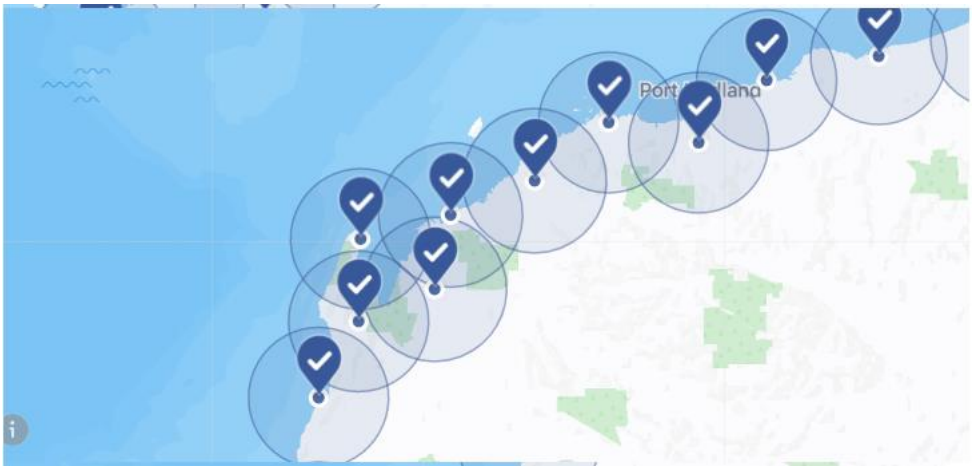
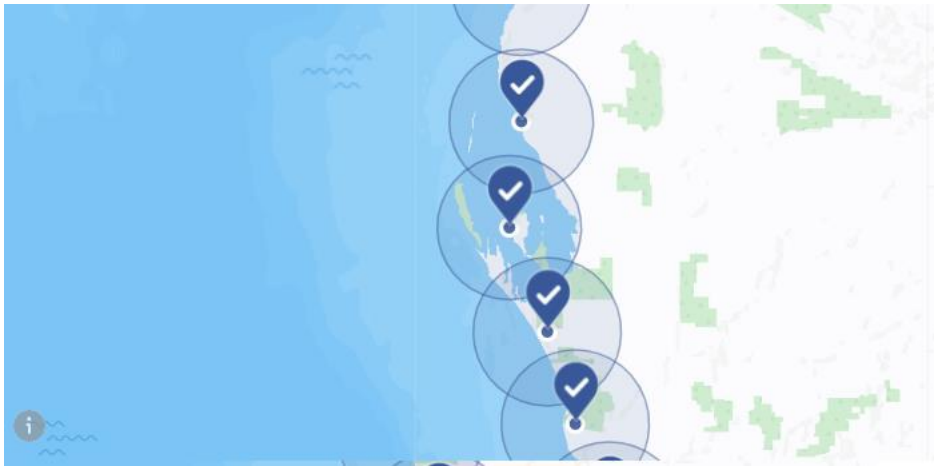
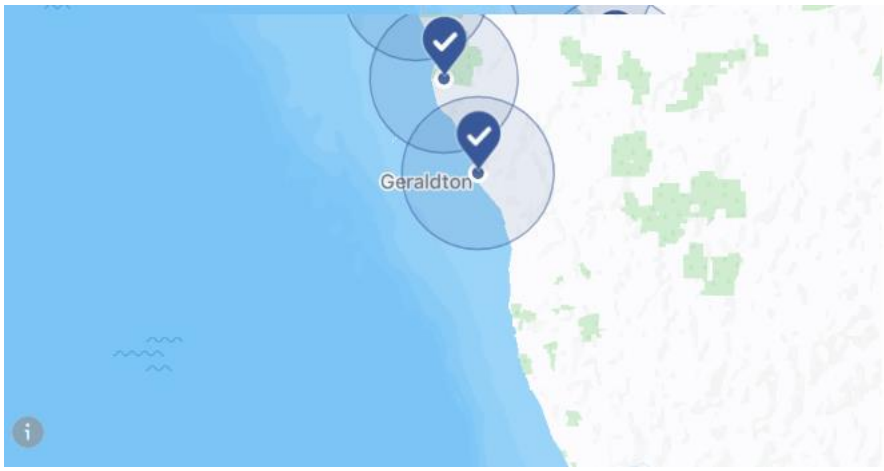
AUSTRALIA
Perth


Broome

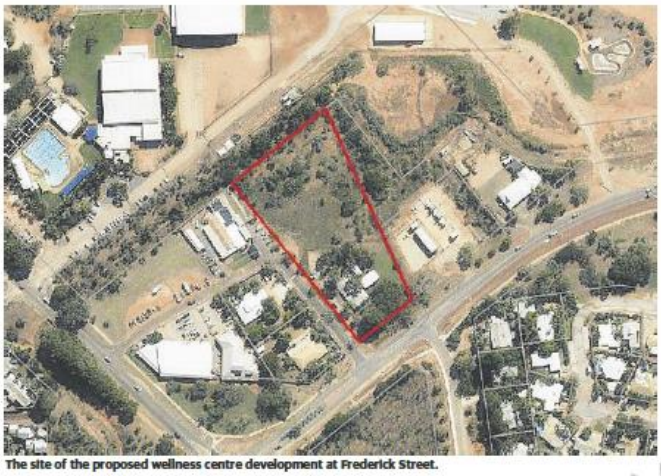





Geraldton

3.91 Community Information Session newspaper advertisements – Kimberley Echo and Broome Advertiser (1 June 2023 and 8 2023)

Broome Advertiser
Thursday, June 1, 2023
broomenad.com.au



The site of the proposed wellness centre development at Frederick Street.

Centre to offer medical services and child care

CAIN ANDREWS
& KATYA MINNS

The Shire of Broome has approved a development application for a health and wellness centre which will feature a creche able to look after up to 100 children at a time.

The centre will also supply accommodation for medical centre staff with four short-term units to be built in the north-eastern corner of the lot.

The health and wellness centre will feature a dental practice, a GP clinic, pharmacy, beauty clinic, cafe, psychologist's office, physiotherapy office and two medical imaging tenancies with the project estimated to cost just over $6.1m.

The development applicant will also have to donate just over $30,000 for public art or to develop a public art installation equal to that value, thanks to the Shire's local planning scheme.

The site will be at Frederick Street between the Broome Boulevard Shopping Centre and the Broome Recreation and Aquatic Centre where the St Martin de Porres Re-engagment School sits. The school is now searching for a new location, according to the Shire agenda.

Shire president Desiree Male said the development was a step in the right direction for the tourist town.

"To have a private developer come in and put a proposal forward to build something (as) significant as this is fantastic," she said.

"Across the board, we are lacking dreadfully (in child care) and anything that can add to the shortfall is a benefit.

" We're really supportive and thankful that we have attracted this sort of investment in town and we look forward to when it opens."

Tanami sealing set for 10-year build timeline

DAN JERVIS-BARDY

The sealing of the Tanami track in northern WA will take a decade to complete, the Albanese Government has confirmed.

But Infrastructure Minister Catherine King's office is defending the timeframe, saying it would ensure a consistent and manageable stream of work for local contractors and time for proper consultation with communities along the route.

It was revealed during Senate estimates that $434 million in Commonwealth funding to seal the Tanami was spread out across the next 10 years, suggesting that was how long it would take to finish the much-needed upgrade.

Sealing the track promises huge social and economic benefits for communities in the East Kimberley, including making it cheaper and easier to transport goods.

The Opposition slammed the decade-long timeline as "completely unacceptable", accusing both the Albanese and McGowan governments of failing to prioritise the project.

Ms King's office confirmed — and defended — the plan in a statement to The West Australian.

"A 10-year rolling delivery time frame will ensure a steady and sustainable pipeline of works for local construction crews," a spokeswoman said.

"As a large, unsealed and remote road, a staged approach over time also allows for the necessary planning, environmental approvals and consultation to occur — including with First Nations communities."

The spokeswoman said work on the first portion of the 313km track was expected to start in the middle of the year. The project — jointly funded with the WA Government — is expected to cost $542 million.

"The WA Government is currently developing a delivery strategy which will inform the project's rollout for upgrading and sealing the road," she said.

"Both governments are working together to ensure construction can start as soon as possible on the project, which will improve road safety, connectivity as well as freight access and productivity."

Surf club rides crest of wave

CAIN ANDREWS

The new Broome Surf Life Saving Club is set to open to the public, with the main construction work of the $5.5m project complete.

The club, due open to the public by late July, features a range of new facilities including new and increased storage areas, an education and function room, a new gym, bar and public toilets and showers. And the new facilities are already drawing in new members.

Broome Surf Life Saving Club Building director Rob Aristei said he was excited to see the building near completion after working on the project for the better part of a decade.

"In 2016 we started to get the project off the ground as the old building had reached the end of its life. What we're trying to do is make the club fully sustainable so it will be a lot easier for us to replace equipment, attract more members and even expand our patrolling time."

Broome Surf Life Saving Club manager Lauren Henderson said the new building would allow the club to better service the community.

Bar manager Chris Andrzejaczek, BSLC chairperson Bec Famlunga, BSLSC Education director Carrie Selten, BSLSC Building director Rob Aristei, Broome Surf Life Saving Club manager Lauren Henderson. Picture: Cain Andrews

"The new facilities basically enhance our our ability to achieve our core mission, which is to keep the community safe," she said. "It also enables us to purchase more equipment and have better training in our training rooms."

Ms Henderson said the new club was already attracting more members.

"We've got the highest number of nippers enrolments this year than we've had since pre-COVID," she said. "There's close to 200 new enrolments and I think the excitement around the new club is part of the reason for that.

"The new building doesn't just benefit our club, but benefits the whole community as well."

Mr Aristei said the build wouldn't have been possible without sponsorship.

"I'd like to thank Surf Life Saving WA and all of the sponsors for their ongoing support, we couldn't have done it without you," he said.

Major Sponsors for the project include Totally Workwear, Cleanaway, Lion, Broome Plumbing and Gas and Galvins Plumbing Supplies. Major contractors involved in the project include CWD Builders, Laird Tran Studios and the Shire of Broome. See more pictures inside the club at broomead.com.au

Man jailed for robberies on hotels

KATYA MINNS

The accomplice of a gang who acted as a "lookout" for his fellow offenders at the Oaks Hotel, a few days after breaking into and stealing alcohol from the Roebuck Bay Hotel, has been sentenced to 31 months imprisonment.

Anton Caleb Joseph Galova faced Broome's District Court on May 29 and pleaded guilty to six counts of aggravated burglary and stealing.

The court was told the 24-year-old was out drinking with friends and family at a residence before being convinced to accompany four other men to break into the Roebuck Bay Hotel at about 3am on March 18, 2022. Not wanting to be left behind, he went along with the group — helping peel open a metal door to one of the bars within the hotel and stealing 15 bottles of wine.

Three days later, he and the group went to Oaks Hotel on Robinson Street about 2am with the intention to burgle the bar for alcohol.

Galova kept a lookout for security as his fellow offenders used an axe to break the glass of the restaurant to gain entry into the bar, stealing bottles of liquor off the shelves.

An hour after leaving the hotel, the group returned for more alcohol but security was already investigating the scene and had called police.

The police approached the men leaving the hotel on Guy Street, uncovering bottles of alcohol in their bags and immediately took them into custody.

Defence lawyer Nick Brookes said his client was "not a sophisticated individual" and that Galova did not believe he was fully involved in the crime, hence his co-operation with police when providing statements against the others involved.

District Court Judge Michael Bowden sentenced Galova to 31 months jail, backdated to March 21, 2022. He will be eligible for parole after serving 15½ months.

Muster ends with Party in the Park

Max & Claire Hogg, with granddaughters Cassidy & Ruthie Cunningham.

Jimmy Lannigan, 5, of Halls Creek.

River Alford, 5, of Kununurra.

