Julimar Development Phase 3 Drilling and Subsea Installation Environment Plan

May 2024

Revision 2

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1. INTRODUCTION

1.1 Overview

Woodside Energy Julimar Pty Ltd (Woodside), as Titleholder under the *Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023* (Cth) (referred to as the Environment Regulations), on behalf of the Joint Venture detailed in Section 1.6, proposes to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System, hereafter referred to as the Petroleum Activities Program (PAP) which forms the scope of this Environment Plan (EP). A more detailed description of the activities is provided in Section 3.

Infrastructure associated with the PAP will be located in, and associated with, Petroleum Title WA-49-L. Temporary activities associated with the PAP (e.g. temporary mooring placement) will also overlap WA-26-PL, WA-29-PL, WA-34-L WA-5-R and vacant acreage to the north (where required, pursuant to access arrangements as detailed in Section 3.3.2). The location of the PAP is described further in Section 3.3.

This EP has been prepared as part of the requirements under the Environment Regulations, as administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA).

1.2 Purpose of the EP

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 PAP 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 PAP is carried out in a manner consistent with the principles of ecologically sustainable development (ESD) (as defined in Section 3A of the Commonwealth *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, standards and measurement criteria. These form the basis for monitoring, auditing and managing the PAP to be undertaken by Woodside and its contractors. The implementation strategy (derived from the decision support framework tools) specified in 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.

1.3 Scope of the EP

The scope of this EP covers the activities that define the PAP, as described in Section 3.

1.4 EP Summary

The JDP3 Drilling and Subsea Installation EP summary (Table 1-1) has been prepared from material provided in this EP, as required by Regulation 35(6).

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Table 1-1: EP Summary

EP Summary material requirement	Relevant section of this 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
Response arrangements in the oil pollution emergency plan	Section 6.8 and Appendix D
Consultation already undertaken and plans for ongoing consultation	Section 5 and Section 7.9.2.1
Details of the titleholder's nominated liaison person for the activity	Section 1.7.2

1.5 Structure of the EP

The EP has been structured to reflect the process and requirement of the Environment Regulations, as outlined in Table 1-2.

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

Criteria for acceptance	Content Requirements/Relevant Regulations	Elements	Section of EP
Regulation 34(a): is appropriate for the nature and scale of the activity	Regulation 21: Environmental Assessment Regulation 22: Implementation strategy for the environment plan Regulation 24: Other information in the environment plan	The principle of 'nature and scale' applies throughout the EP	Section 2 Section 3 Section 4 Section 5 Section 6 Section 6.10
Regulation 34(b): demonstrates that the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable Regulation 34(c): demonstrates that the environmental impacts and risks of the activity will be of an acceptable level	Regulation 21(1)–21(7): 21(1) Description of the activity 21(2)(3) Description of the environment 21(4) Requirements 21(5)(6) Evaluation of environmental impacts and risks 21(7) Environmental performance outcomes and standards Regulation 24(a)–24(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 1 Section 2 Section 3 Section 4 Section 5 Section 6 Section 6.10
Regulation 34(d): provides for appropriate environmental performance outcomes,	Regulation 21(7): Environmental performance outcomes and standards	Environmental Performance Objectives (EPOs) Environmental Performance Standards (EPSs) Measurement Criteria (MC)	Section 6

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Criteria for acceptance	Content Requirements/Relevant Regulations	Elements	Section of EP
environmental performance standards and measurement criteria			
Regulation 34(e): includes an appropriate implementation strategy and monitoring, recording and reporting arrangements	Regulation 22: Implementation strategy for the environment plan	Implementation strategy, including: • systems, practices and procedures • performance monitoring • Oil Pollution Emergency Plan (OPEP – per Appendix D) and scientific monitoring • ongoing consultation.	Section 7 Appendix D
Regulation 34(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 EPBC Act	Regulation 21(1)–21(3): 21(1) Description of the activity 21(2) Description of the environment 21(3) Without limiting [Regulation 21(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 Section 6
Regulation 34(g): (i) the titleholder has carried out the consultations required by Regulation 25 (ii) the measures (if any) that the titleholder has adopted, or proposes to adopt, because of	Regulation 25: Consultation with relevant authorities, persons and organisations, etc. Regulation 24(b): A report on all consultations between the titleholder and any relevant person	Consultation in preparation of the EP	Section 5

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Criteria for acceptance	Content Requirements/Relevant Regulations	Elements	Section of EP
the consultations are appropriate			
Regulation 34(h): complies with the Act and the regulations	Regulation 23: Details of the Titleholder and liaison person Regulation 24(c): Details of all reportable incidents in relation to the proposed activity.	All contents of the EP must comply with the Act and the regulations	Section 1.5 Section 7.9

1.6 Description of the Titleholder

Woodside is the Titleholder for this activity on behalf of a Joint Venture comprising Woodside Energy Julimar Pty Ltd and KUFPEC Australia (Julimar) Pty Ltd.

Woodside's mission is to deliver affordable energy solutions and superior outcomes for stakeholders by being society's trusted energy partner. Woodside's strategy is to provide the low cost, lower carbon energy our world needs. We have significant opportunities to prosper and grow. Our three pillars, oil, gas and new energy, each have a role to play in our future. Wherever Woodside works it is committed to living its values of one team, we care, innovation, results matter, and we build and maintain trust.

Since 2015 the company has been operating the Julimar field on behalf of the Joint Venture.

Further information about Woodside can be found at http://www.woodside.com.

1.7 Details of Titleholder, Liaison Person and Public Affairs Contact

In accordance with Regulation 23 of the Environment Regulations, details of the titleholder, liaison person and arrangements for the notification of changes are described below.

1.7.1 Titleholder

Woodside Energy Julimar Pty Ltd

11 Mount Street

Perth, Western Australia

T: 08 9348 4000

E: feedback@woodside.com

CAN: 63 005 482 986

1.7.2 Nominated Liaison Person

Andrew Winter

Corporate Affairs Manager – Environment Approvals

11 Mount Street

Perth, Western Australia

T; 08 9348 4000

E: feedback@woodside.com

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1.7.3 Arrangements for Notifying Change

If the titleholder, titleholder's nominated liaison person, or the contact details for the titleholder or the liaison person change, then NOPSEMA will be notified of the change in writing within two weeks or as soon as practicable.

1.8 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. The WMS documentation comprises four elements outlined below and illustrated in Figure 1-1:

- Values and 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 and Procedures: Processes identify the set of interrelated or interacting activities that transforms inputs into outputs, to systematically achieve a purpose or specific objective. Procedures specify what steps, by whom, and when required to carry out 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 taken into consideration; or, how to use tools and systems.

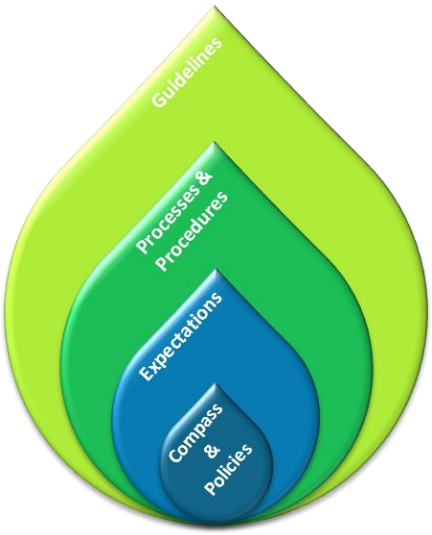

Figure 1-1 The four major elements of the WMS Seed

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 Key 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.

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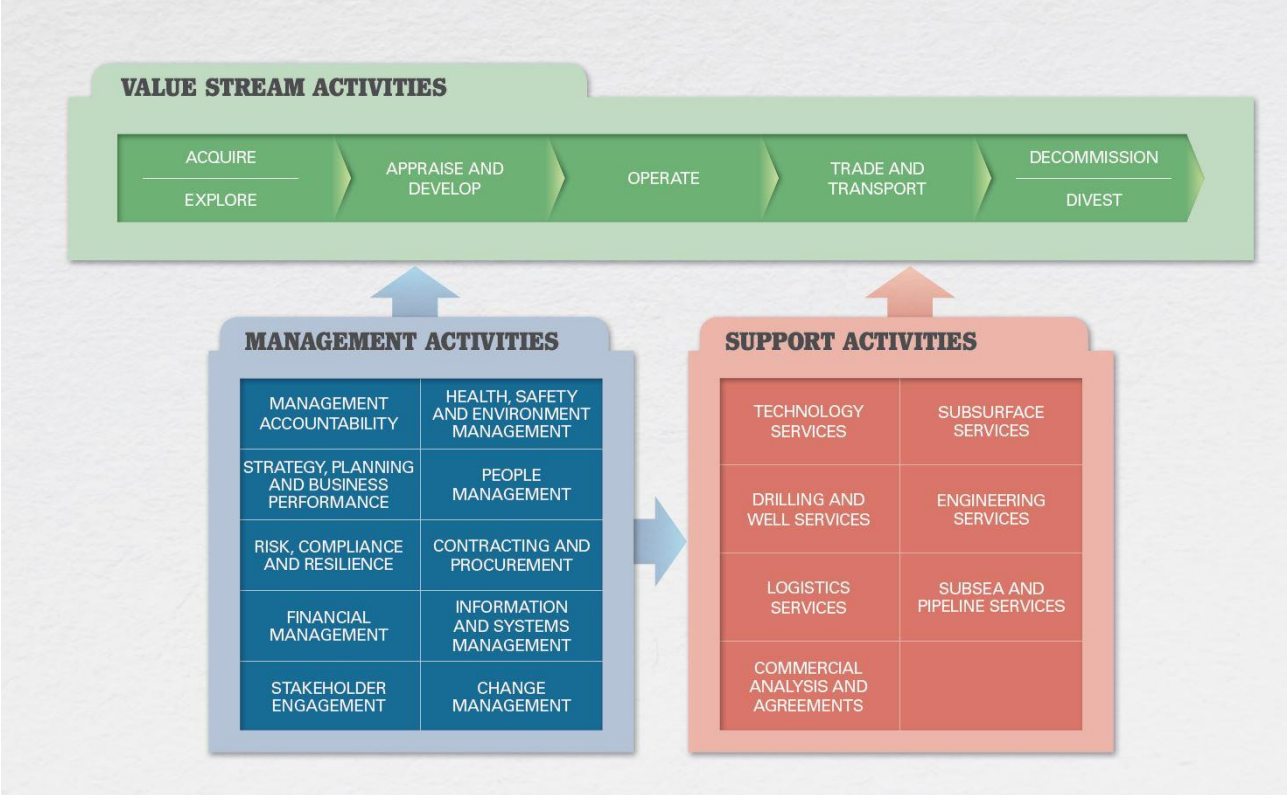

Figure 1-2: The WMS business process hierarchy

1.8.1 Environment and Biodiversity Policy

In accordance with Regulation 24(a) of the Environment Regulations, Woodside's Corporate Environment and Biodiversity Policy is provided in Appendix A of this EP. Please note that the Environment and Biodiversity Policy is reviewed regularly and is updated as required. The Environment and Biodiversity Policy is made available on our website along with the other Board policies. https://www.woodside.com/who-we-are/corporate-governance-and-policies

1.9 Description of Relevant Requirements

In accordance with Regulation 21(4) of the Environment Regulations, a description of requirements, including legislative requirements, that apply to the activity and are relevant to the management of risks and impacts of the PAP are detailed in Appendix B. This EP will not be assessed under the Environment Protection Act 1986 (WA) as the activity does not occur on State land or within State Waters.

1.9.1 Offshore Petroleum and Greenhouse Gas Storage Act 2006

The *Offshore Petroleum and Greenhouse Gas Storage Act 2006* (Cth) (OPGGS Act) controls exploration and production activities beyond three nautical miles (nm) of the mainland (and islands) to the outer extent of the Australian Exclusive Economic Zone (EEZ) at 200 nm. The objective of the Act is to provide a regulatory framework for petroleum exploration and recovery and greenhouse gas activities in offshore areas.

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 ESD;

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- carried out in a manner by which the environmental impacts and risks of the activity will be reduced to ALARP; and
- carried out in a manner by which the environmental impacts and risks of the activity will be of an acceptable level.

1.9.2 Environment Protection and Biodiversity Conservation Act 1999

One of the objectives 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 ESD. 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 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 Act.

1.9.2.1 Offshore Project Approval

The Julimar Field Production System was commissioned in 2016. The JDP3 development was referred under the Julimar Brunello Gas Development – EPBC 2011/5936 and the decision by the Environment Minister determined the action is not a controlled action if undertaken in a particular manner.

1.9.2.2 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 relation to offshore petroleum activities in Commonwealth waters, these requirements are now administered by NOPSEMA in accordance with commitments set out 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 EP that proposes activities that will result in unacceptable impacts to a listed threatened species or ecological community.
- NOPSEMA will not accept an EP that is inconsistent with a recovery plan or threat abatement plan for a listed threatened species or ecological community.
- NOPSEMA will have regard to any approved conservation advice in relation to a threatened species or ecological community before accepting an EP.

1.9.2.3 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 National Parks (DNP) is responsible for managing AMPs (supported by Parks Australia), and is required to publish management plans for them. Other parts of the

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Commonwealth Government must not perform functions or exercise powers in relation to these parks that are inconsistent with management plans (s362 of the EPBC Act). Relevant AMPs are listed in Section 4.8 and described in the Woodside Master Existing Environment. In accordance with Regulation 56(1) of the Environmental Regulation, this Master Existing Environment was accepted on the 14th of October 2021 and is available on the NOPSEMA website: Enfield Plug and Abandonment EP (NOPSEMA EP No: A803388).

The North-west Marine Parks Network Management Plan describes the requirements for management. 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 through 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 authorised 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.

1.9.2.4 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 1-3.