CALLY DUPE

The East Kimberley's biggest festival came to a big close when hundreds gathered at Celebrity Tree Park for the Ord Valley Muster's Horizon Power Party in the Park.

The event — likely to become a staple of the Muster — was a true East Kimberley celebration, with performances, workshops, displays and fun for the family with local and guest entertainment.

Among the line-up was belly dancing, the East Kimberley College Primary School Choir, the Wild Brumby Line Dancers, the East Kimberley Community Choir, and the East Kimberley College Band.

Also featuring were bands Cruise Control, Girls from Oz and the Band of the First Brigade, from Darwin.

But arguably the most popular activity at this year's event was the Sorby Silver Search, a new rendition of what was for decades called the Diamond Dig.

Like many years before, participants took to three giant sand pits to dig for pop sticks marked with numbers corresponding with various prizes, which ranged from pond lights and a truck wash, to a stunning silver necklace.

John & Julie Petry. Pics: Cally Dupe

Sandy Griffiths & Tammy Cavlovic

Alimah Rivers, 10, & Jaz Nayah, 8.

Halle, 1, and Simeon McGinness, of Kununurra.

Rob & Cooper Cox, 13.

Zoe Sass, 8, and Nikki Cavlovic, 11.

There were three categories, a toddler section, kid section and adult section.

Rainer Winkler's persistence paid off, and after many attempts he won the top prize in the Ord Valley Muster Silver Search — a custom designed necklace designed by Kimberley Fine Diamonds and valued at $1200.

The laughs just kept coming at Comedy in the Park show

CALLY DUPE

It was a night of side-splitting laughter at Kununurra's sold out Comedy in the Park, with a huge crowd of 900 turning out to enjoy the highlights of the Bush Metals Ord Valley Muster.

The comedy line-up was hand-picked by the festival organisers to ensure the laughs were non-stop all night, and included comedians Steph Tisdall, Chris Franklin, Bev Killick and Fabian Woods.

It was a global audience at this year's Comedy in the Park, with guests The Kimberley Echo spoke with hailing from across Australia and as far away as Oregon in the US.

Hosted by the hilarious self-confessed yobbo Franklin, the crowd roared with laughter listening to his mischievous antics and epic stories, tapping into everyone's inner bogan.

From his flannelette shirt to his double plugger thongs, Franklin's "Hoganesque" style of comedy touched on the delicate issues of discovering he is one-sixteenth Aboriginal, booze and relationships.

"The audience was brilliant, we've had a great time up here, the Ord Valley Muster has looked after us well," Franklin said.

A proud Noongar Yamatji man, Woods had the crowd chuckling with funny tales of traditional names and dances.

Bold, brassy and brutally honest, Killick had everyone shedding tears of laughter with her rough talking and mama jokes about pilates loving joggy mothers and grotty teenage boys.

Tisdall ended the show with her self-deprecating humour that kept audience chuckling.

The crowd at this year's Comedy in the Park at the Ord Valley Muster. Picture: Ben Broadwith

Burney to blitz WA for Voice

DAN JERVIS-BARDY

Minister for Indigenous Australians Linda Burney will next month spend a full week criss-crossing WA to build grassroots support for the Voice to Parliament.

Ms Burney told an audience in Perth on Monday the people of WA had a "big job" in helping the referendum across the line.

In a speech to the Australian Institute of Aboriginal and Torres Strait Islander Studies summit, the minister said she would travel from "Kununurra to Claremont, from Perth to the Pilbara" to listen and talk to voters about the Voice to Parliament.

The rallying cry came as Canning MP Andrew Hastie launches a fundraising drive to position himself as a leading figure in the No campaign. The outcome in WA could be crucial because a majority Yes vote is needed in at least four of the six States to succeed.

Ms Burney recalled the shocking abuse she received when, as a State minister in 2010, she returned to the regional NSW town where she grew up.

Linda Burney

She revealed how a man, who she suspected went to the same school as her, said: "You know, Linda, the day you were born was one of the darkest days this town has ever seen."

Ms Burney said the "nasty comments" she received in the schoolyard were now directed at her on Twitter and Facebook.

She told the summit it was the First Nations people who were struggling to get their voices heard, which gave strength to keep prosecuting the case for a Voice to Parliament.

"This referendum is a once-in-a-lifetime opportunity," she said.

"We have within our grasp the chance to make a positive change that will last generations."

While Ms Burney and other Government ministers are upbeat about the referendum, polls suggest support is in decline.

The latest Newspoll showed fewer than half of voters intended to support the constitutional change.

Yes campaign director Dean Parkin said the "tightening in the numbers" was understandable after recent heated political debate.

"The conversation has been bogged in Canberra politics, in a fair bit of negativity there," Mr Parkin told Sky News.

"That phase is coming to an end and so that will allow us to increase the focus and get some more cut through on that conversation that's starting to grow significantly in communities."

3.92 Geotargeted Social Media Campaign – Community Information Sessions

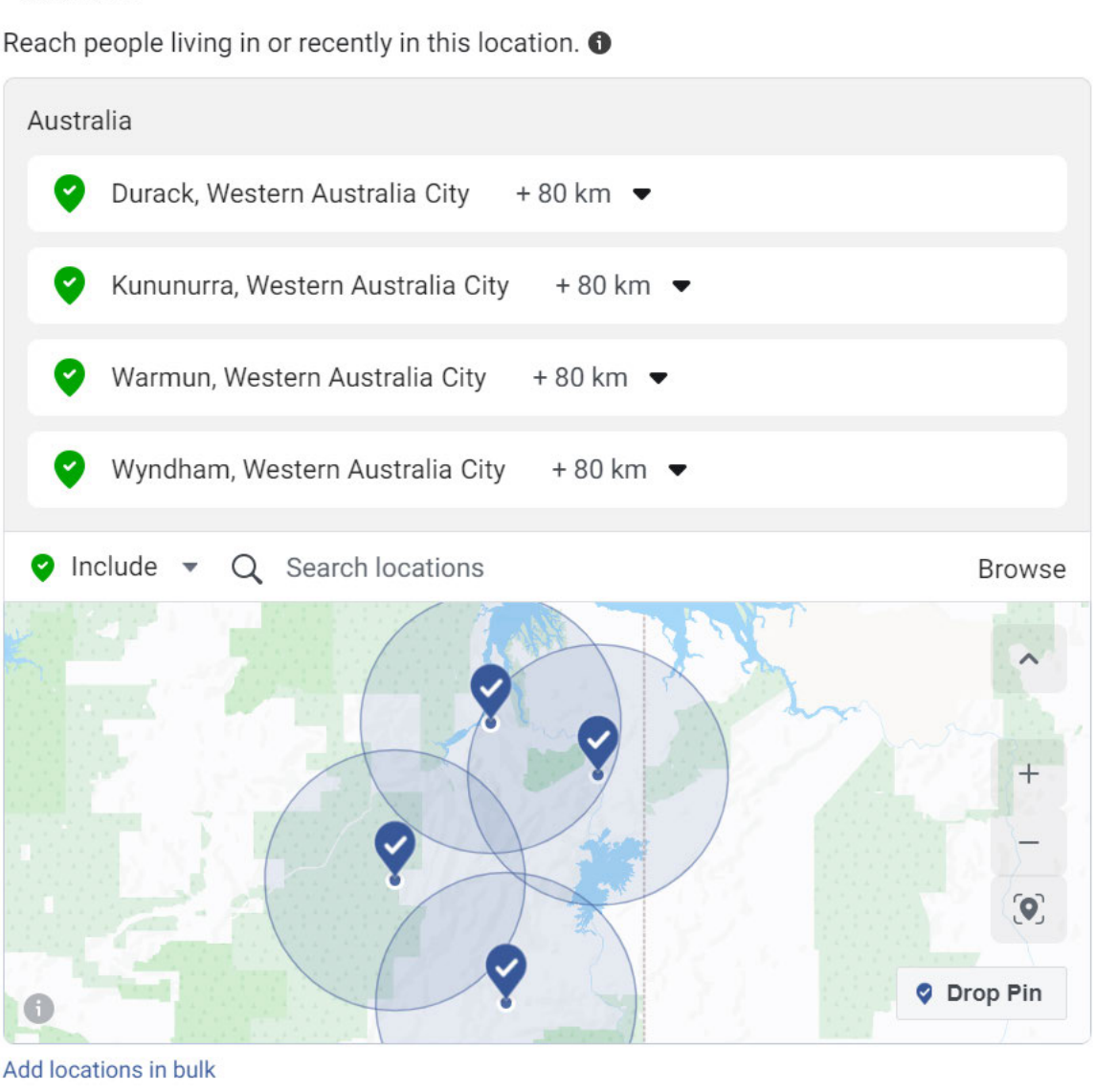
A Facebook information campaign was targeted in Kununurra, Broome and Derby to ensure it reached communities where the Consultation Information Sessions were planned to be held. Geotargeting points were also included for spaces between towns, cities and shires to ensure no areas were missed – you'll see below there are latitude and longitude references for those locations.

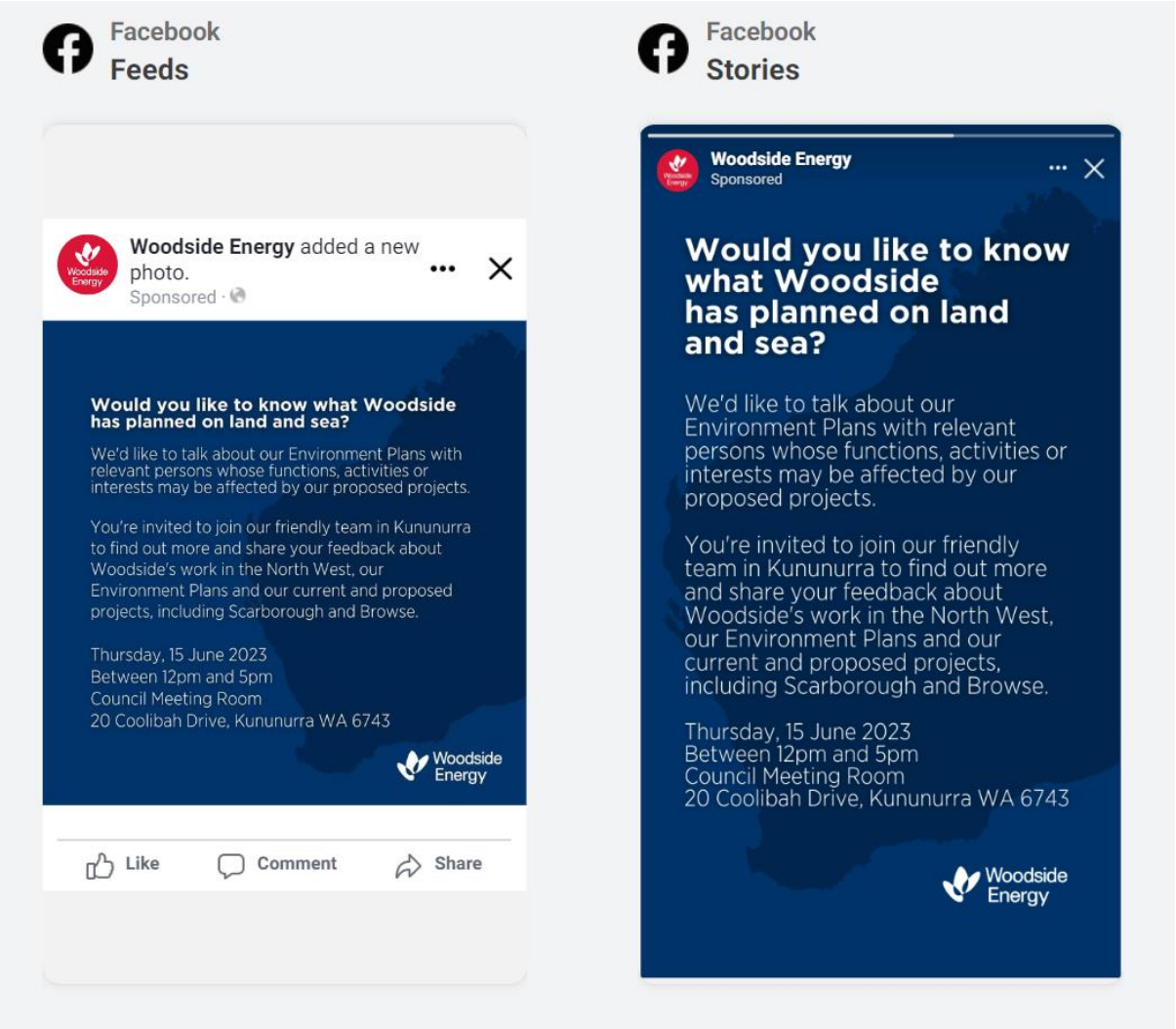
As at 3:30pm, Thursday 15 June 2023

Kununurra:

Dates: 8 June 2023 – 14 June 2023
Total reach: 12,228
Total impressions: 14,486
Geotargeting locations:

- 80km radius around Kununurra
- 80km radius around Durack
- 80km radius around Warmun
- 80km radius around Wyndham





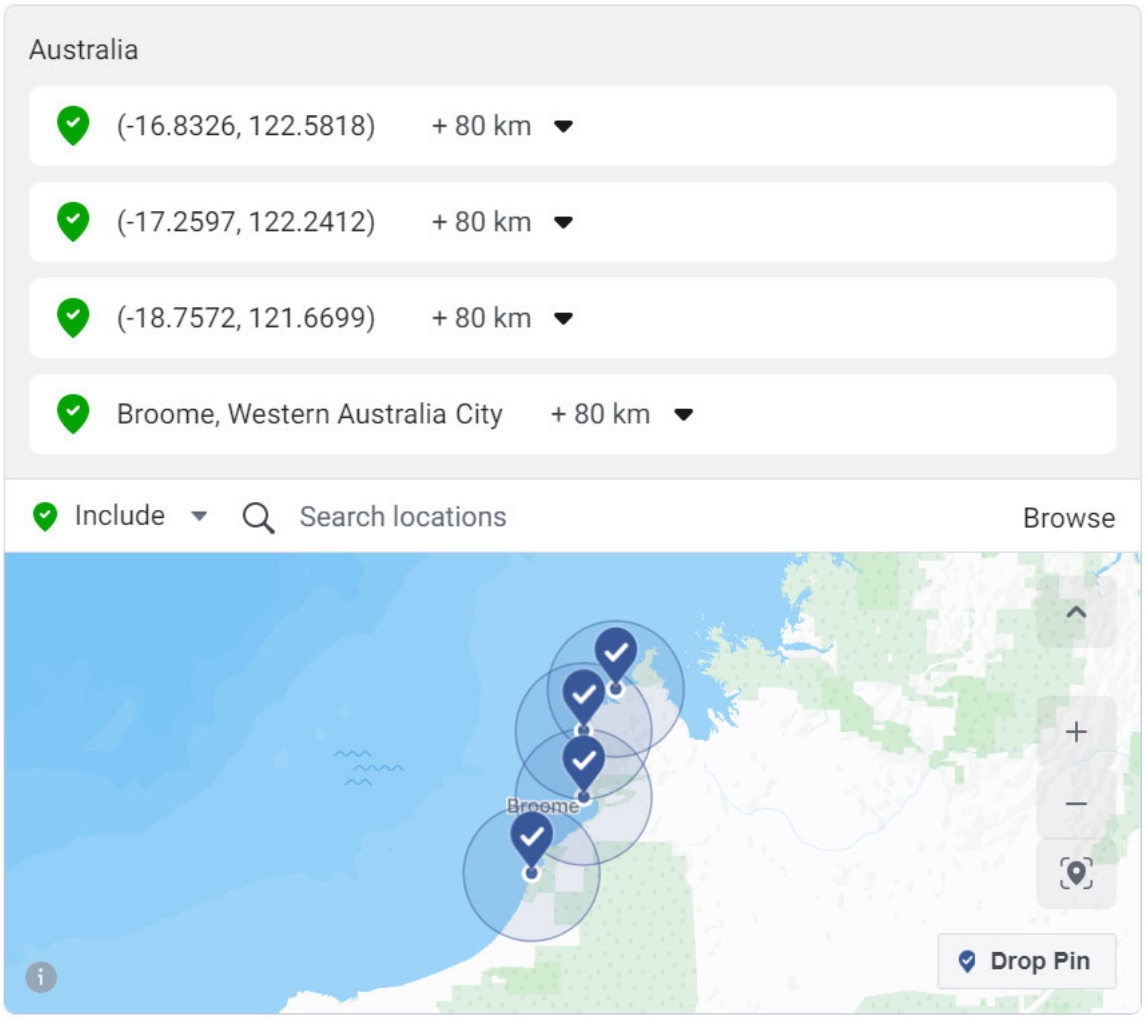
Broome:

Dates: 8 June 2023 – 12 June 2023
Total reach: 19,220
Total impressions: 22,665
Geotargeting locations:

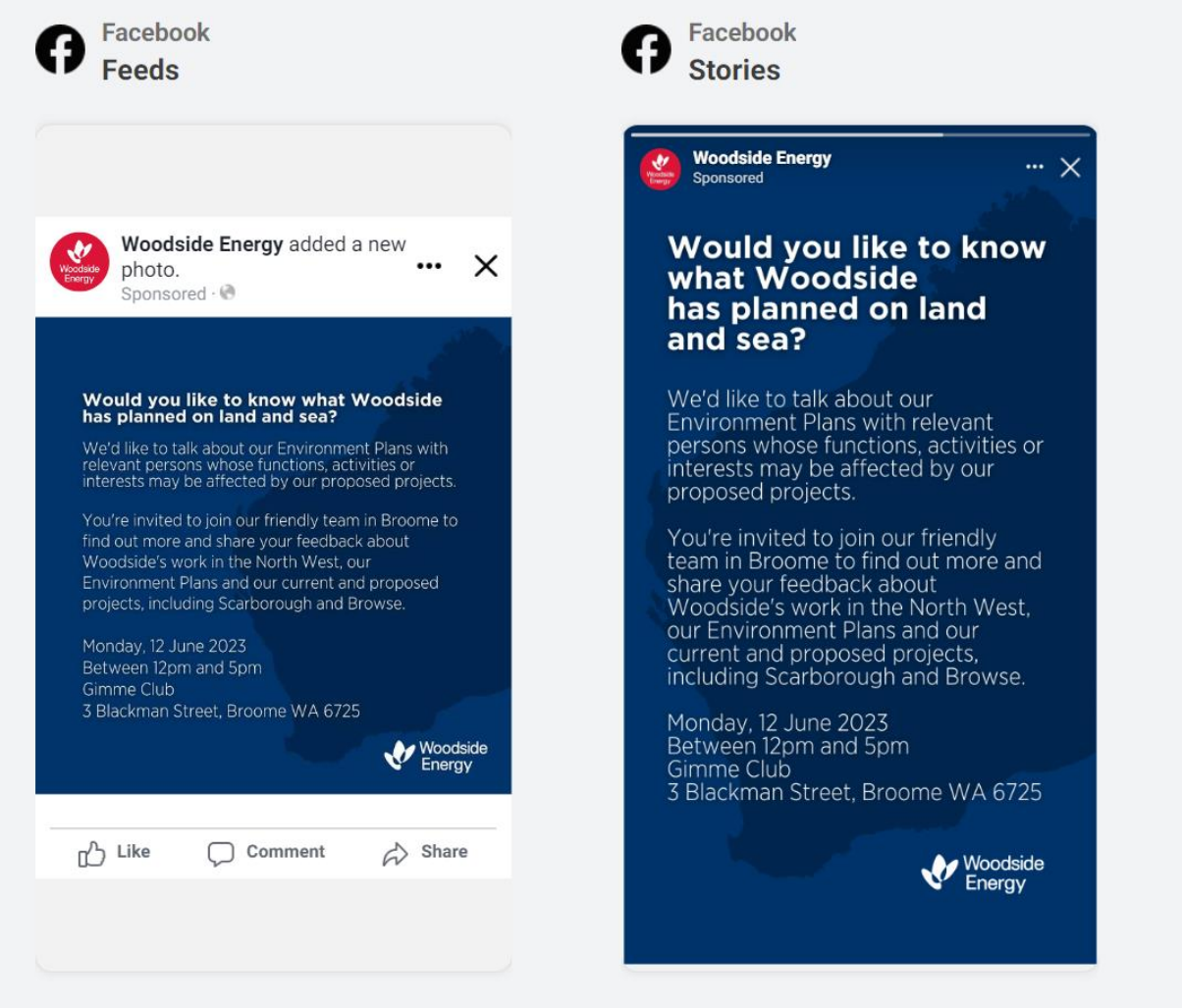
- 80km radius around Broome
- 80km radius around Dampier Peninsula
- 80km radius around area between Broome and Dampier Peninsula (Waterbank area)
- 80km radius around area south of Broome (Lagrange area)

*** Locations**

Reach people living in or recently in this location.



Add locations in bulk



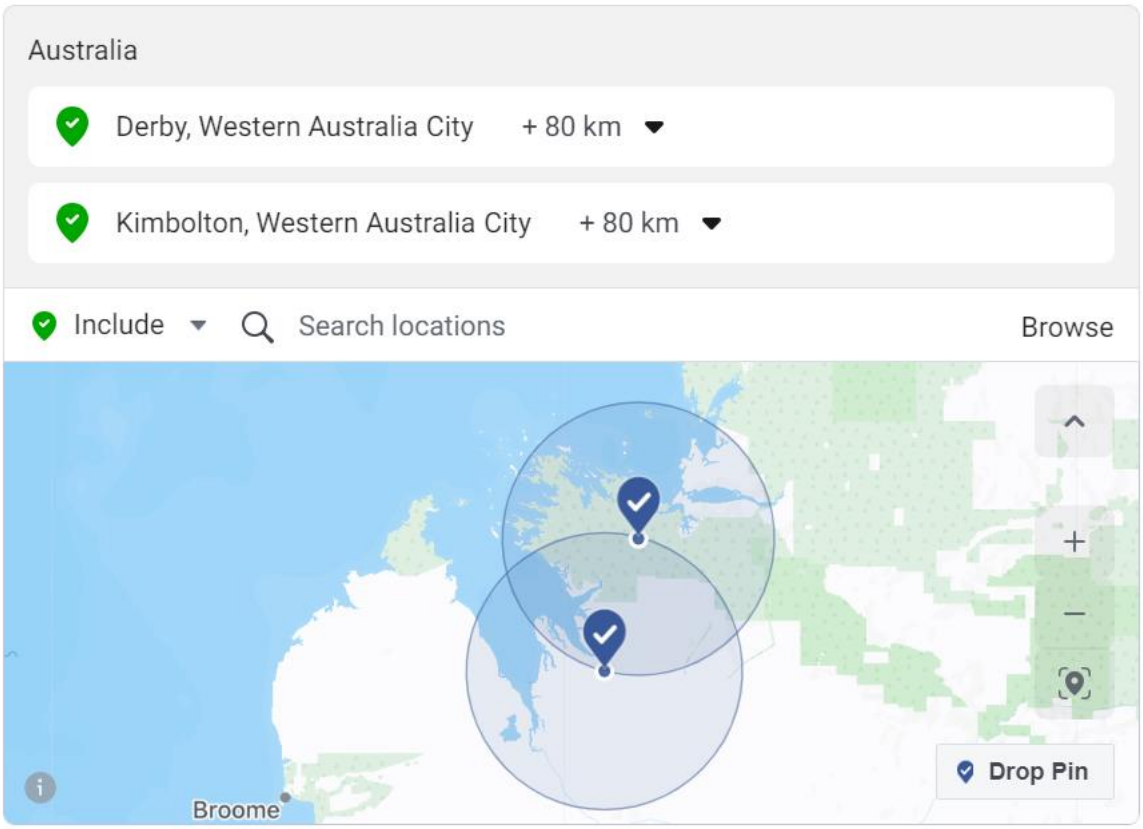
Derby:

Dates: 8 June 2023 – 13 June 2023
Total reach: 4,758
Total impressions: 5,773
Geotargeting locations:

- 80km radius around Derby
- 80km radius around Kimbolton

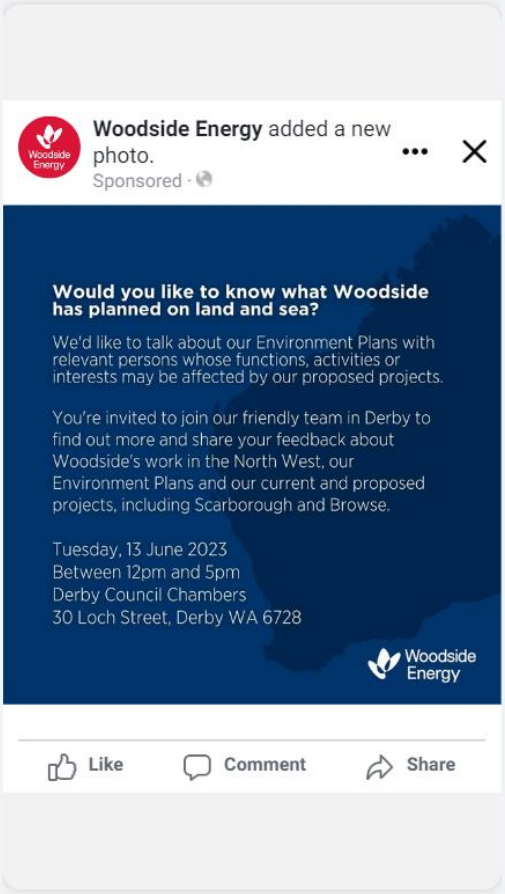
*** Locations**

Reach people living in or recently in this location.



Add locations in bulk

Facebook
Feeds



Facebook
Stories

APPENDIX H DEPARTMENT OF PLANNING, LANDS AND HERITAGE ABORIGINAL HERITAGE INQUIRY SYSTEM RESULTS

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

Search Criteria

No Registered Aboriginal Sites in Shapefile - PLA08_OA

Disclaimer

The *Aboriginal Heritage Act 1972* preserves all Aboriginal sites in Western Australia whether or not they are registered. Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you email the details to the Department at AboriginalHeritage@dplh.wa.gov.au and we will make every effort to rectify it as soon as possible.

Copyright

Coordinate Accuracy

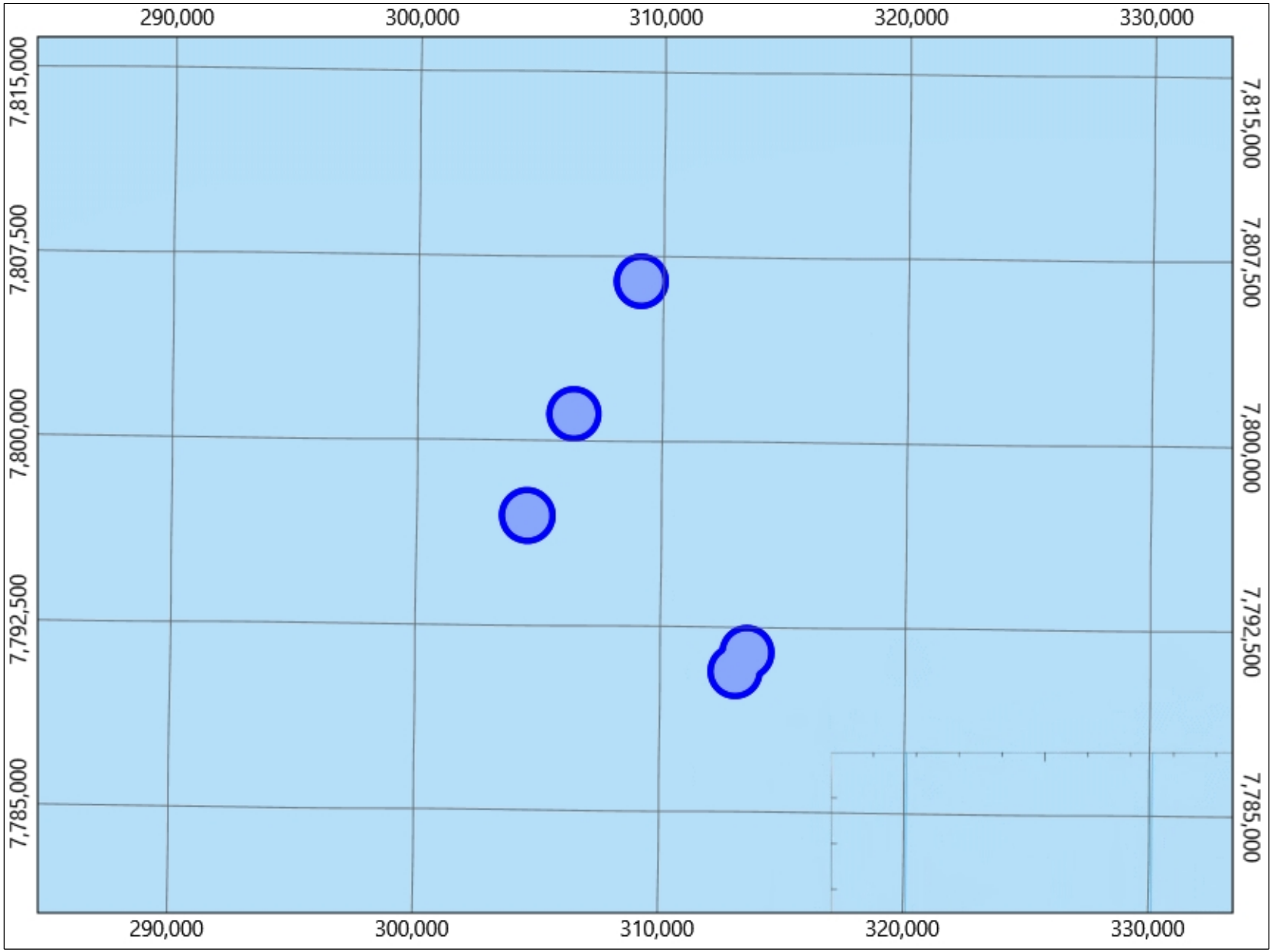
Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.

Department of Planning, Lands and Heritage

Aboriginal Heritage Inquiry System

Map of Registered Aboriginal Sites

For further important information on using this information please see the Department of Planning, Lands and Heritage's Disclaimer statement at https://www.wa.gov.au/disclaimer



Legend

- Registered Aboriginal Site
- Search Area
- Town
- Road
- River
- Local Government Authority

8.28 kilometres

Map Scale 1 : 251,000

MGA Zone 50 (GDA94)

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

Search Criteria

160 Registered Aboriginal Sites in Shapefile - PLA08Rev2_inwaterConsultationEMBA, PLA08Rev2_accumshoreline10_simplified, PLA08Rev2_accumshoreline100_simplified

Disclaimer

The Aboriginal Heritage Act 1972 preserves all Aboriginal sites in Western Australia whether or not they are registered. Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist.

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Copyright

Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.

Terminology (NB that some terminology has varied over the life of the legislation)

Place ID/Site ID: This a unique ID assigned by the Department of Planning, Lands and Heritage to the place.
Status:

- Registered Site: The place has been assessed as meeting Section 5 of the Aboriginal Heritage Act 1972.
- Other Heritage Place which includes:
  - Stored Data / Not a Site: The place has been assessed as not meeting Section 5 of the Aboriginal Heritage Act 1972.
  - Lodged: Information has been received in relation to the place, but an assessment has not been completed at this stage to determine if it meets Section 5 of the Aboriginal Heritage Act 1972.

Access and Restrictions:

- File Restricted = No: Availability of information that the Department of Planning, Lands and Heritage holds in relation to the place is not restricted in any way.
- File Restricted = Yes: Some of the information that the Department of Planning, Lands and Heritage holds in relation to the place is restricted if it is considered culturally sensitive. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the informants who provided the information. To request access please contact AboriginalHeritage@dplh.wa.gov.au.
- Boundary Restricted = No: Place location is shown as accurately as the information lodged with the Registrar allows.
- Boundary Restricted = Yes: To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km^2) provides a general indication of where the place is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- Restrictions:
  - No Restrictions: Anyone can view the information.
  - Male Access Only: Only males can view restricted information.
  - Female Access Only: Only females can view restricted information.

Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place. This has been replaced by the Place ID / Site ID.

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List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
628	CAMP THIRTEEN BURIAL	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	800392mE 7559449mN Zone 49 [Reliable]	P07434
873	MONTEBELLO IS: NOALA CAVE.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, BP Dating: 27,220 +/- 640	*Registered Knowledge Holder names available from DPLH	348188mE 7741053mN Zone 50 [Reliable]	P07287
919	ENDERBY IS.27: GOODWYN VIEW	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	452539mE 7724955mN Zone 50 [Unreliable]	P07279
926	MONTEBELLO IS: HAYNES CAVE.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit	*Registered Knowledge Holder names available from DPLH	348289mE 7741005mN Zone 50 [Reliable]	P07286
927	ENDERBY IS.16: WHITE BASIN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	453839mE 7723655mN Zone 50 [Unreliable]	P07233
929	ENDERBY IS.18: MANGROVE CK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPLH	451039mE 7720255mN Zone 50 [Unreliable]	P07235
930	ENDERBY IS.19: MANGROVE CK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	451139mE 7720655mN Zone 50 [Unreliable]	P07236
931	ENDERBY IS.20: MANGROVE CK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	450939mE 7720855mN Zone 50 [Unreliable]	P07237
932	ENDERBY IS.21: BACK QUARRY	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPLH	449839mE 7720155mN Zone 50 [Unreliable]	P07238
933	ENDERBY IS.22: TEREBRALIA	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	447239mE 7720355mN Zone 50 [Unreliable]	P07239
934	ENDERBY IS.23: GRINDING	No	No	No Gender Restrictions	Registered Site	Engraving, Grinding Patches / Grooves	*Registered Knowledge Holder names available from DPLH	446939mE 7720455mN Zone 50 [Unreliable]	P07240
936	ENDERBY IS.25: DINGHY MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	447539mE 7720155mN Zone 50 [Unreliable]	P07242

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
937	ENDERBY IS.26: NORTH POINT	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Quarry	*Registered Knowledge Holder names available from DPLH	453339mE 7725455mN Zone 50 [Unreliable]	P07243
966	ROSEMARY IS.11: CHOOKIE BAY	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	459339mE 7736355mN Zone 50 [Unreliable]	P07219
967	ROSEMARY IS.12: CHOOKIE BAY	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPLH	458839mE 7736655mN Zone 50 [Unreliable]	P07220
968	ROSEMARY IS.13	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	458839mE 7736955mN Zone 50 [Unreliable]	P07221
969	ROSEMARY IS.14	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	458939mE 7736855mN Zone 50 [Unreliable]	P07222
970	ROSEMARY IS.15: AIRSTRIP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	458739mE 7737855mN Zone 50 [Unreliable]	P07223
971	ROSEMARY IS.16: AIRSTRIP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Quarry	*Registered Knowledge Holder names available from DPLH	458539mE 7737855mN Zone 50 [Unreliable]	P07224
972	ROSEMARY IS.17: AIRSTRIP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Quarry	*Registered Knowledge Holder names available from DPLH	458139mE 7737655mN Zone 50 [Unreliable]	P07225
973	ROSEMARY IS.18: DEEP WATER	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	457039mE 7736655mN Zone 50 [Unreliable]	P07226
974	ROSEMARY IS.19: CHITON	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	456839mE 7736355mN Zone 50 [Unreliable]	P07227
975	ROSEMARY IS.20: HALFWAY CK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	456839mE 7735355mN Zone 50 [Unreliable]	P07228
977	ROSEMARY IS.22	No	No	No Gender Restrictions	Registered Site	Engraving, Man-Made Structure	*Registered Knowledge Holder names available from DPLH	458039mE 7734255mN Zone 50 [Unreliable]	P07230

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978	ROSEMARY IS.23: WADJURU R/H	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Grinding Patches / Grooves, Man-Made Structure, Midden / Scatter, Water Source	*Registered Knowledge Holder names available from DPLH	455839mE 7734355mN Zone 50 [Unreliable]	P07231
979	ROSEMARY IS.24: HUNGERFORD	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	456339mE 7734355mN Zone 50 [Unreliable]	P07232
6017	YARDIE CREEK CARAVAN BURIAL	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	191538mE 7576555mN Zone 50 [Unreliable]	P07115
6078	ROSEMARY ISLAND 10	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	456639mE 7734755mN Zone 50 [Reliable]	P07019
6079	ENDERBY ISLAND 12	No	No	No Gender Restrictions	Registered Site	Man-Made Structure	*Registered Knowledge Holder names available from DPLH	454739mE 7724505mN Zone 50 [Reliable]	P07020
6080	ENDERBY ISLAND 13	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	455239mE 7724555mN Zone 50 [Reliable]	P07021
6081	ENDERBY ISLAND 14	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	455239mE 7724155mN Zone 50 [Reliable]	P07022
6082	ENDERBY ISLAND 15	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	454839mE 7724255mN Zone 50 [Reliable]	P07023
6184	ENDERBY ISLAND 09: SE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Fish Trap, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	453689mE 7720355mN Zone 50 [Reliable]	P06917
6185	ENDERBY ISLAND 10: N.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter, Quarry, Camp	*Registered Knowledge Holder names available from DPLH	453839mE 7723555mN Zone 50 [Reliable]	P06918
6186	ENDERBY ISLAND 11: NE.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Engraving, Grinding Patches / Grooves, Man-Made Structure, Camp	*Registered Knowledge Holder names available from DPLH	456139mE 7724055mN Zone 50 [Reliable]	P06919
6187	ANGEL ISLAND: NW.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Grinding Patches / Grooves, Midden / Scatter, Rockshelter	*Registered Knowledge Holder names available from DPLH	479939mE 7736005mN Zone 50 [Reliable]	P06920

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6227	MALUS ISLAND.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Grinding Patches / Grooves, Man-Made Structure, Camp	*Registered Knowledge Holder names available from DPLH	466039mE 7731155mN Zone 50 [Reliable]	P06908
6228	WEST LEWIS ISLAND: SW.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Grinding Patches / Grooves, Midden / Scatter, Quarry, Camp, Water Source, Other: ?,(FORMER	*Registered Knowledge Holder names available from DPLH	459539mE 7722755mN Zone 50 [Reliable]	P06909
6325	COWERIE WELL	Yes	Yes	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P06642
6334	MUNDA STATION BURIAL 1	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	612139mE 7742155mN Zone 50 [Unreliable]	P06651
6335	MUNDA STATION BURIAL 2	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	613139mE 7742255mN Zone 50 [Unreliable]	P06652
6575	JINTA 1 MIDDEN	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P06370
6596	POINT ANDERSON.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Hunting Place, Shell, Water Source	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P06341
6616	CORAL BAY ACCESS 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	784342mE 7438148mN Zone 49 [Unreliable]	P06361
6617	BURUBARLADJI	Yes	Yes	No Gender Restrictions	Registered Site	Mythological	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P06362
6618	DEW TALU.	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Water Source	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P06363
6723	MULANDA 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	784742mE 7441148mN Zone 49 [Unreliable]	P06257
6724	MULANDA 3	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	784842mE 7441248mN Zone 49 [Unreliable]	P06258

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
6725	MULANDA 4	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPLH	785541mE 7441198mN Zone 49 [Unreliable]	P06259
6754	OSPREY BAY 6	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	792942mE 7538749mN Zone 49 [Reliable]	P06165
6755	OSPREY BAY INTERDUNAL 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	792342mE 7537149mN Zone 49 [Unreliable]	P06166
6756	OSPREY BAY INTERDUNAL 2	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPLH	792642mE 7537149mN Zone 49 [Reliable]	P06167
6757	BLOODWOOD CREEK MIDDEN 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	794942mE 7544549mN Zone 49 [Reliable]	P06168
6758	BLOODWOOD CREEK MIDDEN 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	794942mE 7545049mN Zone 49 [Reliable]	P06169
6759	BLOODWOOD CREEK MIDDEN 3	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	795142mE 7544949mN Zone 49 [Reliable]	P06170
6760	BLOODWOOD CREEK SHORELINE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	794942mE 7545249mN Zone 49 [Reliable]	P06171
6761	LOW POINT MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	802992mE 7566299mN Zone 49 [Reliable]	P06172
6762	MILYERING MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	801342mE 7561449mN Zone 49 [Reliable]	P06173
6763	YARDIE ROCKSHELTERS NORTH.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter	*Registered Knowledge Holder names available from DPLH	791542mE 7530249mN Zone 49 [Unreliable]	P06174
6764	CAMP 17 SOUTH MIDDENS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	799042mE 7555649mN Zone 49 [Unreliable]	P06175

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
6765	CAMP 17 NORTH MIDDENS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	799042mE 7555849mN Zone 49 [Unreliable]	P06176
6769	MULANDA 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	784550mE 7441050mN Zone 49 [Reliable]	P06180
6782	28 MILE CREEK NORTH 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	795242mE 7545949mN Zone 49 [Unreliable]	P06140
6784	MANDU MANDU CREEK SOUTH	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	796642mE 7548649mN Zone 49 [Unreliable]	P06142
6785	MANDU MANDU CREEK NORTH	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	796642mE 7548649mN Zone 49 [Unreliable]	P06143
6787	MANDU MANDU ROCKSHELTERS.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit, Other: ?	*Registered Knowledge Holder names available from DPLH	797242mE 7547449mN Zone 49 [Reliable]	P06145
6790	YARDIE CREEK SOUTH 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	788942mE 7527749mN Zone 49 [Reliable]	P06148
6791	YARDIE CREEK SOUTH 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	790342mE 7528149mN Zone 49 [Reliable]	P06149
6793	ROAD ALIGNMENT 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	794942mE 7541649mN Zone 49 [Unreliable]	P06151
6794	ROAD ALIGNMENT 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	794942mE 7541449mN Zone 49 [Unreliable]	P06152
6795	ROAD ALIGNMENT 3	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPLH	794842mE 7541249mN Zone 49 [Reliable]	P06153
6797	YARDIE WELL ROCKSHELTER.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Rockshelter, Arch Deposit, BP Dating: 10, 490+/-180BP, Other: ?	*Registered Knowledge Holder names available from DPLH	791542mE 7530449mN Zone 49 [Reliable]	P06155

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
6798	YARDIE INTERDUNAL SWALE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	789942mE 7528849mN Zone 49 [Reliable]	P06156
6799	YARDIE BEACH MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	789842mE 7529049mN Zone 49 [Reliable]	P06157
6800	OYSTER STACKS MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	797042mE 7549849mN Zone 49 [Reliable]	P06158
6801	NORTH T-BONE BAY	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	801666mE 7562059mN Zone 49 [Reliable]	P06159
6802	OSPREY BAY 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	792742mE 7538149mN Zone 49 [Reliable]	P06160
6803	OSPREY BAY 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	792742mE 7538049mN Zone 49 [Reliable]	P06161
6804	OSPREY BAY 3	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	792542mE 7537849mN Zone 49 [Reliable]	P06162
6805	OSPREY BAY 4	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	792342mE 7537049mN Zone 49 [Reliable]	P06163
6806	OSPREY BAY 5	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	792742mE 7538149mN Zone 49 [Reliable]	P06164
6827	CORAL BAY SKELETON	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	785143mE 7445149mN Zone 49 [Unreliable]	P06132
6966	ENDERBY ISLAND 08	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	455571mE 7723794mN Zone 50 [Unreliable]	P05955
7126	MESA CAMP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	798442mE 7554749mN Zone 49 [Unreliable]	P05792

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7205	TWIN HILL FISHING PLACE.	No	No	No Gender Restrictions	Registered Site	Hunting Place	*Registered Knowledge Holder names available from DPLH	787042mE 7467649mN Zone 49 [Unreliable]	P05709
7206	WEALJUGOO MIDDEN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Hunting Place	*Registered Knowledge Holder names available from DPLH	776584mE 7504740mN Zone 49 [Reliable]	P05710
7211	MAUD LANDING.	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial, Camp, Meeting Place, Water Source	*Registered Knowledge Holder names available from DPLH	784292mE 7441048mN Zone 49 [Unreliable]	P05715
7254	SANDY BAY NORTH	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	793442mE 7539949mN Zone 49 [Reliable]	P05652
7265	LAKE SIDE VIEW	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	800942mE 7560549mN Zone 49 [Reliable]	P05664
7298	YARDIE CREEK ROCKSHELTERS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	790635mE 7529704mN Zone 49 [Reliable]	P05644
7299	YARDIE CREEK	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	789642mE 7528649mN Zone 49 [Unreliable]	P05645
7300	MANDU MANDU CK ROCKSHELTERS	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P05646
7301	CAMP 17 CREEK EAST	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	800342mE 7555749mN Zone 49 [Reliable]	P05647
7303	TULKI WELL MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	798642mE 7554249mN Zone 49 [Reliable]	P05649
7304	PILGRAMUNNA BAY MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	794642mE 7543349mN Zone 49 [Reliable]	P05650
7305	MANGROVE BAY.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Hunting Place	*Registered Knowledge Holder names available from DPLH	804142mE 7568149mN Zone 49 [Reliable]	P05651

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7784	BUNNEENYA.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Water Source	*Registered Knowledge Holder names available from DPLH	780640mE 7783456mN Zone 50 [Unreliable]	P05053
7785	WALUBIDI-MARINGDJINE.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Water Source	*Registered Knowledge Holder names available from DPLH	781090mE 7783956mN Zone 50 [Unreliable]	P05054
7899	MALUS ISLAND	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	466439mE 7731055mN Zone 50 [Reliable]	P04947
8300	CORAL BAY	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	784442mE 7430398mN Zone 49 [Unreliable]	P04352
8301	NINGALOO STATION	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	775891mE 7493649mN Zone 49 [Unreliable]	P04353
8920	ONSLOW 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	304068mE 7606217mN Zone 50 [Reliable]	P03563
8927	TEN MILE WELL BURIAL	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	783642mE 7480649mN Zone 49 [Reliable]	P03570
9735	GIDLEY PASSAGE	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	481639mE 7737655mN Zone 50 [Unreliable]	P02447
9737	ENDERBY ISLAND 06: BOILER B	No	No	No Gender Restrictions	Registered Site	Engraving, Quarry	*Registered Knowledge Holder names available from DPLH	445139mE 7720655mN Zone 50 [Reliable]	P02449
10381	VLAMING HEAD	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P01799
11328	GAP WELL	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	458639mE 7736755mN Zone 50 [Unreliable]	P00836
11400	YARDIE CREEK STATION	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	191638mE 7576655mN Zone 50 [Unreliable]	P00750