Table 1-3 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	3.01 and 3.02: Assessment of significant impact on World Heritage values is included in Section 4.8. Principles are met by the submitted EP. 3.03 (a) and (b): World Heritage values are identified in Section 4 and considered in the assessment of impacts and risks for the Petroleum Activity in Section 6. 3.03 I: Relevant stakeholder consultation and feedback

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	(b) examine how the World Heritage values of the property might be affected; and I 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.	received in relation to impacts and risks to the Ningaloo World Heritage Property are outlined in Section 5. 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.

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2. ENVIRONMENT PLAN PROCESS

2.1 Overview

This section outlines the process Woodside follows to prepare the EP once an activity has been defined as a petroleum activity. Section 2.2 describes the environmental risk assessment methodology that is used to identify, analyse and evaluate risks to meet ALARP and acceptability requirements and to develop Environmental Performance Objectives (EPOs) and Environmental Performance Standards (EPSs). This section also describes Woodside's risk management methodologies applicable to implementation strategies applied during the activity.

Regulation 21(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 PAP and potential emergency conditions. The objective of the risk assessment process, described in this section, is to identify risks and associated impacts of an activity, so that 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 PAP and includes potential emergency and accidental events.

- **Planned activities** have the potential for inherent environmental impacts.
- **Environmental risks** are unplanned events with the potential for environmental impact (termed risk 'consequence').

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

2.2 Environmental Risk Management Methodology

2.2.1 Woodside Risk Management Process

Woodside recognises that risk is inherent to its business and that effective management of risk is vital to delivering on company objectives, success and continued growth. Woodside is committed to managing all risk 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 these 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. Woodside's WMS risk management procedures, guidelines and tools provide guidance of specific techniques for managing risk, tailored for particular areas of risk within certain business processes. Procedures applied for environmental risk management include:

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

The risk management methodology provides a framework to demonstrate that 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 2.2 to 2.11.

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Figure 2-1 Woodside's risk management process

2.2.2 Health, Safety and Environment Management Procedure

The Health, Safety and Environment Management Procedure provides the structure for managing health, safety and environment (HSE) risks and impacts across Woodside, defines the decision authorities for company-wide HSE management activities and deliverables, and supports 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 to meet the required environment, health and social standards by ensuring impact assessments are undertaken 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.

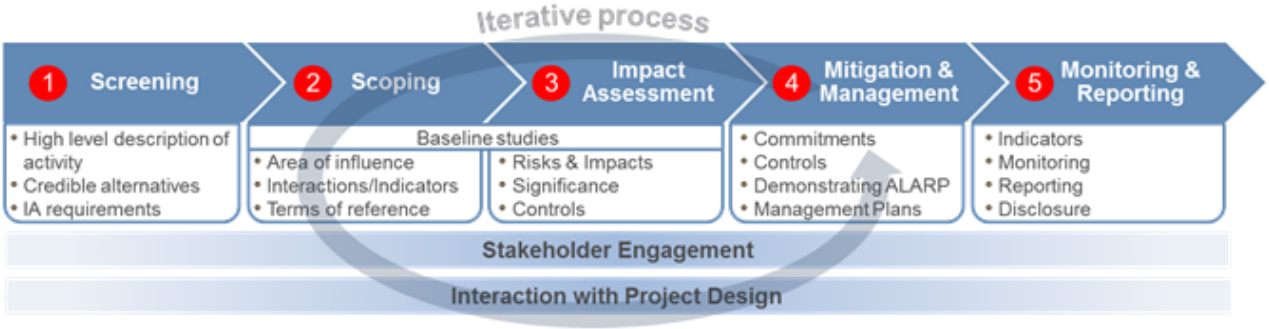

Figure 2-2: Woodside's impact assessment process

2.3 Environment Plan Process

Figure 2-3 illustrates the EP development process. Each element of this process is discussed further in Sections 2.5 to 2.11.

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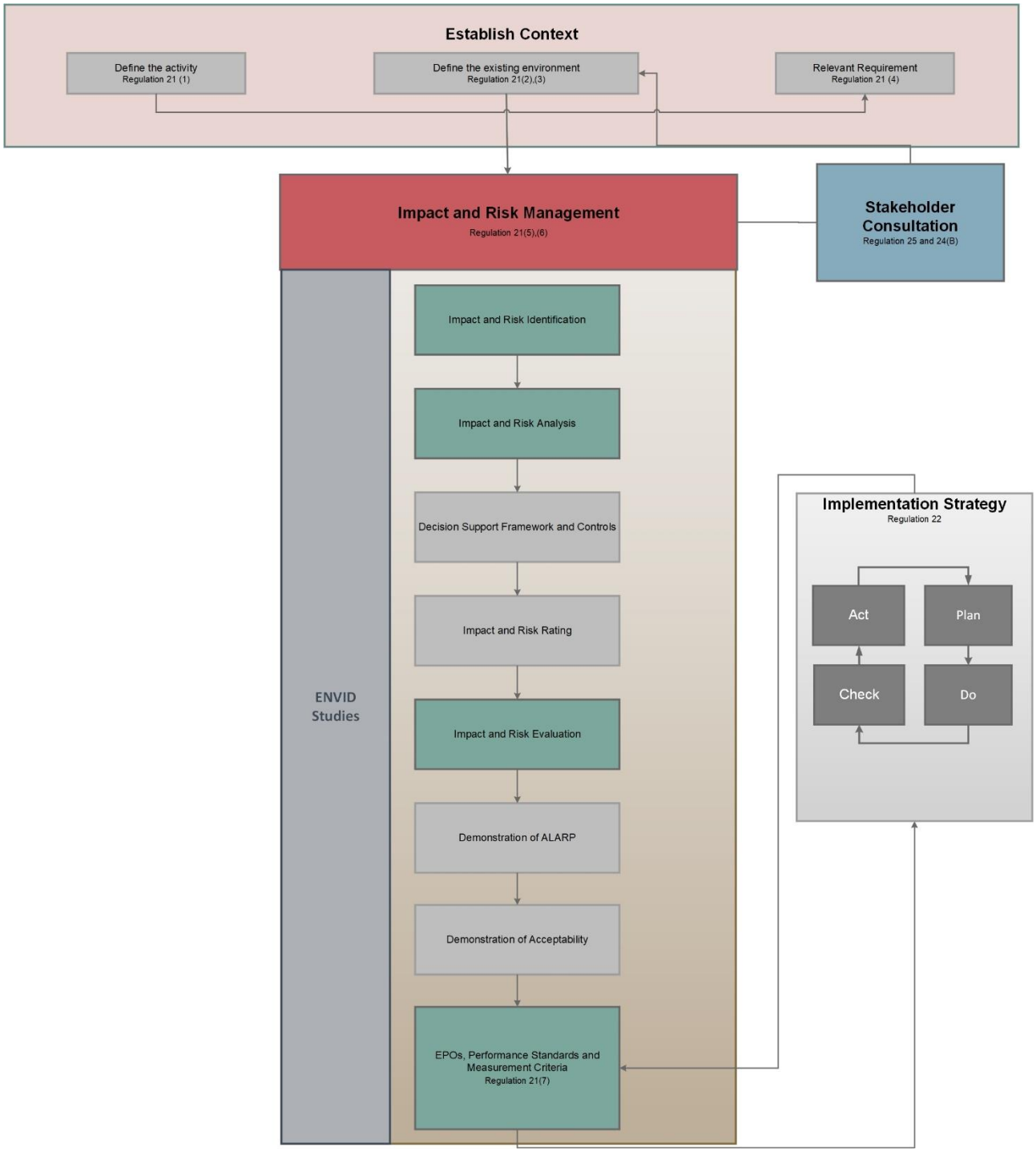

Figure 2-3: EP development process

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 described in relation to:

- the location
- what is to be undertaken

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- 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'[1] 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 is referred to as the PAP.

2.4.2 Define the Existing Environment

The context of the existing environment is described and determined by considering the nature and scale of the activity (size, type, timing, duration, complexity, and intensity of the activity), as described in Section 3. In accordance with Regulation 56(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. This EP (NOPSEMA EP No: A803388) was accepted on the 14th of October 2021 and is available on the NOPSEMA website: Enfield Plug and Abandonment EP. The purpose is to describe the existing environment that may be impacted by the activity, directly or indirectly, by planned or unplanned[2] events.

The Existing Environment (Section 4) is structured into subsections defining the physical, biological, socioeconomic and cultural attributes of the area of interest, in accordance with the definition of environment in Regulation 5(a) of the Environment Regulations. These subsections 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 2.7) and rated for all planned and unplanned activities. Additional detail is provided for unplanned hydrocarbon spill risk evaluation.
- EPBC Act 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 PAP (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 6.8.1. MNES, as defined within the EPBC Act, are addressed through Woodside's impact and risk assessment (Section 6).
- Relevant values and sensitivities, which may include world or national heritage listed areas, listed threatened species or ecological communities, listed migratory species, or sensitive values.

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.

[1] An environmental aspect is an element of the activity that can interact with the environment.
[2] For each source of risk, the credible worst-case scenario in conjunction with impact thresholds is used to determine the spatial extent of the EMBA. The worst-case unplanned event is considered to be an unplanned hydrocarbon release, further defined for each activity through the risk assessment process. Interpretation of stochastic oil spill modelling determines the EMBA for the release, which defines the spatial scale of the environment that may be potentially impacted by the PAP, which provides context to the 'nature and scale' of the existing environment.

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Table 2-1: Example of the environment values potentially impacted which are assessed within the EP

Environmental Value Potentially Impacted Regulations 21(2)(3)						
Soil and Groundwater	***Marine Sediment***	***Water Quality***	***Air Quality (incl. Odour)***	***Ecosystems/ Habitats***	***Species***	***Socioeconomic***

2.4.3 Relevant Requirements

The relevant requirements in the context of legislation, other environmental approval requirements, conditions and standards that apply to the PAP are identified and reviewed, and are presented in Section 1.9 and Appendix B.

Woodside's Environment and Biodiversity Policy is presented in Appendix A.

2.5 Impact and Risk Identification

Relevant environmental aspects and hazards were identified that support the process to define environmental impacts and risks associated with the activity.

The environmental impact and risk assessment presented in this EP has been informed by recent and historic hazard and environment identification studies (e.g. HAZID/ENVID), Process Safety Risk Assessment Procedures (PSRA), reviews, and desktop studies associated with the PAP. Impacts, risks and potential consequences were identified based on planned and potential interaction with the activity (based on the description in Section 3), the existing environment (Section 4) and the outcomes of Woodside's stakeholder consultation process (Section 5). The environmental outputs of applicable risk and impact workshops and associated studies are referred to as ENVID in this EP.

The ENVID was undertaken by multidisciplinary teams comprising relevant engineering and environmental personnel with sufficient breadth of knowledge, training and experience to reasonably assure that risks and impacts were identified and their potential environmental consequences 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.

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 form the basis of performance outcomes, standards, and measurement criteria. This information is presented in Section 6, following the format presented in Table 2-2.

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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	Socioeconomic	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, as well as considering previous risk assessments for similar activities, relevant studies, past performance, external stakeholder consultation feedback, and the existing environment.

These key steps were undertaken for each identified risk during the risk assessment:

- identify the decision type in accordance with the decision support framework
- identify appropriate control measures (preventive and mitigation) 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 the use of a decision support framework based on principles set out in the Guidance on Risk Related Decision Making (Oil and Gas UK 2014). This concept was applied during the ENVID, or equivalent processes during historical design decisions, to determine the level of supporting evidence that may be required to draw sound conclusions regarding risk level and whether the risk is acceptable and ALARP (Figure 2-4). Application of the decision support framework confirms:

- activities do not pose an unacceptable environmental risk
- appropriate focus is placed on activities where the impact or risk is anticipated to be acceptable and demonstrated to be ALARP
- appropriate effort is applied to manage risks and impacts 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/impact (referred to as the Decision Type A, B, or C). The decision type is selected based on an informed discussion around the uncertainty of the risk/impact and is documented in ENVID worksheets.

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

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2.6.1.1 Decision Type A

Decision Type A risks and impacts are well understood and established practice. They are generally recognised as good industry practice and are often embodied in legislation, codes and standards, and use professional judgment.

2.6.1.2 Decision Type B

Decision Type B risks and impacts 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 that 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

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

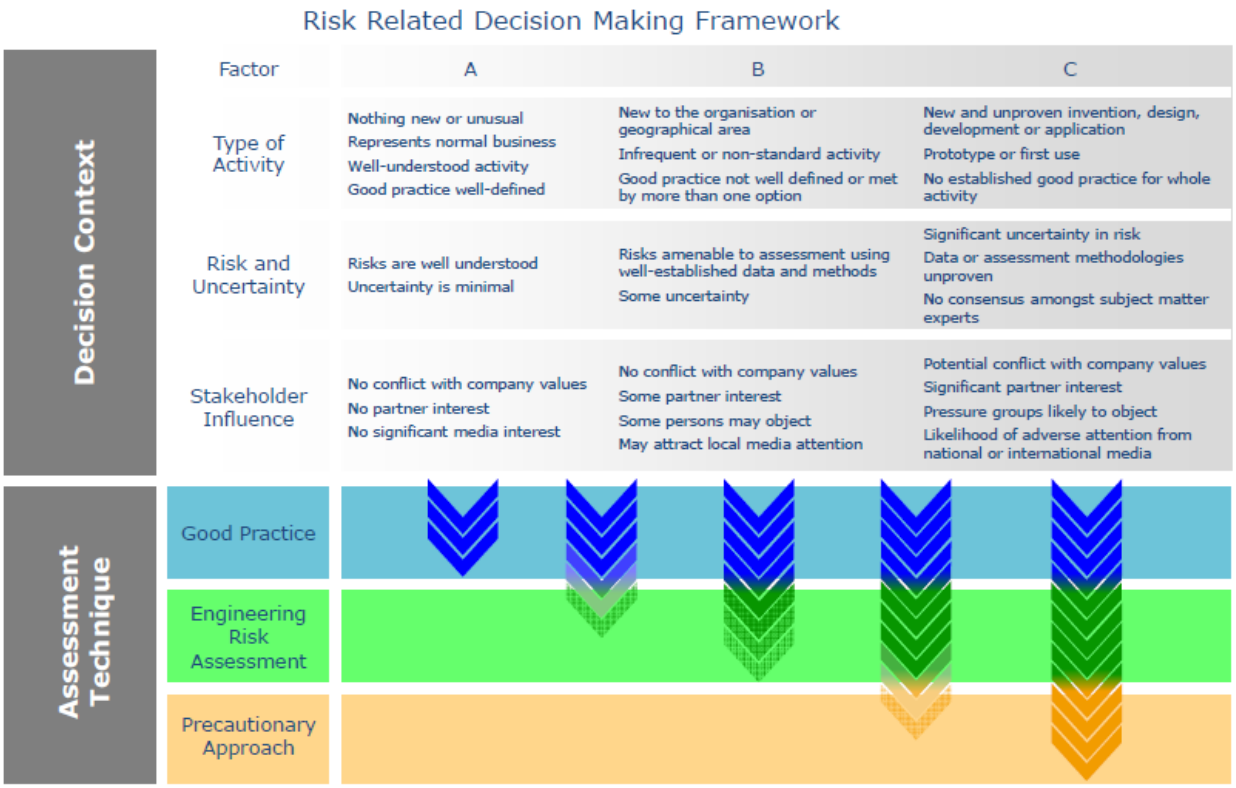

Figure 2-4: Risk-related decision making framework (Oil and Gas UK, 2014)

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2.6.1.4 Decision Support Framework Tools

These framework tools are applied, as appropriate, to help identify control measures based on the decision type descried above:

- **Legislation, Codes and Standards (LCS)** – identifies the requirements of legislation, codes and standards that are to be complied with for the activity.
- **Good Industry Practice (GP)** – identifies further engineering control standards and guidelines that may be applied by Woodside above that required to meet the LCS
- **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 alternatives selected and the control measures applied are suitable, these tools may be used for calibration (i.e. checking) where required:

- **LCS/ Verification of Predictions** – Verification of compliance with applicable LCS and/ or good industry practice.
- **Peer Review** – Independent peer review of PJs, supported by RBA, where appropriate.
- **Benchmarking** – Where appropriate, benchmarking against a similar facility or activity type or situation that has been deemed to represent acceptable risk.
- **Internal Stakeholder Consultation** – Consultation undertaken within Woodside to inform the decision and verify company values are met.
- **External Stakeholder Consultation** – Consultation undertaken to inform the decision and verify societal values are considered.

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

2.6.2 Control Measures (Hierarchy of Controls)

Risk reduction measures are 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 include design measures to prevent or reduce the frequency of the risk event, or 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

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  - 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 if a hazardous event occurs
  - Response Equipment: design measures or safeguards that enable clean-up/ response after a hazardous event occurs.
- Procedures and Administration includes management systems and work instructions used to prevent or mitigate environmental exposure to hazards.
- Emergency Response and Contingency Planning includes methods to enable recovery from the impact of an event (e.g. protection barriers deployed near 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).

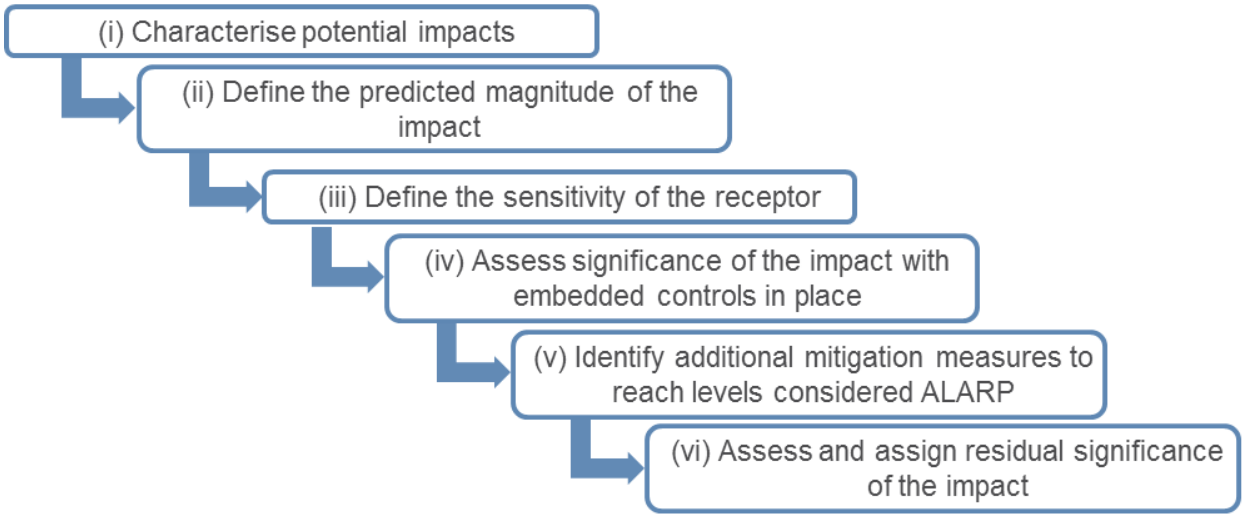

Figure 2-5: Environmental risk and impact analysis

Impacts are classified in accordance with the consequence (Table 2-3) outlined in Woodside's Risk Management Procedure and Risk Matrix (Table 2-3, Figure 2-6). Risks are assessed qualitatively and/or quantitatively in terms of both likelihood and consequence in accordance with this matrix.

The impact and risk information, including classification and evaluation information as shown in the example (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 and Cultural	Consequence Level
Catastrophic, long-term impact (>50 years) on highly valued ecosystem, species, habitat or physical or biological attribute.	Catastrophic, long-term impact (>20 years) to a community, social infrastructure or highly valued area/item of international cultural significance.	***A***
Major, long term impact (10–50 years) on highly valued ecosystem, species, habitat or physical or biological attribute.	Major, long-term impact (5–20 years) to a community, social infrastructure or highly valued area/item of national cultural significance.	***B***
Moderate, medium-term impact (2–10 years) on ecosystem, species, habitat or physical or biological attribute.	Moderate, medium term impact (2–5 years) to a community, social infrastructure or	***C***

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	highly valued area/item of national cultural significance.	
Minor, short-term impact (1–2 years) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	Minor, short-term impact (1–2 years) to a community or highly valued area/item of cultural significance.	***D***
Slight, short-term impact (<1 year) on species, habitat (but not affecting ecosystem function), physical or biological attribute.	Slight, short-term impact (<1 year) to a community or area/item of cultural significance.	***E***
No lasting effect (<1 month). Localised impact not significant to environmental receptor.	No lasting effect (<1 month). Localised impact not significant to area/item of cultural significance.	***F***

2.6.3.1 Risk Rating Process

The risk rating process assigns a level of risk to each risk event, measured in terms of consequence and likelihood. The assigned risk rating is determined with controls in place; therefore, the risk rating is 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 (Table 2-3, Figure 2-6). The risk rating process is done using the steps described in the subsections below.

2.6.3.1.1 Select the Consequence Level

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

2.6.3.1.2 Select the Likelihood Level

Determine the description that best fits the chance of the selected consequence occurring, assuming reasonable effectiveness of the prevention and mitigation 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 1,000–10,000 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**

2.6.3.1.3 Calculate the Risk Rating

The risk rating is derived from the consequence and likelihood levels above, in accordance with the Woodside Risk Matrix shown in Figure 2-6. A likelihood and risk rating are only applied to environmental risks, not environmental impacts from planned activities.

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This risk rating 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.

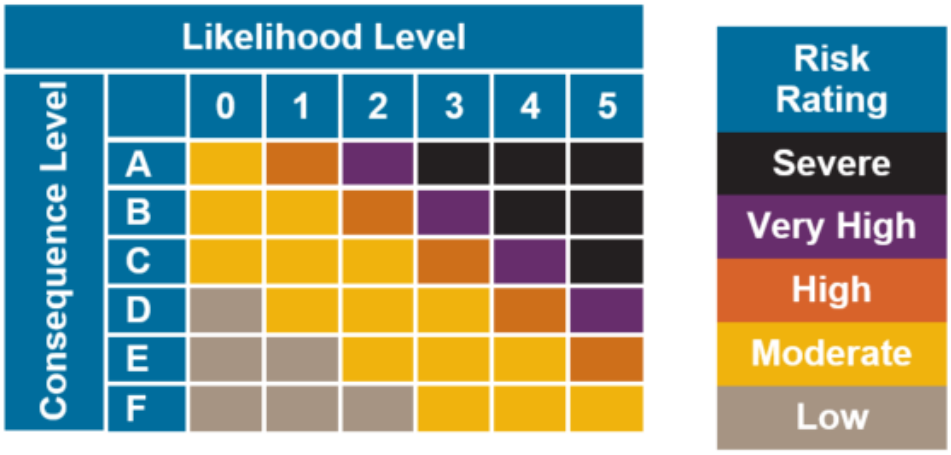

Figure 2-6: Woodside risk matrix – risk level

To support ongoing risk management (as a key component of Woodside's Process Safety Management Framework – refer to the implementation strategy in 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 controls that are currently in place and effective on a day-to-day basis. The 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 communicating and making visible the risk events and ensures the continual management of risk 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, differing species, persistence, reversibility, resilience, cumulative effects and variability in severity than safety risks. Determining the degree of environmental risk, and the corresponding threshold for whether a risk/impact has been reduced to ALARP and is acceptable, is evaluated to a level appropriate to the nature and scale of each impact or risk. Evaluation includes considering the:

- decision type
- principles of ESD – as defined under the EPBC Act
- internal context – ensuring 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)
- other requirements – ensuring the proposed controls and risk levels are consistent with national and international standards, laws and policies.

In accordance with Environment Regulation 34(a), 34(b), 34(c) and 21(5)(b), Woodside applies the process described in the subsections below to demonstrate ALARP and acceptability for environmental impacts and risks, appropriate to the nature and scale of each impact and risk.

2.7.1 Demonstration of ALARP

The descriptions in Table 2-5 articulate how Woodside demonstrates that different risks, impacts and Decision Types identified within the EP are ALARP.

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

Risk	Impact	Decision Type
Low and Moderate (below C level consequence)	***Negligible, Slight, or Minor (D, E or F)***	***A***
Woodside demonstrates these risks, impacts and decision types are reduced to ALARP if: • identified controls meet legislative requirements, industry codes and standards, applicable company requirements and industry guidelines, or • further effort towards impact/risk reduction (beyond using opportunistic measures) is not reasonably practicable without sacrifices that are grossly disproportionate to the benefit gained.		
High, Very High or Severe (C+ consequence risks)	***Moderate and above (A, B, 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

The descriptions in Table 2-6 articulate how Woodside demonstrates how different risks, impacts and Decision Types identified within the EP are acceptable.

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 using opportunistic measures) is not reasonably practicable without sacrifices that are grossly disproportionate to the benefit gained.		
High, Very High or Severe	***Moderate and above (A, B, C)***	***B and C***
Woodside demonstrates these higher-order risks, impacts and decision types are of an 'acceptable' level if it can be demonstrated that the predicted levels of impact and/or residual risk, are: • managed to ALARP (as described in Section 2.7.1) • meet the following criteria, appropriate to the nature and scale of each impact and risk: • 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 – consideration of 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 ad consideration of applicable plans for management and conservation advices, conventions and significant impact guidelines (e.g. MNES). For potential C or above consequence/impact levels where significant uncertainty exists in analysis of the risk or impact (such as, for predicted or potential high risk of significant environmental impacts, significant project risk/exposure, novel activities, lack of consensus on standards, and significant stakeholder concerns e.g. Decision Type C), acceptability may be required to be conducted separately for key receptors. This is not applicable for risks, given the consequence of an unplanned risk event occurring may not be acceptable and, therefore, acceptability is demonstrated in the context of the residual likelihood of an event occurring.		

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Risk	Impact	Decision Type
Additionally, Very High and Severe risks require 'Escalated Investigation' and mitigation. If after further investigation the risk remains in the Very High or Severe category, the risk requires appropriate business engagement with increasing involvement of senior management 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 1.9.2.2). The steps in this process are:

- identify relevant listed threatened species and ecological communities (Section 4.6)
- identify relevant recovery plans and threat abatement plans (Section 6.9)
- 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 PAP (Section 6.9)
- for those objectives/action areas applicable to the PAP, 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 6.9).

2.9 Environmental Performance Outcomes, Environmental Performance Standards, and Measurement Criteria

EPOs, EPSs and Measurement Criteria (MC) are defined to address the potential environmental impacts and risks. These are provided in Section 6**.**

2.10 Implement, Monitor, Review and Reporting

An implementation strategy for the PAP describes the specific measures and arrangements to be implemented for the duration of the program. The 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 PAP to ALARP and acceptable levels
- EPOs and EPSs set out in the EP are met through monitoring, recording, auditing, managing non-conformance, and reviewing
- all environmental impacts and risks of the PAP 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 are met, including 'reportable incidents'
- appropriate stakeholder 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 F.

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3. DESCRIPTION OF THE ACTIVITY

3.1 Overview

This section has been prepared in accordance with Regulation 21(1) of the Environment Regulations and describes the activities to be undertaken as part of the PAP under this EP. It includes the location of the activities, operational details and additional information relevant to considering environmental risks and impacts.

3.2 Project Overview

Woodside is the operator of the Julimar Field Production System, which is located in Commonwealth waters about 169 km north-west of Dampier and in the vicinity of the Chevron-operated Wheatstone Platform (approximately 1.8 km at its closest point [the BRUA-6 well]). The existing Julimar Field Production System includes wells in WA-49-L and flowlines/ pipelines in WA-26-PL and WA-29-PL.