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
11401	5 Mile Well (Cape Range)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Painting, Quarry, Arch Deposit	*Registered Knowledge Holder names available from DPLH	198638mE 7583655mN Zone 50 [Unreliable]	P00751
11458	NINGALOO (near)	No	No	No Gender Restrictions	Registered Site	Painting	*Registered Knowledge Holder names available from DPLH	781642mE 7511649mN Zone 49 [Unreliable]	P00701
11698	ANGELA COVE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving	*Registered Knowledge Holder names available from DPLH	481639mE 7739655mN Zone 50 [Unreliable]	P00457
11699	GIDLEY BAY, GIDLEY ISLAND.	No	No	No Gender Restrictions	Registered Site	Engraving, Camp	*Registered Knowledge Holder names available from DPLH	481889mE 7738655mN Zone 50 [Unreliable]	P00458
11713	LAST ENCOUNTER COVE.	No	No	No Gender Restrictions	Registered Site	Engraving, Camp	*Registered Knowledge Holder names available from DPLH	481839mE 7738155mN Zone 50 [Unreliable]	P00473
11714	GIDLEY ISLAND	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	482639mE 7740655mN Zone 50 [Unreliable]	P00474
11715	RIM ROCK GORGE.	No	No	No Gender Restrictions	Registered Site	Engraving, Camp	*Registered Knowledge Holder names available from DPLH	481639mE 7739655mN Zone 50 [Unreliable]	P00475
11729	NGARLUMA POINT, GIDLEY IS.	No	No	No Gender Restrictions	Registered Site	Engraving, Man-Made Structure	*Registered Knowledge Holder names available from DPLH	479410mE 7738492mN Zone 50 [Reliable]	P00434
11730	MORS HILL, GIDLEY ISLAND.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Skeletal Material / Burial, Shell	*Registered Knowledge Holder names available from DPLH	481596mE 7741122mN Zone 50 [Unreliable]	P00435
11735	ANGEL ISLAND 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving	*Registered Knowledge Holder names available from DPLH	480639mE 7734655mN Zone 50 [Unreliable]	P00441
11767	FISH POINT, GIDLEY ISLAND	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	479039mE 7736305mN Zone 50 [Unreliable]	P00418
11771	ENDERBY ISLAND 05	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	455639mE 7724155mN Zone 50 [Unreliable]	P00368

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
11772	ROSEMARY ISLAND 09	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	456439mE 7733905mN Zone 50 [Unreliable]	P00369
11773	ROSEMARY ISLAND 08	No	No	No Gender Restrictions	Registered Site	Engraving, Grinding Patches / Grooves, Man-Made Structure	*Registered Knowledge Holder names available from DPLH	456389mE 7734455mN Zone 50 [Unreliable]	P00370
11774	ROSEMARY ISLAND 07	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	457639mE 7734455mN Zone 50 [Unreliable]	P00371
11775	ROSEMARY ISLAND 06	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	457839mE 7737256mN Zone 50 [Unreliable]	P00372
11776	ROSEMARY ISLAND 04.	No	No	No Gender Restrictions	Registered Site	Engraving, Camp	*Registered Knowledge Holder names available from DPLH	458439mE 7735755mN Zone 50 [Unreliable]	P00373
11777	ROSEMARY ISLAND 03	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	458589mE 7736455mN Zone 50 [Unreliable]	P00374
11789	ROSEMARY ISLAND 01	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter, Quarry	*Registered Knowledge Holder names available from DPLH	458889mE 7737155mN Zone 50 [Unreliable]	P00386
11818	ROSEMARY ISLAND 02	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	458439mE 7736455mN Zone 50 [Unreliable]	P00362
11819	ROSEMARY ISLAND 05	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	458639mE 7736355mN Zone 50 [Unreliable]	P00363
11820	ENDERBY ISLAND 01	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	445137mE 7725156mN Zone 50 [Unreliable]	P00364
11821	ENDERBY ISLAND 02	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	448939mE 7722555mN Zone 50 [Reliable]	P00365
11822	ENDERBY ISLAND 03	No	No	No Gender Restrictions	Registered Site	Engraving	*Registered Knowledge Holder names available from DPLH	452655mE 7719941mN Zone 50 [Unreliable]	P00366

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
11823	ENDERBY ISLAND 04	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Engraving, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	452539mE 7724455mN Zone 50 [Reliable]	P00367
11885	PADJARI MANU CAVE (Formerly Bunbury Cave)	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Engraving, Painting, Arch Deposit, Water Source	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P00267
12071	SOUTH WEST CREEK 4.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Engraving, Man-Made Structure, Midden / Scatter, Arch Deposit, Camp, Other: PA 25	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	P00090
12410	LINTAPITJIN/LOT 2065PORT DR	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Midden / Scatter, Mythological	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02819
12469	GUNJI CEREMONIAL GROUND	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02773
12552	CLEMENTSON ST. SITE COMPLEX	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02700
12904	RURRJAMAN.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Plant Resource, Water Source, Other: Part of failed PA 139. ACMC Res 11/89	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02310
12906	WILLIES CREEK COMPLEX.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Midden / Scatter, Mythological, Skeletal Material / Burial, Camp, Hunting Place, Named Place, Water Source	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02312
12919	CABLE BEACH 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPLH	414737mE 8013361mN Zone 51 [Reliable]	K02325
12920	CABLE BEACH 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPLH	413737mE 8012661mN Zone 51 [Reliable]	K02326
12922	JUNGKURR	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02328

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
12923	NGAKALYALYA	Yes	Yes	No Gender Restrictions	Registered Site	Mythological, Other: Part of Failed PA 143. ACMC Res 11/89	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02329
12965	CAPE KERAUDREN 3.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02266
12967	CAPE KERAUDREN 5	Yes	Yes	No Gender Restrictions	Registered Site	Midden / Scatter, Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02268
13350	FRAZIER DOWNS BEACH	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	357192mE 7924475mN Zone 51 [Reliable]	K01902
13465	WIRGANJU GROUND	Yes	Yes	No Gender Restrictions	Registered Site		*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K01694
14432	CAPE JAUBERT	No	No	No Gender Restrictions	Registered Site	Fish Trap	*Registered Knowledge Holder names available from DPLH	348472mE 7903559mN Zone 51 [Reliable]	K00650
14434	ADMIRAL BAY	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Fish Trap, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	357548mE 7925925mN Zone 51 [Reliable]	K00652
14442	LAGRANGE.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Water Source	*Registered Knowledge Holder names available from DPLH	371637mE 7936661mN Zone 51 [Unreliable]	K00660
14609	CABLE BEACH 3.	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Mythological, Camp, Other: Part of Failed PA 143.ACMC Res 11/89	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K00496
14980	DECEPTION BAY	No	No	No Gender Restrictions	Registered Site	Painting	*Registered Knowledge Holder names available from DPLH	645138mE 8265161mN Zone 51 [Unreliable]	K00182
17193	Ningaloo Station	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	775891mE 7489149mN Zone 49 [Unreliable]	
17448	CHUGORI ROCKHOLE	No	No	No Gender Restrictions	Registered Site	Ceremonial, Grinding Patches / Grooves, Man-Made Structure, Mythological, Water Source	*Registered Knowledge Holder names available from DPLH	193492mE 7579323mN Zone 50 [Reliable]	

Aboriginal Heritage Inquiry System

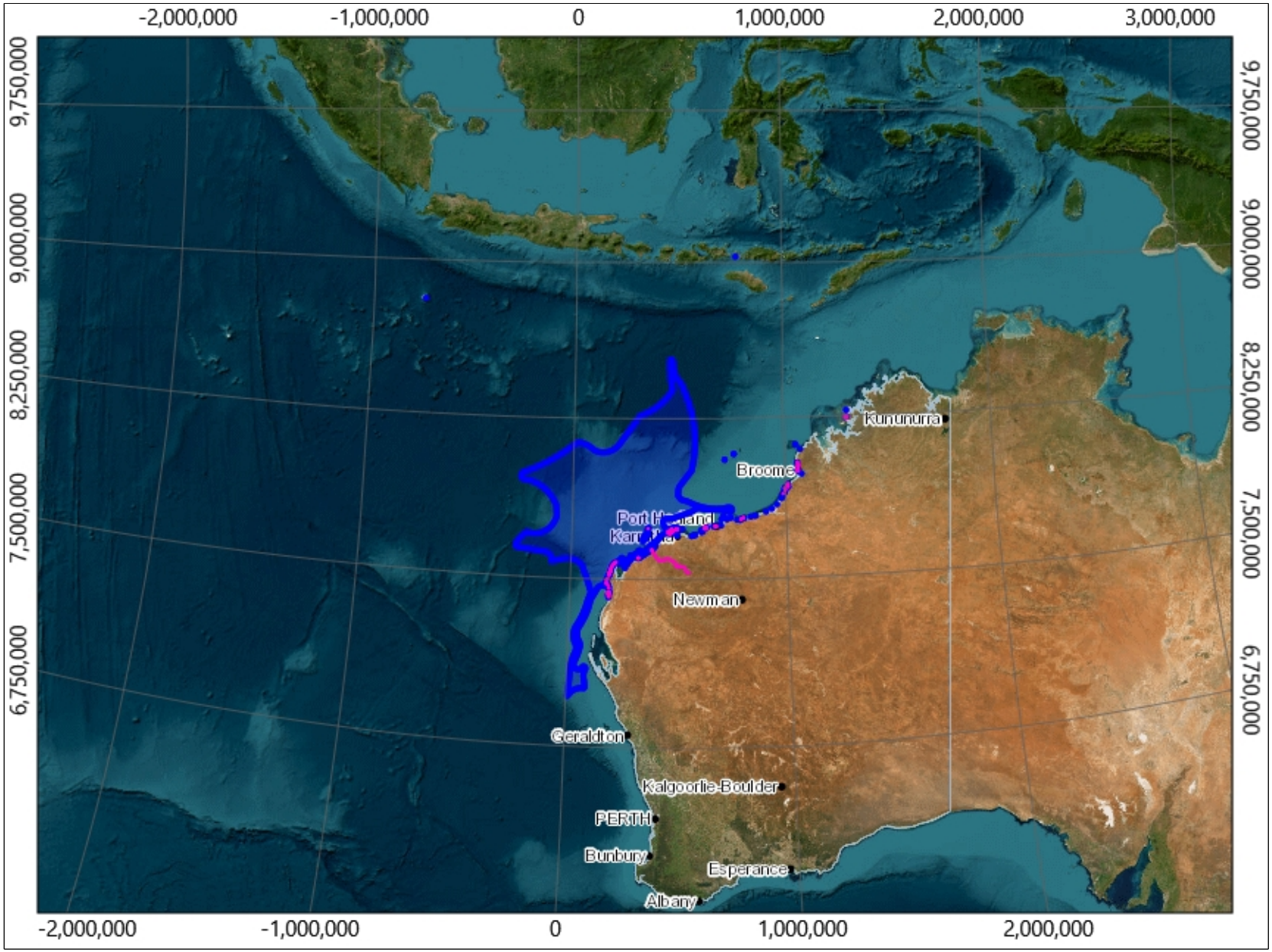
List of Registered Aboriginal Sites

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
21512	Railway 4	No	No	No Gender Restrictions	Registered Site	Midden / Scatter	*Registered Knowledge Holder names available from DPLH	662797mE 7754831mN Zone 50 [Reliable]	
21526	Robe River (Gadjiwura)	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Ceremonial, Modified Tree, Mythological, Camp, Named Place, Other: sacred place	*Registered Knowledge Holder names available from DPLH	440442mE 7593651mN Zone 50 [Reliable]	
22874	Marapikurrinya Yintha Site	No	No	No Gender Restrictions	Registered Site	Mythological, Named Place	*Registered Knowledge Holder names available from DPLH	664961mE 7751743mN Zone 50 [Reliable]	
25665	FI 08-01	No	No	No Gender Restrictions	Registered Site	Midden / Scatter, Shell	*Registered Knowledge Holder names available from DPLH	662501mE 7754667mN Zone 50 [Reliable]	
38695	Mandu Mandu Creek South Rockshelter 8 (MMCSR8)	No	No		Registered Site	Artefacts / Scatter, Rockshelter	*Registered Knowledge Holder names available from DPLH	796803mE 7546076mN Zone 49 [Reliable]	

Department of Planning, Lands and Heritage

Aboriginal Heritage Inquiry System

Map of Registered Aboriginal Sites



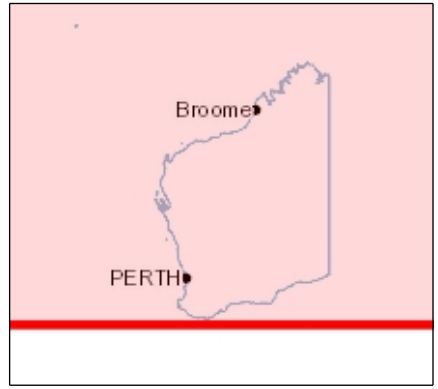
Legend

- Registered Aboriginal Site
- Search Area
- Town
- Road
- River
- Local Government Authority

946.94 kilometres

Map Scale 1 : 28,700,000

MGA Zone 50 (GDA94)



Aboriginal Heritage Inquiry System

List of Other Heritage Places

Search Criteria

No Other Heritage Places in Shapefile - PLA08_OA

Disclaimer

The Aboriginal Heritage Act 1972 preserves all Aboriginal sites in Western Australia whether or not they are registered. Aboriginal sites exist that are not recorded on the Register of Aboriginal Sites, and some registered sites may no longer exist.