Woodside proposes to develop the JDP3 wells and subsea infrastructure. The JDP3 wells and subsea infrastructure as developed will then connect to the existing Julimar Field Production System. The PAP will involve the drilling of up to four wells in the Julimar field and one well in the Penfolds prospect, all within WA-49-L. The PAP also includes subsea installation, tie-in to the existing Julimar Field Production System, pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.

Two wells are proposed to connect to a new two slot production manifold (JULB) which will tie into the existing in-line tee (ILT) assembly within the JDP2 18" flowline, via ~2.5 km of flexible flowline. One of these wells accesses the Penfolds prospect and will be connected to the JULB manifold by ~4.4 km flexible flowline. The second well connected to the JULB manifold will be offset from the manifold by ~100 m and will be connected to the JULB manifold by a flexible jumper. Two new subsea umbilicals and associated flying leads will be installed to provide the required controls to the new wells.

Three wells are planned to tie back to empty slots located at the existing JULA production manifold. Two of the wells will be offset from the JULA manifold by ~300 m. An additional well accessing the J85 reservoir is planned to tie-back to the JULA manifold via ~2 km of flexible flowline.

The JDP3 production system will have a design life of 25 years. It will produce hydrocarbons from the Julimar and Penfolds reservoirs via the existing Phase 1 and 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant.

Wells will be drilled by either a moored semi-submersible MODU or a hybrid MODU with both moorings and dynamically positioned (DP) systems. The hybrid MODU may operate in on DP some or all of the time, as required. Typically, two or three vessels will support the MODU during drilling activities, with at least one vessel in the vicinity to complete standby duties, if required. Supply vessels from nearby ports will frequent the MODU at regular intervals, throughout operations. MODU moorings may be pre-installed up to three months prior to MODU arrival on location.

The flowlines, umbilicals, manifold and remaining subsea infrastructure will be installed and tested from a Primary Installation Vessel (PIV) which may also support cold commissioning prior to start-up. Cold commissioning could also be performed using a subsea Inspection, Maintenance and Repair (IMR) vessel. Xmas trees may be installed by the MODU, or with an IMR vessel. This may involve lifting Xmas trees from a support vessel to the MODU and/or directly from the IMR vessel to subsea at each well location. If the MODU is not utilised for Xmas tree installation, it will be repositioned and moored away from the drill centre. Certain limited parts of the JDP3 subsea installation scope (such as installation of replacement flying leads within the existing JDP2 and Brunello system, or pre-installation of mattresses or mud mats) may be done by an IMR vessel in advance of the main subsea installation.

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If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity, and/or mechanically alter them as required. Other contingent activities that Woodside may need to perform during drilling include well abandonment, re-spud, side-track, well suspension, leaving wellhead assembly in-situ, sediment mobilisation and relocation, venting, well test/unload and emergency disconnect.

Start-up and operation of the JDP3 production system will be subject to a future revision of the Julimar Operations Environment Plan.

An overview of the PAP is provided in Table 3-1.

Table 3-1: PAP Overview

Item	Description
Petroleum Title	WA-49-L Temporary activities will also overlap WA-26-PL, WA-29-PL, WA-34-L, WA-5-R and vacant acreage to the north (where required, pursuant to access arrangements as detailed in Section 3.3.2).
Location	Barrow Sub-basin
Water depth	Approximately 120 - 300m
Number of wells	• Drilling of up to five wells • Contingency intervention of eight existing JULA and BRUA wells as well as the five new JDP3 wells
Subsea Infrastructure	• Up to five Xmas trees and wellheads • One two-slot production manifold or similar structure at JULB such as a Flowline End Termination or Pipeline End Manifold, complete with mud mat • Five Subsea Control Modules (SCM) • Flexible production flowlines complete with diverless connectors • ILT to JULB manifold – 10” ID ~2.5 km • JULB manifold to Penfolds well – 8” ID or 10” ID ~4.4 km • JULA manifold to J85 production well – ~8” ID or 10” ID ~2 km • 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells – 8” ID or 10” ID ~300 m each • 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well – 8” ID or 10” ID ~100 m • 3 x umbilicals associated with production flowlines (~155 mm OD) • Flying leads (FLs) connecting each Xmas tree to the respective manifold or UTA and thereby connecting the Xmas tree to the existing subsea production control system • Subsea cooling skid associated with the J85 reservoir tie back. • Six Umbilical Termination Assemblies (UTA) complete with mud mats • Mattresses and/or grout bags (~40)
MODU	Moored MODU, DP MODU or hybrid moored/DP MODU.
Vessels	• Primary Installation Vessel • IMR Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)
Key activities	• Pre-lay of anchors by AHV and anchor hold testing • Mooring activity on arrival of MODU at each well location, if required • Relocation of MODU between well locations

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Item	Description
	• Top hole section drilling. • Installation of blow-out preventer (and marine riser) • Bottom hole section drilling and completions • Installation of Xmas trees • Well unloading (contingency) • Pre and post lay survey activities • Installation of stabilisation concrete mattresses • Installation of flowlines, umbilicals c/w UTAs, flying leads, mud mats, manifold and other subsea infrastructure • Pre-commissioning testing • Connection of wells to respective manifolds • Cold commissioning of the new production system and interventions/repairs where issues are identified. • Contingency intervention or workover of JDP3 development wells, JULA manifold and/or Brunello manifold production wells • Temporary well suspension and/or permanent abandonment (contingency) • Contingent activities including; well abandonment, well head removal by vessel, re-spud, side-track, well suspension, well intervention, well work-over, wellhead assembly left in-situ, sediment mobilisation and relocation, venting, emergency disconnect sequence

3.3 Location

3.3.1 Location of the PAP

The infrastructure associated with the PAP is located in Commonwealth waters, about 169 km west-north-west of Dampier. The closest landfall to the PAP is the Montebello Islands, about 54 km south-east. Approximate location details for the PAP are provided in Table 3-2.

Table 3-2: Approximate location details for the permanent infrastructure associated with the PAP[3]

Activity	Water depth (approx. m LAT)	Latitude (WGS84)	Longitude (WGS84)	Petroleum title(s)
New Wells and Manifold*				
J85 Development Well**	~158 – 207 m	20° 08’ 52.917”S	115° 02’ 27.23”E	WA-49-L
JUA1C	~173 m	20° 08’ 59.969” S	115° 02’ 23.622” E	WA-49-L
JUA1E	~174 m	20° 08’ 58.753” S	115° 02’ 22.501” E	WA-49-L
JUB1A	~191 m	20° 06’ 27.931” S	115° 03’ 23.418” E	WA-49-L
JUB1B	~169 m	20° 05’ 39.071” S	115° 05’ 44.871” E	WA-49-L
JULB Manifold***	~192 m	20° 06' 26.41"S	115° 03' 24.02"E	WA-49-L
Flowlines and flexibles	~192-174 m	Flowlines will connect wells to JULB, JULB to the ILT assembly and wells to JULA. The exact location of the flowline route may vary during installation.		WA-49-L
Existing Wells				
BruA-2	149 m	20°01’49.1571” S	115°12’05.6357” E	WA-49-L
BruA-3	149 m	20°01’47.8720” S	115°12’07.0511” E	WA-49-L

[3] Temporary activities associated with the PAP (such as vessel movements and MODU anchoring) also overlap WA-26-PL, WA-29-PL, WA-34-L, WA-5-R and vacant acreage to the north.

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Activity	Water depth (approx. m LAT)	Latitude (WGS84)	Longitude (WGS84)	Petroleum title(s)
BruA-4	149 m	20°01’48.1207” S	115°12’07.5964” E	WA-49-L
BruA-5	149 m	20°01’49.6633” S	115°12’05.7596” E	WA-49-L
BruA-6	149 m	20°01’48.4958” S	115°12’07.8942” E	WA-49-L
JULA-01	174 m	20° 08’ 52.996” S	115° 02’ 28.377” E	WA-49-L
JULA02	174 m	20° 08’ 52.222” S	115° 02’ 26.436” E	WA-49-L
JULA04	174 m	20° 08’ 53.554” S	115° 02’ 28.078” E	WA-49-L
Existing Subsea Infrastructure				
JDP2 ILT Assembly (existing)	167 m	20° 07 ‘36.11” S	115°04 ‘12.23” E	WA-49-L
JULA Manifold (existing)	174 m	20° 08 ‘52.917” S	115°02 '27.23” E	WA-49-L

** Well coordinates are approximate and could be located ~2 km radius from the indicative location within WA-49-L.*

*** The J85 development well location is not yet determined and will be within ~2 km of the JULA manifold. As such the coordinates provided for this well in the above table are those of the JULA manifold and depth range demonstrates the depths within this 2 km radius.*

**** JULB manifold coordinates are approximate and could occur~100 m from this location.*

3.3.2 Activities Outside Woodside’s Titles

Woodside notes that the PAA is larger than the area of Woodside's existing permit titles. To the extent that mooring placement is carried out in parts of the PAA not included in the area of Woodside's existing permit titles, Woodside will obtain the relevant authority or permit as required and only carry out activities in those areas in accordance with the authority or permit. This EP considers potential impacts to environmental receptors and other marine users, including other oil and gas operators, and where relevant, commitments made in this EP may be reflected in relevant agreements established with third parties related to access outside Woodside’s titles.

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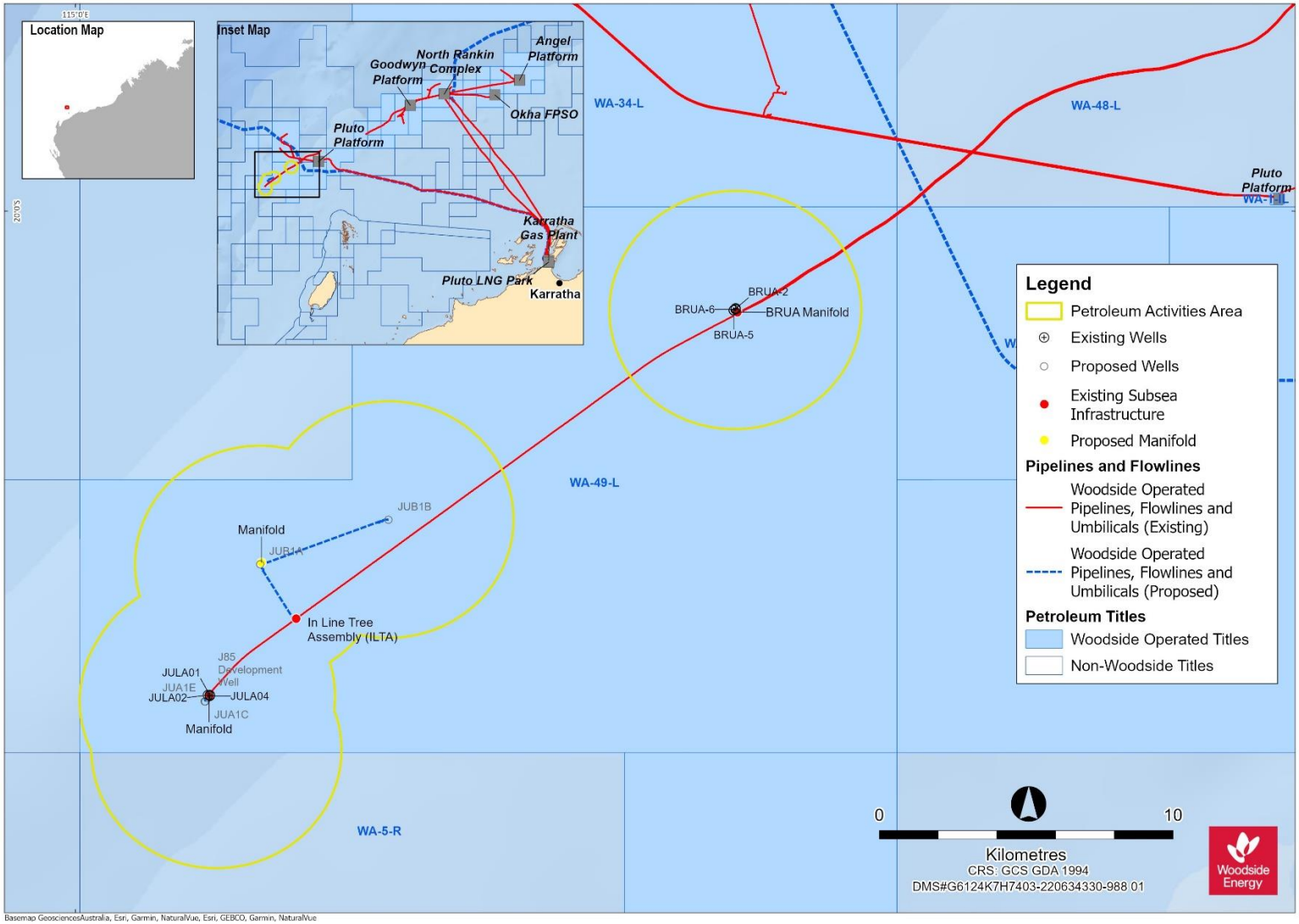

Figure 3-1: Location of the PAP

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3.4 Petroleum Activity Areas

The spatial boundary of the PAP has been described and assessed using three Operational Areas. The combination of Operational Areas defines the spatial boundaries of the PAP, as described and risk assessed by this EP, including vessel related petroleum activities. For the purposes of this EP, the following Operational Areas will apply:

- Well Operational Area: Encompasses a radius of 4 km around development well centres, in which drilling related activities will take place and be managed under this EP. In addition, this Operational Area allows for temporary installation of MODU moorings in Chevron operated WA-5-R, under and subject to access arrangements as detailed in Section 3.3.2.
- Well Intervention Operational Area: Encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP.
- The Subsea Installation Operational Area: Encompasses a 1.5 km radius (3000 m corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1.5 km (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

The Well Operational Area 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 Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master. If contingent well intervention is required, the Well Intervention Operational Area includes a 500m safety exclusion zone around the well intervention vessel, and is under control of the vessel master. The MODU and aforementioned vessels associated with 500 m safety exclusion zones hereinafter will be referred to as “MODU and relevant vessels”.