The information provided is made available in good faith and is predominately based on the information provided to the Department of Planning, Lands and Heritage by third parties. The information is provided solely on the basis that readers will be responsible for making their own assessment as to the accuracy of the information. If you find any errors or omissions in our records, including our maps, it would be appreciated if you email the details to the Department at AboriginalHeritage@dplh.wa.gov.au and we will make every effort to rectify it as soon as possible.

Copyright

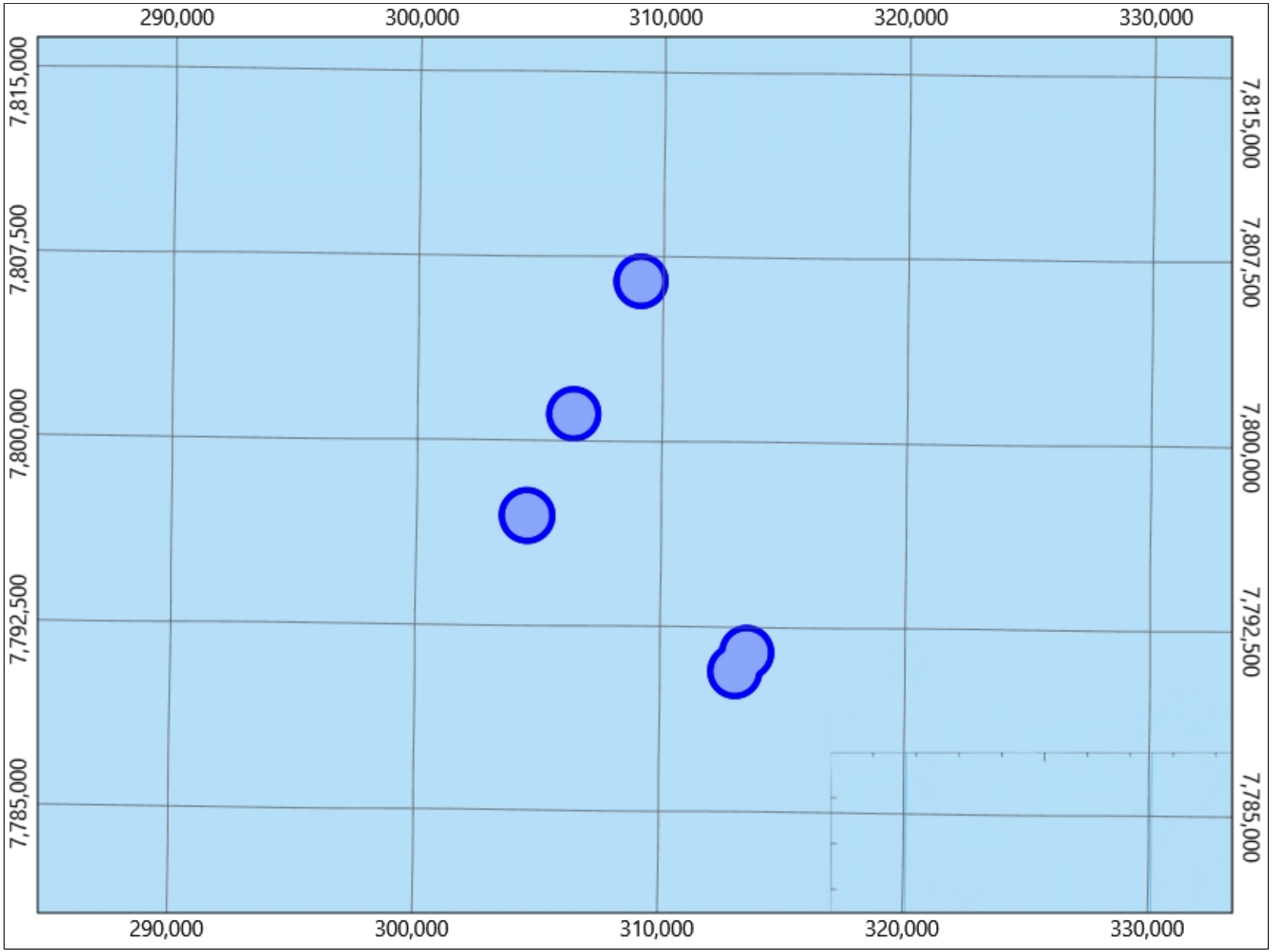
Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.

Department of Planning, Lands and Heritage

Aboriginal Heritage Inquiry System

Map of Other Heritage Places



Legend

- Other Heritage Place
- Search Area
- Town
- Road
- River
- Local Government Authority

8.28 kilometres

Map Scale 1 : 251,000

MGA Zone 50 (GDA94)

Aboriginal Heritage Inquiry System

List of Other Heritage Places

Search Criteria

76 Other Heritage Places in Shapefile - PLA08Rev2_inwaterConsultationEMBA, PLA08Rev2_accumshoreline10_simplified, PLA08Rev2_accumshoreline100_simplified

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Copyright

Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.

Terminology (NB that some terminology has varied over the life of the legislation)

Place ID/Site ID: This a unique ID assigned by the Department of Planning, Lands and Heritage to the place.
Status:

- Registered Site: The place has been assessed as meeting Section 5 of the Aboriginal Heritage Act 1972.
- Other Heritage Place which includes:
  - Stored Data / Not a Site: The place has been assessed as not meeting Section 5 of the Aboriginal Heritage Act 1972.
  - Lodged: Information has been received in relation to the place, but an assessment has not been completed at this stage to determine if it meets Section 5 of the Aboriginal Heritage Act 1972.

Access and Restrictions:

- File Restricted = No: Availability of information that the Department of Planning, Lands and Heritage holds in relation to the place is not restricted in any way.
- File Restricted = Yes: Some of the information that the Department of Planning, Lands and Heritage holds in relation to the place is restricted if it is considered culturally sensitive. This information will only be made available if the Department of Planning, Lands and Heritage receives written approval from the informants who provided the information. To request access please contact AboriginalHeritage@dplh.wa.gov.au.
- Boundary Restricted = No: Place location is shown as accurately as the information lodged with the Registrar allows.
- Boundary Restricted = Yes: To preserve confidentiality the exact location and extent of the place is not displayed on the map. However, the shaded region (generally with an area of at least 4km²) provides a general indication of where the place is located. If you are a landowner and wish to find out more about the exact location of the place, please contact the Department of Planning, Lands and Heritage.
- Restrictions:
  - No Restrictions: Anyone can view the information.
  - Male Access Only: Only males can view restricted information.
  - Female Access Only: Only females can view restricted information.

Legacy ID: This is the former unique number that the former Department of Aboriginal Sites assigned to the place. This has been replaced by the Place ID / Site ID.

Aboriginal Heritage Inquiry System

List of Other Heritage Places

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
432	RED POINT	No	No	No Gender Restrictions	Lodged	Mythological	*Registered Knowledge Holder names available from DPLH	413665mE 8012612mN Zone 51 [Reliable]	K02905
599	NORWEGIAN BAY 2 #Duplicate of ID 7037	No	No	No Gender Restrictions	Stored Data / Not a Site	Artefacts / Scatter, Midden / Scatter, Skeletal Material / Burial, Other: 11462 is also a duplicate of this site.	*Registered Knowledge Holder names available from DPLH	773421mE 7500769mN Zone 49 [Reliable]	P07441
883	BARROW ISLAND 01	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	334950mE 7692667mN Zone 50 [Reliable]	P07291
884	BARROW ISLAND 02	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	331673mE 7691987mN Zone 50 [Reliable]	P07292
885	BARROW ISLAND 03	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	326224mE 7689495mN Zone 50 [Reliable]	P07293
886	BARROW ISLAND 04	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	325227mE 7694610mN Zone 50 [Reliable]	P07294
887	BARROW ISLAND 05	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	337603mE 7713680mN Zone 50 [Reliable]	P07295
888	BARROW ISLAND 06 A-F	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	337202mE 7710824mN Zone 50 [Unreliable]	P07296
889	BARROW ISLAND 07	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	337957mE 7709368mN Zone 50 [Reliable]	P07297
890	BARROW ISLAND 08	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	326487mE 7695727mN Zone 50 [Reliable]	P07298
891	BARROW ISLAND 09	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	326270mE 7691185mN Zone 50 [Reliable]	P07299
892	BARROW ISLAND 10	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	331892mE 7691082mN Zone 50 [Reliable]	P07300

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
893	BARROW ISLAND 11	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	326145mE 7695108mN Zone 50 [Reliable]	P07301
894	BARROW ISLAND 12	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	326347mE 7699332mN Zone 50 [Reliable]	P07302
928	ENDERBY IS.17: BLUFF POINT	No	No	No Gender Restrictions	Stored Data / Not a Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	452739mE 7720055mN Zone 50 [Unreliable]	P07234
935	ENDERBY IS.24: LIMESTONE	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Man-Made Structure	*Registered Knowledge Holder names available from DPLH	447239mE 7720455mN Zone 50 [Unreliable]	P07241
976	ROSEMARY IS.21: HALFWAY CK	No	No	No Gender Restrictions	Lodged	Man-Made Structure	*Registered Knowledge Holder names available from DPLH	457239mE 7735555mN Zone 50 [Unreliable]	P07229
1111	LEGENDRE 08.	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Man-Made Structure, Shell	*Registered Knowledge Holder names available from DPLH	490039mE 7743855mN Zone 50 [Unreliable]	P07201
6783	28 MILE CREEK NORTH 2	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	795452mE 7546377mN Zone 49 [Reliable]	P06141
6786	LAKESIDE COASTAL PLAIN	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	801642mE 7560649mN Zone 49 [Unreliable]	P06144
6789	TURQUOISE BAY NORTH	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	798642mE 7554649mN Zone 49 [Unreliable]	P06147
6796	ROAD ALIGNMENT 4	No	No	No Gender Restrictions	Stored Data / Not a Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	792442mE 7533369mN Zone 49 [Reliable]	P06154
6965	ENDERBY ISLAND 07	No	No	No Gender Restrictions	Lodged	Midden / Scatter	*Registered Knowledge Holder names available from DPLH	451639mE 7720655mN Zone 50 [Unreliable]	P05954
7208	MILYERING ROCKS.	No	No	No Gender Restrictions	Lodged	Hunting Place	*Registered Knowledge Holder names available from DPLH	800842mE 7560649mN Zone 49 [Reliable]	P05712

Aboriginal Heritage Inquiry System

List of Other Heritage Places

ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
7212	GREYLING CLIFFS.	No	No	No Gender Restrictions	Lodged	Hunting Place	*Registered Knowledge Holder names available from DPLH	788642mE 7447048mN Zone 49 [Unreliable]	P05716
7302	CAMP 17 CREEK ROCKSHELTERS	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	800042mE 7555249mN Zone 49 [Unreliable]	P05648
8946	YARDIE CREEK	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	790842mE 7527849mN Zone 49 [Reliable]	P03537
8951	BARROW ISLAND	No	No	No Gender Restrictions	Stored Data / Not a Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	335137mE 7705156mN Zone 50 [Unreliable]	P03542
10099	POINT MAUD, CORAL BAY	No	No	No Gender Restrictions	Lodged	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	783342mE 7440448mN Zone 49 [Unreliable]	P02064
10595	CORAL BAY BURIAL	No	No	No Gender Restrictions	Lodged	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	783942mE 7429848mN Zone 49 [Unreliable]	P01594
11403	THEVENARD ISLAND	No	No	No Gender Restrictions	Stored Data / Not a Site	Midden / Scatter	*Registered Knowledge Holder names available from DPLH	292638mE 7625655mN Zone 50 [Unreliable]	P00753
11442	COWERIE WELL	No	No	No Gender Restrictions	Lodged	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	613439mE 7742955mN Zone 50 [Unreliable]	P00738
11801	COASTAL MIDDEN, 5 MILE	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPLH	195638mE 7582655mN Zone 50 [Unreliable]	P00345
12196	LANGAWARRU	No	No	No Gender Restrictions	Lodged	Mythological	*Registered Knowledge Holder names available from DPLH	647637mE 8267661mN Zone 51 [Unreliable]	K00024
12886	ILLANGARAMI	Yes	Yes	No Gender Restrictions	Lodged	Mythological	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K02345
12962	NEW COOTENBRAND WELL 2	No	No	No Gender Restrictions	Lodged	Midden / Scatter	*Registered Knowledge Holder names available from DPLH	794040mE 7787456mN Zone 50 [Reliable]	K02263

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
13733	JINJAGURIN / NUNDUNARR.	Yes	Yes	No Gender Restrictions	Lodged	Mythological, Water Source	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	K01384
13734	LALUJADU.	No	No	No Gender Restrictions	Lodged	Mythological, Other: LIVING SOAK	*Registered Knowledge Holder names available from DPLH	371637mE 7934661mN Zone 51 [Unreliable]	K01385
17755	CAPE FREZIER (CHINAMAN'S BEACH)	No	No	No Gender Restrictions	Lodged	Fish Trap	*Registered Knowledge Holder names available from DPLH	353561mE 7913389mN Zone 51 [Reliable]	
17850	BAMBOO LANDING	No	No	No Gender Restrictions	Lodged	Other: Fish Trap?	*Registered Knowledge Holder names available from DPLH	371008mE 7935868mN Zone 51 [Reliable]	
20621	Bedout Island	No	No	No Gender Restrictions	Lodged	Mythological, Natural Feature, Other: Island	*Registered Knowledge Holder names available from DPLH	720197mE 7832653mN Zone 50 [Reliable]	
21439	Cardabia Station Waterhole	No	No	No Gender Restrictions	Lodged	Water Source	*Registered Knowledge Holder names available from DPLH	787283mE 7443156mN Zone 49 [Unreliable]	
21468	Sandy Point Rockshelter	No	No	No Gender Restrictions	Lodged	Man-Made Structure, Rockshelter, Arch Deposit, Shell	*Registered Knowledge Holder names available from DPLH	786694mE 7521436mN Zone 49 [Reliable]	
21503	Gidley Island RAMMC9	No	No	No Gender Restrictions	Lodged	Engraving	*Registered Knowledge Holder names available from DPLH	482110mE 7740835mN Zone 50 [Unreliable]	
22943	Flacourt Bay 01	No	No	No Gender Restrictions	Lodged	Rockshelter	*Registered Knowledge Holder names available from DPLH	331540mE 7705613mN Zone 50 [Reliable]	
25003	Minhakurrpanha	No	No	No Gender Restrictions	Stored Data / Not a Site	Ceremonial, Mythological, Camp, Meeting Place, Named Place	*Registered Knowledge Holder names available from DPLH	662566mE 7753884mN Zone 50 [Reliable]	
25076	Norwegian Bay Burial 01/2008	No	No	No Gender Restrictions	Lodged	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	774175mE 7499790mN Zone 49 [Reliable]	
29549	Boodie Soak	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	333058mE 7702494mN Zone 50 [Reliable]	

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
30274	LSC11	Yes	Yes	No Gender Restrictions	Stored Data / Not a Site	Artefacts / Scatter, Ceremonial, Fish Trap, Midden / Scatter, Mythological, Quarry, Repository / Cache, Skeletal Material / Burial, Arch Deposit, Camp, Meeting Place, Named Place, Natural Feature, Ochre, Plant Resource, Shell, Water Source	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	
31762	Site 1	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	332664mE 7694168mN Zone 50 [Reliable]	
31763	Site 2	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	332528mE 7694213mN Zone 50 [Reliable]	
36199	Boodie Cave	No	No		Lodged	Artefacts / Scatter, Rockshelter	*Registered Knowledge Holder names available from DPLH	329709mE 7703887mN Zone 50 [Reliable]	
36200	John Wayne Country Rockshelter	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Rockshelter	*Registered Knowledge Holder names available from DPLH	332623mE 7707495mN Zone 50 [Reliable]	
36234	South End structures, Barrow Island.	No	No		Lodged	Historical, Man-Made Structure	*Registered Knowledge Holder names available from DPLH	326057mE 7689365mN Zone 50 [Unreliable]	
36261	G-13-S0001	No	No		Lodged	Quarry	*Registered Knowledge Holder names available from DPLH	329032mE 7702259mN Zone 50 [Reliable]	
36262	H-24-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	330962mE 7691480mN Zone 50 [Reliable]	
36263	H-24-S0002	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	330959mE 7691251mN Zone 50 [Reliable]	
36264	I-23-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	331260mE 7692010mN Zone 50 [Reliable]	
36265	I-23-S0002	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	331643mE 7692090mN Zone 50 [Reliable]	

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
36266	I-24-S0003	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	331552mE 7691950mN Zone 50 [Reliable]	
36267	J-23-S0001	No	No		Lodged	Grinding Patches / Grooves	*Registered Knowledge Holder names available from DPLH	332215mE 7692570mN Zone 50 [Reliable]	
36268	J-23-S0002	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	332208mE 7692431mN Zone 50 [Reliable]	
36269	J-23-S0003	No	No		Lodged	Modified Tree	*Registered Knowledge Holder names available from DPLH	332193mE 7692286mN Zone 50 [Reliable]	
36270	M-03-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	335996mE 7712066mN Zone 50 [Reliable]	
36271	N-02-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	336855mE 7713004mN Zone 50 [Reliable]	
36272	O-02-S0002	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	337100mE 7713272mN Zone 50 [Reliable]	
36273	O-05-S0003	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	337727mE 7710822mN Zone 50 [Reliable]	
36344	N-05-S0002	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	336939mE 7710736mN Zone 50 [Reliable]	
36345	N-05-S0001	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	336843mE 7710714mN Zone 50 [Reliable]	
36346	O-05-S0001	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	337454mE 7710996mN Zone 50 [Reliable]	
36347	O-05-S0002	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	337763mE 7710918mN Zone 50 [Reliable]	

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
36348	P-04-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPLH	338193mE 7711023mN Zone 50 [Reliable]	
36718	Skeleton Bay	Yes	Yes	No Gender Restrictions	Lodged	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPLH	Not available when location is restricted	
38763	Wapet Shell Midden	No	No		Stored Data / Not a Site	Shell	*Registered Knowledge Holder names available from DPLH	340812mE 7707336mN Zone 50 [Reliable]	
39191	Warnangura (Cape Range) Cultural Precinct	Yes	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Ceremonial, Engraving, Midden / Scatter, Mythological, Rockshelter, Named Place, Water Source	*Registered Knowledge Holder names available from DPLH	804815mE 7536655mN Zone 49 [Reliable]	
39730	Tantabiddi Midden 1	No	No	Other Restrictions	Lodged		*Registered Knowledge Holder names available from DPLH	807275mE 7573400mN Zone 49 [Reliable]	

Department of Planning, Lands and Heritage

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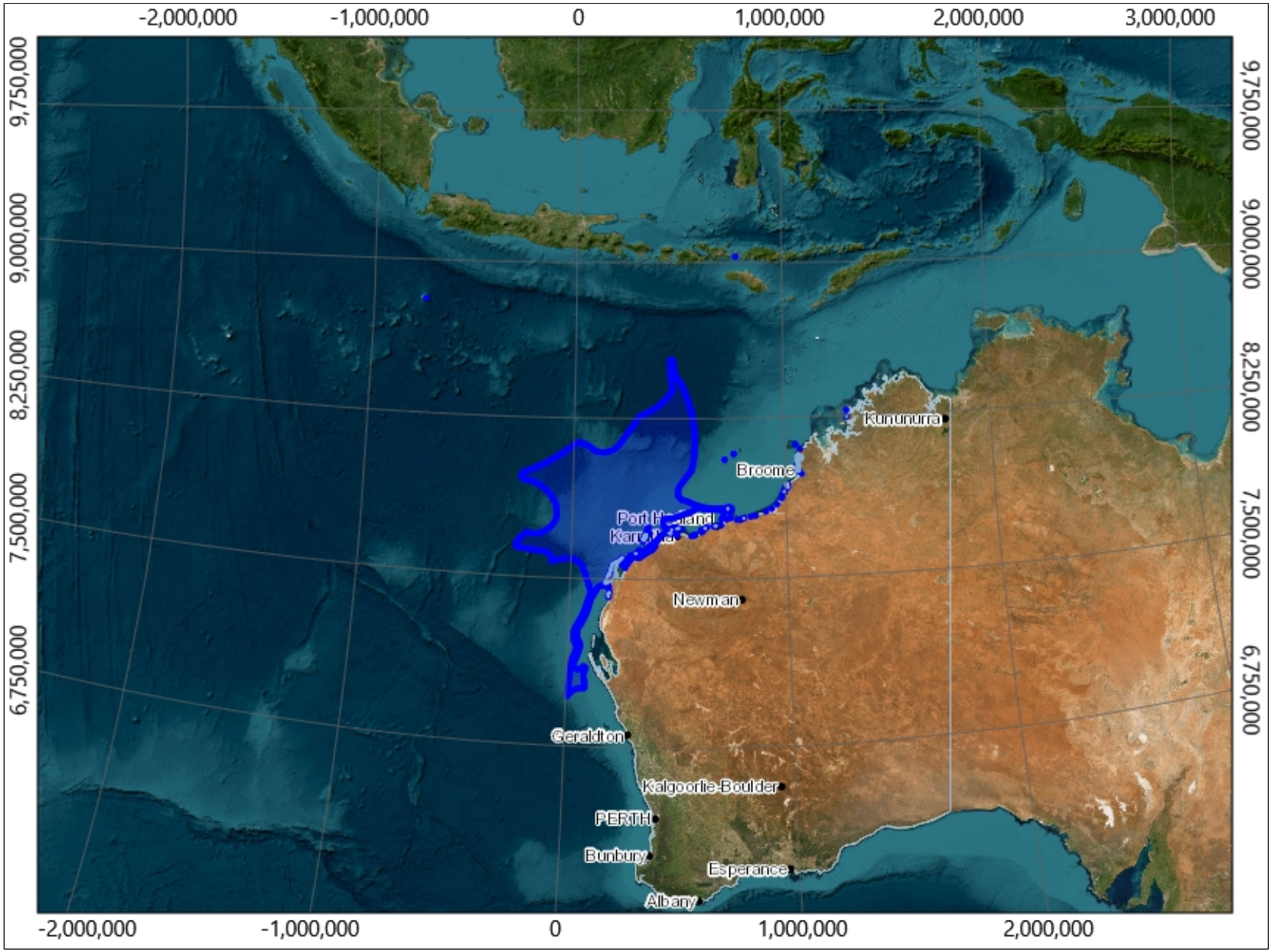
Map of Other Heritage Places



Legend

- Other Heritage Place
- Search Area
- Town
- Road
- River
- Local Government Authority

946.94 kilometres

Map Scale 1 : 28,700,000

MGA Zone 50 (GDA94)