The Operational Areas are collectively referred to as the Petroleum Activity Area (PAA) in this EP, with specific Operational Areas referred to where relevant. Vessel-related activities within the PAA will comply with this EP. Vessels supporting the PAP when outside the PAA will adhere to applicable maritime regulations and other requirements.

3.5 Timing

The PAP is currently anticipated to commence from Q3 2024 with drilling and completions activities taking approximately 60 days per well including mobilisation, demobilisation and contingency activities. Subsea installation activities are planned to commence Q1 2025 and are likely to take 60 days, with production targeted for the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in 2026, with production for those second campaign wells expected to commence in 2026 or 2027. If required, contingent well intervention activities are expected to take approximately 30 days.

When underway activities will be 24 hours per day, seven days per week. Simultaneous Operations (SIMOPS) activities may occur (e.g. subsea installation nearby drilling activities and installation activities nearby live operating infrastructure). 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, installation of subsea infrastructure, support operations and contingency activities such as intervention, workover, or re-drilling activities throughout the year (all seasons) to provide operational flexibility for requirements and schedule changes and MODU/vessel availability.

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3.6 Project Fluids

All chemicals that may be operationally released or discharged to the marine environment by the PAP 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. This is detailed in Section 7.2.1.

3.7 Project Vessels

Several vessel types will be required to complete the activities associated with the PAP (Table 3-3). 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 moored MODU or a hybrid MODU with both moorings and DP systems, depending on availability and suitability for the well location (e.g., water depth). A hybrid MODU (with DP capability) or moored MODU will drill the JDP3 wells and may install Xmas trees. Should the opportunity be available, well intervention on existing JULA/BRUA production wells may be conducted by a MODU.
- IMR vessel(s) may be used for cold commissioning and may be utilised for installing the XTs.
- Installation vessel(s) for flowlines, umbilicals, FLs, jumpers, manifold and other subsea infrastructure and hardware. May also support cold commissioning prior to start up.
- Light well intervention vessel for contingent well intervention scopes if required.
- Support vessels including:
  - Anchor handling vessels (AHVs) (if required) to set anchors and support the MODU during operations
  - Offshore support vessels and heavy lift vessels for transporting hardware from port/staging area to the PAA and installation vessels, and for general re-supply and support for the MODU and installation vessel(s).

Table 3-3: Potential vessels utilised for different activity scenarios within the PAA.

Vessel		Activity		
		Drilling	**Subsea Installation**	**Contingency Well Intervention**
MODU	***Moored***	Y*	-	Y
	DP			
	Hybrid			
PIV (DP)		-	Y	-
IMR Vessel (DP/standby**)		Y*	Y	Y
Light well intervention vessel		-	-	Y
Offshore Support Vessel (OSV)	***Standby (unless resupplying)***	Y	Y	Y
	Resupply (DP)	Y	Y	Y

**During the drilling campaign, Xmas trees may be lifted from the OSV to the MODU and/or from the IMR vessel to subsea well locations. MODU will be moored in this scenario, standby OSV not on DP, IMR vessel on DP, with the potential of a second OSV on DP serving the MODU.*

***The IMR vessel may be required to wait on weather prior to commencing xmas tree installation and would be on standby / slow transit while waiting.*

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

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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.

3.7.1 MODU

The PAP will be drilled by a moored, DP or hybrid (DP/moored) MODU. These are collectively referred to as 'the MODU' for the remainder of the document, unless specific risks for different MODU types have been identified. Typical MODU specifications are provided in Table 3-4. Due to variabilities, such as contractual and operational matters, the MODU used may be subject to change.

Table 3-4: Typical MODU specification ranges

Component	Specification Range
Rig type/design/class	Semi-submersible MODU
Accommodation	120 to 200 personnel (maximum persons on board)
Station keeping	For moored MODU: Eight-point or twelve-point mooring system For hybrid MODU: Eight-point or twelve-point mooring system and thrusters for Dynamic Positioning (DP3) For DP MODU: thrusters for Dynamic Positioning (DP3)
Bulk mud and cement storage capacity	283 to 770 m^3
Liquid mud storage capacity	576 to 2500 m^3
Fuel oil storage capacity	966 to 2600 m^3
Drill water storage capacity	1500 to 3500 m^3

3.7.2 Primary Installation Vessel

The PAP subsea installation scopes of work will use an installation vessel, which is typically equipped with a variety of material handling equipment, including cranes, winches, ROVs and ROV launch and recovery systems, and flexible product lay system. Lifting operations involve deploying and recovering equipment onto/from 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.

3.7.3 Offshore Support and Other Vessels

During the PAP, the MODU and PIV will be supported by other vessels, such as general support vessel(s), anchor handling vessel(s), heavy lift vessels and multiservice construction vessel(s) (Table 3-5). Installation of xmas trees may be achieved utilising an IMR vessel, if MODU is unavailable or deemed unsuitable.

Light well intervention vessel(s) may be utilised for contingent well intervention activities at any of the PAP wells (refer Section 3.12.5).

Support vessels are used to transport equipment and materials between the MODU, PIV and other support vessels (e.g. IMR vessels), and port. Support vessels may arrive internationally (e.g. South-East Asia), regionally (Henderson) or locally (NWS Ports). These vessels may transit between the

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PAA and NWS Ports including Dampier, Onslow and Exmouth. At any given time, support vessels will make regular trips between the PAA and port for routine, non-routine and emergency operations.

Support vessels will not anchor within the PAA during the activities due to water depth; therefore, vessels will utilise Dynamic Positioning (DP).

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

Table 3-5: Example subsea support vessel specifications

Component	Specification Range	
	Sapura Constructor	***Far Saracen***
Type/Design/Class	IMR vessel	AHV
Accommodation (maximum persons on board)	~120 personnel	~40 personnel
Station keeping	DP2	DP2
Fuel (@ 90% capacity)	~1006 m^3	~998 m^3
Lube oil storage capacity	~35 m^2	~20 m3

3.7.4 Vessel Mobilisation

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

3.8 Other Support

3.8.1 Remotely Operated Vehicles

The MODU, and project vessels may be equipped with a 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
- transponder deployment
- blowout preventer (BOP) land-out and recovery
- BOP well control contingency
- visual observations at seabed during riserless drilling operation
- pre and post installation survey
- Xmas tree control systems hook-up and contingency control
- installation, pre-commissioning and cold commissioning of subsea infrastructure
- anchor/chain hold testing inspection.

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 and small scale sediment relocation if required.

An ROV may also be used in the event of an incident for the deployment of the Subsea First Response Toolkit. This is discussed further in Appendix H.

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3.8.2 Helicopter Operations

During the PAP, crew changes will be undertaken using helicopters as required. Helicopters are the primary means of transporting passengers and/or urgent freight to/from the activity. They are also the preferred means of evacuating personnel in an emergency.

Helicopter operations within the PAA are limited to helicopter take-off and landing on a helideck. Helicopters may be refuelled on a helideck. Helicopters may also be used in emergency response events.

3.8.3 Refuelling

The MODU and PIV will be refuelled via support vessels approximately once a month or as required. Refuelling will take place within the PAA 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.

3.8.4 Underwater Acoustic Positioning

An array of long base line (LBL) transponders may be installed on the seabed as required to support drilling and subsea installation activities. The LBL array provides accurate positioning by measuring ranges to three or more transponders deployed at known locations on the seabed and structures.

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 three months. 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).

During Xmas tree installation activities ultra-short baseline transponders (USBL) may be installed on the seabed or mounted to the wellhead as required by the subsea installation activities. Transmissions from USBL transponders are similar to LBL transponders.

Transponders may be moored to the seabed either by a clump weight or mounted on a seabed frame. The standard clump weights used, made of cement or steel, will typically weigh about 80 kilogram (kg). A typical seabed frame is 1.5 m × 1.5 m × 1.5 m in dimension and weighs about 40 kg. On completion of the positioning operation, the array transponders moored by clump weight are recovered by means of a hydrostatic release. Clump weights will also be recovered. The transponders mounted on seabed frames will be removed by remotely operated vehicles (ROV).

3.8.5 Marine growth removal

Excess marine growth will likely need to be removed from subsea infrastructure using an ROV if accumulated between installation phases, as well as from existing subsea infrastructure to which new items will connect. Any residual cleaning debris and water will be managed in line with the approach applied to routine vessel discharges. Table 3-6 lists the different marine growth removal techniques that may be used.

Table 3-6: Marine growth removal methods

Activity/Equipment	Description
Water jetting	Uses high-pressure water to remove marine growth
Brush systems	Uses brushes attached to an ROV to physically remove marine growth
Acid (typically sulfamic acid)	Chemically dissolves calcium deposits

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3.8.6 Heavy Lifts/Equipment transfers

Critical lifts and/or vessel to vessel equipment transfers of equipment may occur within the PAA. Vessel to vessel equipment transfers are required when a vessel transports equipment from port (local or international) and then hips up to an installation vessel to lift equipment between vessels.

Critical lifts may occur between vessels or during installation of equipment to the seabed. Critical lifts may refer to a heavy or complicated lift, as defined in the applicable lifting standard, and require specific vessels with appropriately rated cranes, lifting equipment and lifting plan.

Lifts that may utilise a heavy lift vessel will occur in sheltered water outside the PAA.

3.9 Project Vessel-based Activities

3.9.1 Holding Station: Mooring Installation and Anchor Hold Testing/Soil Analysis

Mooring uses a system of chains/ropes and anchors, which may be pre-laid before the MODU arrives at the location, to maintain position when drilling. If moorings are used, a mooring analysis will be performed to determine the appropriate mooring system for the PAP. The mooring analysis will identify whether the mooring system will be pre-laid or set by the rig, proof tension values, or if using synthetic fibre mooring ropes is required. A pre-laid system can generally withstand higher sea states compared to a system that only uses the rig's mooring chain/equipment.

Installation and proof tensioning of anchors involves some disturbance to the seabed. Anchor handling vessels are used to deploy and recover the mooring system.

As part of mooring preparations, anchor hold may be tested around the well locations. Anchor hold testing would be performed if Woodside determines that further assurance is required to ensure a robust mooring design.

Anchor hold testing may consist of an AHV or similar vessel dropping an anchor at a potential mooring location. The AHV would then tension the anchor to determine its ability to hold, embed and not drag at the location. This may have to be repeated several times at each location. A remotely operated underwater vehicle may also be used to judge how deep the anchor has embedded and independently verify the seabed condition. Anchor hold testing activities would occur before the MODU arrives on location.

Soil analysis may also be necessary to provide data on composition and rock/substrate strength as input into the mooring design – and verify seabed conditions for anchor holding. Soil analysis could include taking a physical sample of the seabed using ROV or other tools, or using measuring devices such as a cone penetrometer. These tests would be performed up to several months before the MODU arrives on location, and may occur from a support vessel or anchor handling vessel.

Suction piling may be required as a contingent activity, and will be reviewed with the MODU contractor.

3.9.2 Holding Station: Dynamic Positioning MODU

DP uses satellite navigation and radio transponders in conjunction with thrusters to maintain the position of the MODU, PIV and OSVs 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 for the duration of the drilling at each well, and are recovered at the end, generally by ROV. Clump weights are recovered post installation.

3.9.3 Holding Station: Rig Anchor Release MODU

The hybrid MODU scenario is such that the MODU is DP capable though predominantly holds station via pre-laid mooring system. If a hybrid MODU is used to conduct drilling, it will likely have a rig anchor release (RAR) system integrated. The moorings are typically pre-laid as described in

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Section 3.9.1, though a RAR device couples the MODU mooring components with the anchor mooring components. The RAR is an acoustic release connecting link that can be installed in a mooring line to enable a rapid disconnection of a MODU from the mooring system. Each mooring leg would have one RAR installed in the mooring line. The acoustic release process is instigated from a command unit on the MODU that, when activated, transmits a low frequency signal (9 – 11 kHz) that is received by the RAR transducer in the mooring line and activates the primary hydraulic actuator. The hydraulic cylinder then releases the RAR and the mooring line is disconnected. The MODU then recovers the wire/chain ready for transit (on DP) and the subsea mooring leg remains in place, which may be buoyed off to reduce interaction with infrastructure if required.

To reconnect the MODU with the mooring system, the AHV will recover the MODU mooring line from the MODU to replace the chaser collar and anchor/chaser stopper with RAR and the trigger sleeve before connecting to the pre-laid line, which is recovered from the water column by a ROV.

3.9.4 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 backloading 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/PIV 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 PAP are disposed of onshore by support vessels.

The MODU/PIV 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.

The MODU or IMR vessel may be utilised for Xmas tree installation during the drilling activity. Xmas trees may be lifted to the MODU from a support vessel and/or from the IMR vessel to the seafloor. Should the MODU be utilised for Xmas tree installation, the MODU will be moored and the OSV on standby (not DP).

3.9.5 Subsea Installation and Support Vessel Activities

A Primary Installation Vessel will be used for various activities such as pre and post installation survey, installation of subsea structures, installation of the flowlines and umbilicals, installation of interconnecting FLs, tie-in to existing infrastructure, pre-commissioning and cold commissioning activities.

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An IMR vessel may be used during potential early scopes, cold-commissioning and contingency SCM changeout if needed. Other support vessels may also be used to transport equipment, supplies, hardware and Mono-ethylene Glycol (MEG) between the shore and the installation vessel.

3.10 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* (Cth).

3.10.1 Drilling Operations

3.10.1.1 Cement Unit Test

The MODU may be required 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 prior to 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 carried out, 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, 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. The slurry is usually a mix of cement and mix water and cementing chemicals or chemical additives.

3.10.1.2 Top-Hole Section Drilling

PAP 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/guar gum or similar sweeps or drilling fluids to circulate drilled cuttings from the wellbore (discharge to seabed during riserless drilling). As a contingency Pump and Dump (PAD) water-based mud may be used if required based on shallow hazards.
- Once the top-hole sections of the well have been drilled, steel tubulars (called conductor or casing) are inserted into the wellbore and secured in place by pumping cement into the annular space back to about 300 m above the casing shoe or to surface (seabed), which will involve a discharge of excess cement at the seabed.

3.10.1.3 Blowout Preventer and Marine Riser Installation

After setting the surface casing, a blowout preventor (BOP) and marine riser is installed on the wellhead. The BOP provides a means for sealing, controlling and monitoring the well during drilling activities. The BOP components are operated using open hydraulic systems (utilising water-based BOP control fluids). Each time a 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 (approx. 2665 L) approximately every seven days, excluding the week a pressure test is conducted.

The marine riser provides a physical connection between the well and MODU. This enables a closed circulation system to be maintained, where weighted water-based muds (WBM) and cuttings can be circulated from the wellbore back to the MODU via the riser.

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3.10.1.4 Bottom Hole Section Drilling

A closed system (riser in place), is used for drilling bottom hole sections to the planned wellbore total depth. The bottom hole sections will be drilled using WBM drilling fluids; however, non-water based mud (NWBM) may also be used if WBM can not meet technical requirements (Section 3.10.1.7).

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 is 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 are also undertaken to:

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

Cement, barite and bentonite is transported as dry bulk to the MODU by the support vessels. Cement is 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. Bulk product inventory is managed to minimise excess quantities remaining at the end of the campaign, whilst ensuring adequate stock is available for well integrity and safe operations. Excess cement, barite and bentonite (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, transferred to another Woodside or other titleholder contracted rig operating in the region or discharged to the marine environment, if no other options are feasible.

Contaminated liquid cement that cannot be used down hole cannot be returned to shore for disposal as it may solidify in storage tanks. Therefore, contaminated cement would be required to be discharged to the marine environment. Cement will be mixed and pumped as required from a small mixing tank on the cement unit. This limits the volume of excess or contaminated cement that could potentially require discharge to the marine environment.

Cuttings in drilling fluids circulated back to the MODU are separated from the drilling fluids by the solids control equipment (SCE). The SCE comprises shale shakers to remove coarse cuttings from the drilling fluid. After processing by the shale shakers, the recovered fluids from the cuttings may be directed to centrifuges, which are used to remove the finer solids (4.5 to 6 µm). Water-based drill cuttings are usually discharged below the water line and the fluids are recirculated into the fluid system.

3.10.1.5 Drilling Fluids

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 will have been assessed under Woodside's internal guidelines to ensure potential impacts are acceptable, ALARP and meet Woodside's expectation for environmental performance.

3.10.1.6 Water-Based Mud (WBM) System

The PAP will use a water-based 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

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manage pressure, or for borehole stability). All chemicals selected for use will 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, and 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 re-use 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 PAP 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.

3.10.1.7 Non Water-Based Mud System (Contingency only)

The decision to use non water-based muds (NWBM) drilling fluids for the bottom hole sections of a particular well is based on various 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 but is not limited to consideration of environment, health, safety and waste management.

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. This depends on the conditions encountered while drilling. Where NWBM is used, the base oil will be a Group III synthetic oil (e.g. Saraline 185V), for all development wells.

The NWBM drilling fluid will be primarily mixed onshore (new or re-use 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 casing back to the MODU via the riser.

The used NWBM pumped back to the MODU contains drill cuttings and is pumped to the Solids Control Equipment (SCE), where the drill cuttings are removed before being pumped back to the pits ready for re-use. 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 prior to discharge with mud pit washings or returned to shore for disposal if discharge criteria cannot be achieved (refer to mud pits below).

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3.10.1.8 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 completion 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 by volume is sent to shore for disposal.

3.10.1.9 Drill Cuttings

Drill cuttings generated from the well are expected to range from very fine to very coarse (less than 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 PAP.

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 may comprise of, but is not limited to, shale shakers, cuttings dryers 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 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% weight/weight (wt/wt) or less on wet cuttings, prior to discharge.

3.10.2 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 once total depth is reached. Formation Evaluation may include extracting small cores, wireline logging, sampling, full diameter cores and other down-hole technologies, as required. Formation Evaluation While Drilling (FEWD) is the process where formation evaluation is undertaken using tools incorporated in the drilling assembly. The logging tools will be on wireline or incorporated into the drill string during development drilling, and may include gamma ray, directional deep resistivity, callipers, density-neutron, sonic and tools which can sample formation fluids and pressures. Some 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.

3.10.3 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 cleanout 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.

Cleanout 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.

3.10.4 Xmas Tree Installation

Before the upper completion is installed into the wells, the Xmas tree will be installed from either an IMR vessel or directly from the MODU. Due to the subsea well layout, if installation was to occur

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from the IMR vessel, the MODU will be required to reposition away from the drill centre to allow the IMR vessel to install the Xmas tree. Once the Xmas tree has been installed, they will be pressure tested to confirm integrity before the MODU BOP is reconnected to continue with drilling and completions activities. The IMR vessel, if utilised for Xmas tree installations, will be required to return to port between each well.

The Xmas tree will be installed with a preservation mixture in the production and annulus bore. There will be a small discharge of preservation fluid associated with testing and connecting the subsea system (estimated 100 to 150 litres (L) per well).

3.10.5 Completion

Once a well has been drilled, well completion activities will be undertaken including installation of the lower completion, intermediate completion, upper completion / production tubing, and crown plugs. The well is then pressure tested for integrity and suspended in a configuration for unloading to host facility. Lower completion will be an open hole gravel pack with a viscous water-based fluid.

Following upper completions installation, wells will be configured for unload to host and suspended with a fluid column above the open formation isolation valve (FIV) and two crown plugs installed. The intent is for the fluid column to drain away over the months the well is suspended eventually reaching a state where the tubing is filled with a column of gas below the crown plugs in the tubing hanger. Crown plugs will be individually pressure tested to verify as suspension barriers prior to the BOP being removed.

3.10.6 Subsea Equipment Preservation Chemicals

Following well completion activities, the wells may be left with subsea equipment (such as xmas trees) installed, awaiting pre-commissioning and connection to the subsea production system. All subsea equipment will contain preservation fluids to prevent corrosion and any other deterioration of the equipment before production.

3.11 Subsea Installation Activities

3.11.1 Existing Subsea Infrastructure

The proposed JDP3 subsea infrastructure will tie-in to three locations on the existing Julimar Subsea production system:

- The JDP2 ILT assembly
- Existing slots on the JULA manifold
- Existing control system (UTA and SDA)

3.11.2 Proposed Subsea Infrastructure

The subsea installation scope of work will include installing and may include cold commissioning the infrastructure summarised in Table 3-7. The installation contractor will mobilise an installation vessel to the field to install the new subsea infrastructure on the seabed. The installation vessel will operate in DP throughout the campaign.

The PAP includes directly installing flowlines and infrastructure from the PIV. There will be potential for small discharges associated with the testing and connection activities of the subsea systems during hookup and cold commissioning of the JDP3 subsea infrastructure. Examples include:

- discharge of small volumes of flowline contents (inhibited seawater, MEG) during tie-in
- initial dissolving of chemical sticks prior to connectors being closed
- isolation testing resulting in small volumes of hydrocarbon gas being discharged.

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Wet storage of infrastructure items may be required during installation. During the wet storing period, the internal volumes of subsea equipment will be preserved and protected with inhibition fluids.

Post installation, all installation aids (i.e. transponder arrays, frames) will be recovered. This will be confirmed via an ROV inspection.

Table 3-7: Subsea installation component summary

Description	Detail	Dimensions (approx.) L × W × H
Wells	Xmas tree x5	4 × 6 × 4 m
	Tree cap x5	3 × 3 × 3 m
Subsea flowlines	10” ID flexible flowline between JDP2 ILT and JULB manifold	~2.5 km in length
	8“ or 10” ID flexible flowline between JULB manifold and Penfolds xmas tree	~4.4 km in length
	~8” or 10” ID flexible flowline between J85 well Xmas tree and existing JULA manifold	~2 km in length
	1x8” or 10” ID flexible jumper connecting JULB manifold and JULB-B xmas tree	~90 m in length
	2x 8” ID flexible jumpers connecting JULA manifold to Xmas trees	~300 m in length
Subsea control	3 x Umbilicals complete with UTAs, associated with production flowlines (~ 155 mm OD)	~2.5 km ~4.4 km ~2 km
	Various Electrical Flying Leads (EFL)	Up to ~300 m in length
	Various Optical Flying Leads (OFL)	Up to ~150 m in length
	Various Hydraulic Flying Leads (HFL)	Up to ~300 m in length
Subsea structures	JULA-B manifold complete with mud mat	13 x 12 x 6 m
	Mud mats, concrete mattresses, grout bags etc.	Various
	J85 cooling skid	12 x 12 x 6 m
	UTAs mud mats (x 6)	5 × 4 × 2 m

3.11.3 Pre-lay Survey

The flowline and umbilical installation contractor will perform a pre-lay survey before starting each flowline and umbilical 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 by the PIV.

The pre-lay survey is a debris and hazard identification survey and not a full geophysical survey along the predetermined route or proposed design route. A site survey has previously been performed and it is not anticipated that any debris will need to be removed before flowline and umbilical installations. 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 surveys are expected to be performed by an ROV or autonomous underwater vehicle (AUV) using side scan sonar and/or video. The survey methods are nonintrusive 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 surveys 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.

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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.

3.11.4 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.

3.11.5 Installation of Supporting Structure

If required, supporting structures (e.g., mud mats, fixed datum points) will be installed by the PIV or IMR vessel before commencing or post subsea installation.

Flying lead replacement on the existing infrastructure may be opportunistically undertaken during the PAP.

Transponder(s) may be fitted on each structure before deployment. Structures will be deployed using the PIV'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 or USBL array.

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 where practicable.

3.11.6 Flowline Initiation/Initiation Anchor Deployment

Commencement of flowline installation may require using initiation anchors to pull against, in order to provide the required tension to the flowline as it transitions from the installation vessel to the seabed. The initiation anchors may consist of a suction pile, drag anchor or clump weight/dead-man anchor and will be recovered post installation where practicable.

3.11.7 General Flowline and EHU Installation

Optimum flowline and umbilical routes will be selected by considering seabed bathymetry, preinstallation surveys and installation risk management, including dropped object risks and buckling/walking impacts. The flowlines and umbilicals will be installed using a reel-lay system.

The indicative installation methodology and principle applied when installing the flowlines and umbilicals is as follows:

- The flexible flowlines and umbilicals will be stored on reels.
- A Vertical lay system (VLS) will be installed on the vessel.
- 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 and umbilical is as follows:
  - Prepare connection system (flexible) or UTA (umbilical) and VLS onboard the vessel.
  - Perform tests and pre-deployment checks.
  - Deploy and land out the flowline or umbilical first end via VLS and crane wire, using ROV for observation, support activities and positioning as required.
  - Continue flexible flowline or umbilical lay as per lay route while monitoring touchdown with ROV until the total length of flowline / umbilical has been laid to (a) the second end connector for flexibles or (b) the second end UTA for umbilicals.

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- Land out the second end of the flowline or umbilical via the VLS and crane wire, using the ROV for observation, support activities and positioning as required.

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.

The base plan is for the manifold to be installed after MODU drilling operations have finished. As a contingency for a delay in MODU operations, the manifold installation while the MODU is infield will be reviewed if needed to assess suitable SIMOPS to maintain project schedule.

3.11.8 General HFL, EFL, OFL and Jumper Installation

The PAP includes installing several new subsea components that will tie in each well to the either existing or new production manifolds or to new UTAs. The FLs will be configured into deployment basket(s) or onto deployment frames and landed on the seabed using a crane. ROVs will complete the final subsea tie-in. Water jetting and/ or acid injection may be used to clean the connections on the infrastructure prior to tie-in. Sand bags will be installed by ROV at intervals along each FL to provide stability.

3.11.9 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 or grout bags, before installing the flowline. Engineering will determine if span rectification is needed.

Scouring is the movement of seabed sediment (e.g., silt, sand and gravel) from around the base of a subsea structure to further afield due to prevailing hydrodynamic conditions, compromising the integrity of the structure. If scouring is a risk, then it is typically mitigated by installing concrete mattresses along the perimeter of the installed structure. Frond mats or rocks may also be used for scouring, however, this is less likely.

The dimensions for each concrete mattress are typically 6 m by 3 m by 0.3 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 assist with positioning 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 prelay 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 that the affected items, such as FLs, flexible flowlines and flexible jumpers, remain at their installed positions; i.e., not being shifted due to strong seabed

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current. Stabilisation of FLs is generally mitigated by installing sand bags on top at a predetermined distance apart. Sand bags generally come in a standard size with 20 kg to 40 kg weight. Stabilisation of flexible flowlines and jumpers, if required, may use concrete mattresses at predetermined spacing. The dimensions of mattresses and the process for installation will be similar to those described above for prelay span rectification.

3.11.10 Pre-commissioning Hydrotesting and Pressure Testing

Pressure testing is performed to test the integrity of subsea infrastructure, test isolations and identify any leaks. Pressure is usually applied via a downline from a support vessel and/or via a subsea test manifold. 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 pre-commissioning activities will be subject to the chemical selection assessment process described in Section 7.2.1.

All flexible jumpers and flowlines will be pre-filled and installed with a mixture of up to 90 wt% MEG and chemically treated potable water. The JULB manifold will likely be filled with pure MEG. All flexible flowlines will not require further flooding post installation but pressure test fluid similar to the pre-fill fluid will be required for each planned pressure test and for repeat tests in the event of test failure.

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 will be small volumes of test fluids discharged to environment from the vessel during depressurisation, connection and disconnection of hot stabs.

3.11.11 Preservation Post Subsea Connection Break Out

During tie-in and cold commissioning activities, any subsea connection breakouts will be preserved with chemical sticks. Minor discharges may occur during subsea connection breakouts through diffusion.

3.11.12 Tie-in of Flowlines at ILT and JULA Manifold

Prior to tie-in of the flowlines and jumpers to the existing Julimar production system, verification testing of any leakage from the existing manifold branch isolation valves or the ILT 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 small quantities of hydrocarbons to the environment. The hydrocarbons are predominately gas with a small quantity of condensate.

Additionally, when the flowline tie-ins take place, a small quantity of hydrocarbons may be released. A conservative estimate of hydrocarbons that may be released during each flowline tie-in at the manifold and ILT is up to 200 L of condensate and residual gas over a 48 hour period.

3.11.13 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 and instruments. Cold commissioning will verify that the system is ready for entry into the commissioning phase, where hydrocarbons will be introduced to the system under the Julimar Operations EP.

3.12 Contingent Activities

The next sections present contingencies that may be required, if operational or technical issues occur during the PAP. These contingencies have been considered within the relevant impact

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assessment sections and do not represent significant additional risks or impacts but may generate additional volumes of drilling fluids and cuttings being operationally discharged.

3.12.1 Well Flowback

Development wells are planned to be unloaded and flowed back to the Wheatstone production facility (Unload to Host) as the preferred option, where well fluids will be processed in accordance with the accepted Wheatstone Project Start-up and Operations EP. If the wells are not unloaded to the Wheatstone facility, they will instead be unloaded to the MODU as described in this section.

3.12.1.1 General Description

Upon successfully drilling the development wells, all completion and reservoir fluids may be flared or discharged to the environment via the temporary production system. The types of tasks associated with well testing and flowback may include:

- reservoir gas flaring
- reservoir gas venting.

During well unloading activities, all completion and reservoir fluids may be flared or discharged to the environment via the temporary production system. Base oil would be used to underbalance the well. The base oil column, completion fluids, hydrocarbons and produced/condensed water would be treated for overboard discharge if it meets discharge requirements (non-hydrocarbon) or flared/burned (hydrocarbon) through the temporary production system on the MODU.

3.12.1.2 Produced / Reservoir Water Disposal

The temporary production system water filtration treatment package may 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 would be sent onshore in tanks for disposal.

3.12.1.3 Hydrocarbon emissions and/or discharges

During well unloading to the MODU, gas, condensate, base oil and methanol in the wellbore may be flared and efficiently burned. The flare may be extinguished due to water ingress, lack of pilot (propane), weather impact, or equipment failure resulting in cold venting of gas from the flare and/or discharge of small volumes of liquid hydrocarbon droplets for several minutes. 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.

3.12.2 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) or after drilling the reservoir section. Respudding involves moving the MODU to a suitably close location (e.g. about 25m - 250 m from the original location) to recommence drilling. A respud activity would result in repeating top-hole drilling.

The environmental aspects of respudding are the same as those for drilling and are considered to be adequately addressed by this EP, with no significant changes to existing environmental risks or any additional environmental risks likely. The net environmental effect would be limited to an increase in the volume of cuttings generated 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.

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3.12.3 Sidetrack

A sidetrack may be required instead of a respud 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, with no significant changes to existing environmental risks or any additional environmental risks likely. The net environmental effect would be limited to an increase in the volume of cuttings generated, potential increase in the use of cements, drilling fluids, and the additional emissions (atmospheric and waste) associated with an extended drilling program.

3.12.4 Workover

The proposed development wells may be worked over to monitor and maintain well integrity as required. A workover may be completed using either a MODU or LWI vessel. The environmental aspects of a workover operation are the same as those for undertaking 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.

3.12.5 Well Intervention

An intervention may be carried out on any of the PAP wells. Interventions may be carried out due to down-hole equipment failure or to address underperformance of a well.

Well intervention generally occurs within the wellbore and includes activities such as:

- slickline/wireline/coiled hose/coil-tubing operations
- well testing and flowback
- well workovers (mechanical or hydraulic).

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.

During intervention activities, local control of the Xmas tree may be required. Valve actuation of the trees may be required, which will result in small releases of subsea control fluids to be released to the environment. Intervention activities may also include removing marine fouling by mechanical or acid soaking, resulting in the release of marine-fouling debris and small amounts of acid to the environment. When retrieving intervention tooling, small volumes of wellbore fluids may be displaced back into the well.

3.12.6 Emergency Disconnect Sequence

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

3.12.7 Well Suspension

During drilling activities, the 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 sometimes 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

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MODU reconnects to the well via the riser, and with BOP in place, barriers are removed and drilling activity resumes.

3.12.8 Well Abandonment

The PAP covers the drilling of development wells, which are not envisaged to be abandoned until the end of the production field life. For technical reasons, it may be required to abandon the lower section of a well, prior to sidetracking, or in the event that a respud is required.

Well abandonment activities are conducted in accordance with Woodside's internal standards. Base oil may be used for inflow testing prior to abandonment, to verify barrier integrity (base oil is also used for well cleanup/well test activities and as such has been risk assessed in this EP). 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 would be abandoned with abandonment cement plugs, including verification of the uppermost cement plug by tagging and/or pressure testing through a prescribed program. A lower section of a well may also be abandoned prior to sidetracking.

Following abandonment activity, the marine riser and BOP will be removed and every reasonable attempt for retrieval of the wellhead will be made. Wellheads are removed by deploying a cutting device on drill pipe which then cuts through the 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 (refer to Section 3.12.9). The integrity of the wellbore is not affected by the wellhead assembly remaining in-situ.

3.12.9 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 undertaken as outlined in Section 3.12.8, but the wellhead 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 are considered to be adequately addressed by this EP (Section 6.7.2), with no significant changes to existing environmental risks or any additional environmental risks likely.

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

3.12.10 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.

3.12.11 Venting

During drilling or completion of the well, a well 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 gases is released to the atmosphere via the degasser, in a well control operation known as 'venting'.

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4. DESCRIPTION OF THE EXISTING ENVIRONMENT

4.1 Overview

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

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 combined potential spatial extent of surface and in-water hydrocarbons at concentrations above ecological impact thresholds, in the event of the worst-case credible spill from either a loss or well control, or from vessel collision. The ecological impact thresholds used to delineate the EMBA are defined in Section 6.8.1.3.

Woodside recognises that hydrocarbons may be visible beyond the EMBA at lower concentrations than the ecological impact thresholds defined in Section 6.8.1.3. 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 multiple spill scenarios (loss of well control and vessel collision) over 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

Hydrocarbon Type	EMBA[1]	Socio-cultural EMBA[1]	Planning Area for Scientific Monitoring
Surface	10 g/m^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 guidance note: A652993, April 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 guidance note: A652993, April 2019). This area is described further in Appendix H: Figure 4-1. In the event of a spill, DNP will be notified of AMPs which may
Entrained	100 ppb This represents potential toxic effects, particularly sublethal effects to highly sensitive species (NOPSEMA guidance note:		

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Hydrocarbon Type	EMBA[1]	Socio-cultural EMBA[1]	Planning Area for Scientific Monitoring
	A652993, April 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.		be contacted by hydrocarbons at this threshold (Table 5-1).
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

[1] *Further details including the source of the thresholds used to define the EMBA in this table are provided in Section 6.8.1*

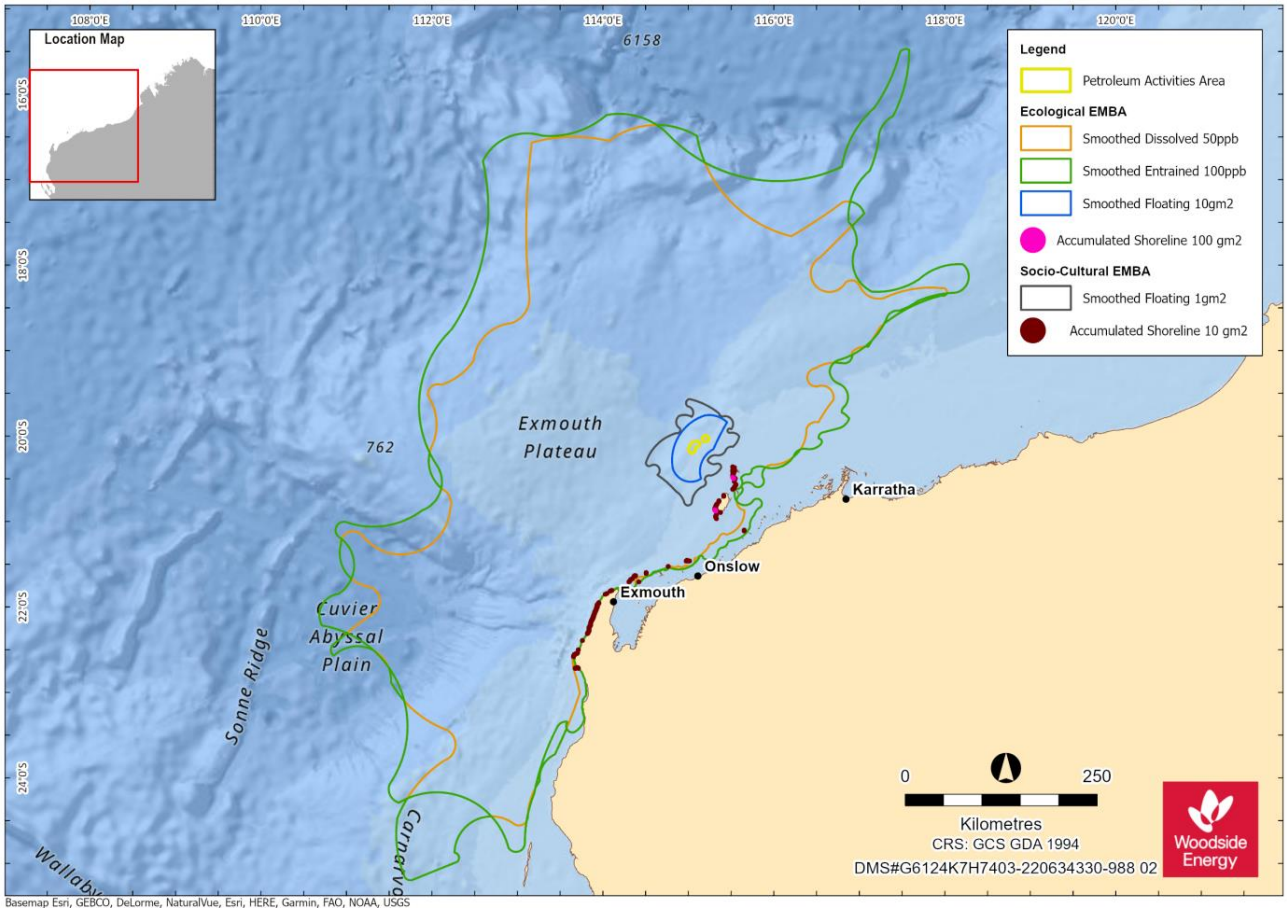

Figure 4-1: Environment that May Be Affected (EMBA) by the PAP

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4.2 Regional Context

The PAA occurs in Commonwealth waters off the north-west coast of Western Australia (WA), located in the North-west Marine Bioregion (IMCRA 4.0) (NWMR). Within the NWMR, the PAA lies within the Northern Carnarvon Basin on the Exmouth Plateau, about 169 km offshore from Dampier. The PAA overlaps with the Northwest Province and Northwest Shelf Province. The EMBA overlaps with the Northwest Province, Northwest Transition, Northwest Shelf Province, Central Western Transition, Central Western Shelf Transition and Central Western Shelf Province., all within the NWMR (Figure 4-2) Woodside's Master Existing Environment summarises the characteristics for the relevant marine bioregions.

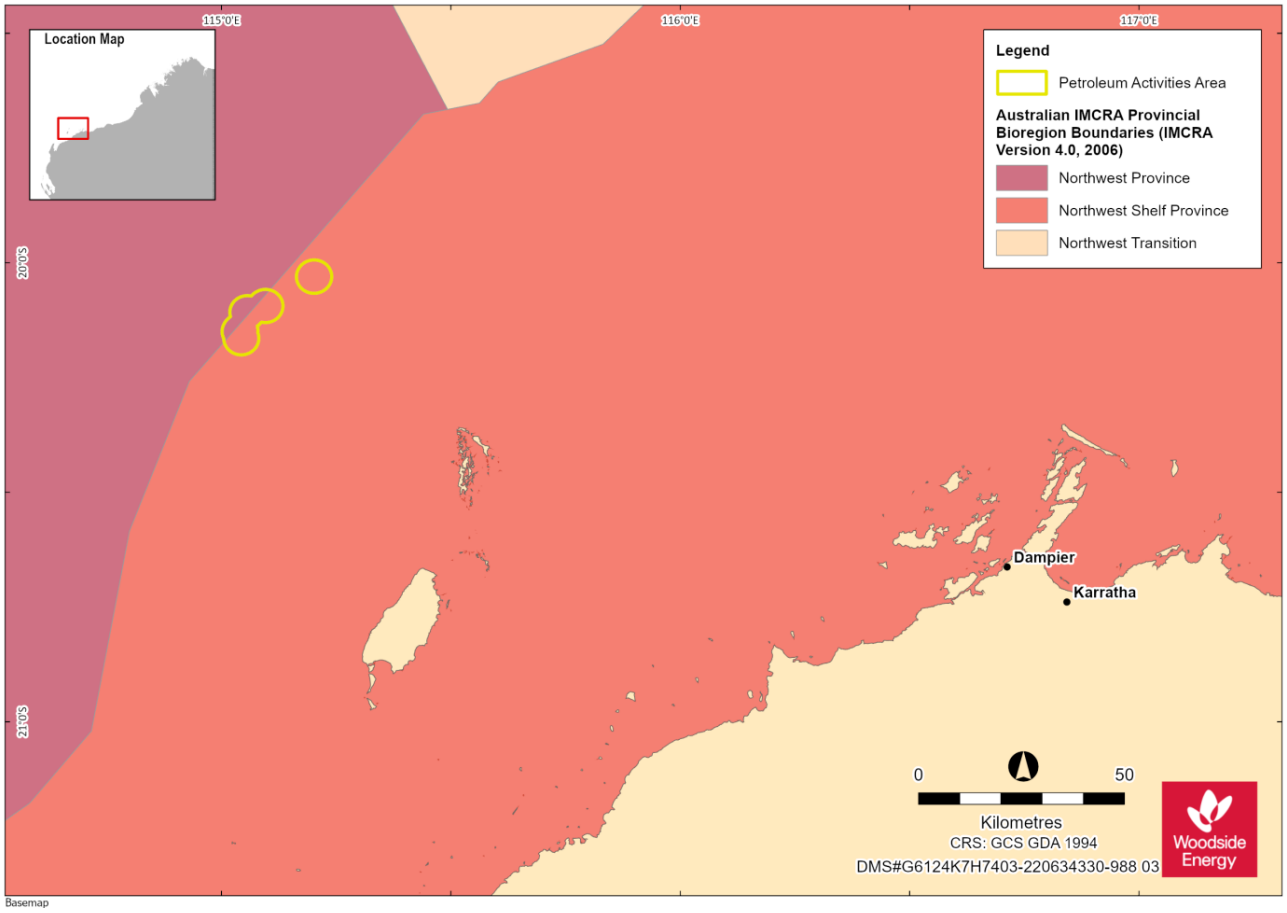

Figure 4-2: Location of the PAA and relevant marine bioregions

4.3 Matters of National Environmental Significance (EPBC Act)

Table 4-2 and Table 4-3 summarise the matters of national environmental significance (MNES) that have potential to occur within the PAA and EMBA, according to Protected Matters Search Tool (PMST) results (Figure 4-2 and Appendix C). It should be noted that the EPBC Act PMST is a general database that conservatively identifies areas in which protected species have the potential to occur.

Terrestrial based species identified using the PMST searches, that are unlikely to interact with the shoreline EMBA, have been removed from this section.

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

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

MNES	Number	Relevant Section
World Heritage Properties	0	Section 4.9
National Heritage Places	0	Section 4.9
Wetlands of International Importance (Ramsar)	0	Section 4.9
Commonwealth Marine Area	1	Section 4.2
Listed Threatened Ecological Communities	0	Section 4.5
Listed Threatened Species	23	Section 4.6
Listed Conservation Dependent Species	2	Section 4.6
Listed Migratory Species	38	Section 4.6

Table 4-3: Summary of MNES identified by the EPBC Act PMST as potentially occurring within the EMBA

MNES	Number	Relevant Section
World Heritage Properties	2	Section 4.9
National Heritage Places	2	Section 4.9
Wetlands of International Importance (Ramsar)	0	Section 4.9
Commonwealth Marine Area	2	Section 4.2
Listed Threatened Ecological Communities	0	Section 4.5
Listed Threatened Species	35	Section 4.6
Listed Conservation Dependent Species	3	Section 4.6
Listed Migratory Species	65	Section 4.6

4.4 Physical Environment

Key features of the physical environment are summarised in Table 4-4 and described in further detail in Section 6.3 of the Master Existing Environment.

Table 4-4: Summary of the characteristics of the physical environment relevant to the PAA and EMBA.

Physical Characteristic	Relevance to the PAA and EMBA
Bathymetry and geomorphology	The PAA is located in waters about 120–300 m deep on the middle continental shelf. The seabed is relatively flat, sloping toward the north-west of the PAA. Several deep-sea geomorphic features in the form of abyssal plains, marginal plateaus and sub-marine canyons provide broad-scale, biologically important seabed habitat in the EMBA.
Climate	The climate of the NWMR is dry tropical, exhibiting a hot summer season from October to April and a milder winter season between May and September (Bureau of Meteorology (BoM), 2012). There are often distinct transition periods between the summer and winter regimes, which are characterised by periods of relatively low winds (Pearce et al., 2003).
Oceanography	Tides in the NWS region are semi-diurnal and have a pronounced spring-neap cycle, with tidal currents flooding towards the south-east and ebbing towards the north-west (Pearce et al., 2003). The region exhibits a considerable range in tidal height, from microtidal ranges (<2 m) south-west of Barrow Island to macrotidal (>6 m) north of Broome (Holloway, 1983; Brewer et al., 2007). Storm surges and cyclonic events can also significantly raise sea levels above predicted tidal heights (Pearce et al., 2003).

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	In addition to the synoptic-scale current dynamics, tidally-driven currents are a significant component of water movement along the NWS. Wind-driven currents become dominant during the neap tide (Pearce et al., 2003).
Seawater Characteristics	The offshore oceanic seawater characteristics of the NWS exhibit seasonal and water depth variation in temperature and salinity, being greatly influenced by major currents in the region. Surface waters are relatively warm year round due to the tropical water supplied by the Indonesian Throughflow (ITF) and the Leeuwin Current, with temperatures reaching 30 °C in summer and dropping to 22 °C in winter (Pearce et al., 2003). Variation in surface salinity along the NWS throughout the year is minimal (between 35.2 and 35.7 PSU), with slight increases occurring during the summer months due to intense coastal evaporation (Pearce et al., 2003; James et al., 2004).
Marine Sediment	A benthic survey conducted as part of the Julimar Operations EP (directly adjacent to the PAA) found that the area is dominated by soft sediment (fine to coarse sands) (Neptune Geomatics, 2010; RPS, 2010, 2011a). Sediments of the NWMR (and within the EMBA) are comprised of bio-clastic, calcareous and organogenic sediments (Baker et al., 2008). On the continental shelf, sediment is primarily sand and gravels, while the slope and deep ocean seabed is primarily mud.
Air quality	There is a lack of air quality data for the offshore NWS air shed. Studies have been undertaken for the nearshore Pilbara environment to monitor known sources of potential air pollution for locations such as the Burrup Peninsula and Port Hedland, but no monitoring is undertaken offshore. Due to the extent of the open ocean area and the activities that are currently performed, the ambient air quality in the PAA and wider offshore region is considered to be of high quality.

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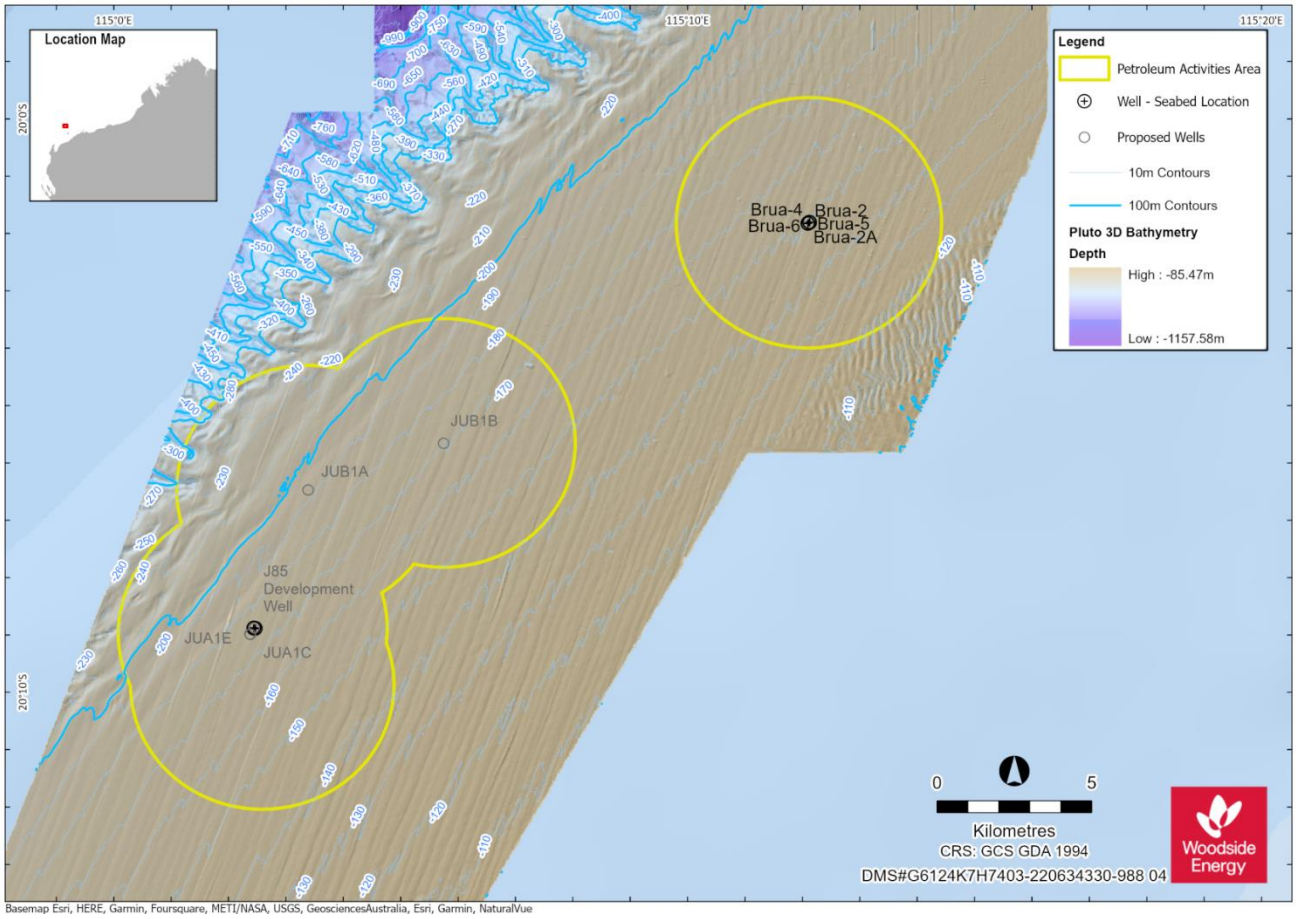

Figure 4-3: Bathymetry of the PAA

4.5 Habitats and Biological Communities

The seafloor of the PAA is likely to consist of soft sediment seabed habitat, characterised by sparse epifauna and infauna. A survey of the nearby Balnaves Development seafloor recorded sparse (< 5% cover) epibenthic fauna such as anemones, urchins, sea whips, sea pens feathers stars and glass sponges (RPS, 2011b). Infauna consisted of polychaetes and crustaceans. Similarly, the benthic habitats communities at the nearby Pluto Platform (13 km north-east of the PAA) are characterised as consisting of a sparsely abundant community of infauna (polychaetes, nemerteans, sipunculids and crustaceans) (SKM, 2006).

These results correlate with other NWS sampling programs, and indicate a widespread and well represented infauna assemblage along the continental shelf and upper slopes (Rainer, 1991; Le Provost et al., 2000; Woodside, 2004; Brewer et al., 2007). It is likely that the sea floor of the PAA will feature similar distribution and diversity of epifauna and infauna. Additionally, it is expected that the infaunal and epifaunal communities are widely represented in the EMBA.

Key habitats and ecological communities within the EMBA are identified in Table 4-5 and described in the Master Existing Environment.

Table 4-5: Habitats and communities within the PAA and EMBA

Habitat/Community	Key locations within the PAA and EMBA
Benthic communities	
Bare/unconsolidated sediments	The offshore environment of the NWMR, where the PAA is located, comprises predominately of soft sediments (sandy and muddy substrata with occasional patches of coarser sediments) and sparse benthic biota.

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Epifauna and Infauna	The benthic communities inhabiting the predominantly soft, fine sediments of the PAA are characterised by infauna such as polychaetes, and sessile and mobile epifauna such as crustacea (shrimp, crabs and squat lobsters) and echinoderms (starfish, cucumbers). The density of benthic fauna is typically lower in deep-sea sediment habitats (greater than 200 m) than in shallower coastal sediment habitats, but the diversity of communities may be similar.
Corals	Coral reef habitats have a high diversity of corals and associated fish and other species of both commercial and conservation importance. Coral reef habitats are an integral part of the marine environment within the NWMR. The nearest coral reef habitat to the PAA is located at Montebello Islands, about 45 km south-east. Other coral reef habitats in the EMBA include Barrow/Lowendal Islands Group, Muiron Islands and Ningaloo Coast.
Macroalgae & seagrass	Seagrass beds and macroalgae habitats represent a food source for many marine species and also provide key habitats and nursery grounds (Department of Fisheries (DoF), 2011a). Seagrass beds and macroalgae habitats are present in several locations within the North-West Shelf Province, where the PAA is located. The nearest to the PAA, and within the EMBA, are about 42km east at the Montebello/Barrow/Lowendal Islands Group, where macroalgae is the dominant macrophyte and occupies about 40% of the benthic habitat cover (Marine Parks and Reserves Authority (MPRA), 2007). Seagrass beds and macroalgae habitat can also be found in the EMBA at some islands within the Muiron Islands and Ningaloo Coast.
Mangroves	Mangroves grow in intertidal mud and sand, with specially adapted aerial roots (pneumatophores) that provide for gas exchange during low tide (McClatchie et al., 2006). Mangrove forests can help stabilise coastal sediments, provide a nursery ground for many species of fish and crustacean, and provide shelter or nesting areas for seabirds (McClatchie et al., 2006). Mangroves are confined to shoreline habitats, in nearshore areas of the NWMR. Mangrove forests can be found in the EMBA within the Pilbara shoreline.
Banks & Shoals	Shoals are a significant habitat within the EMBA, and a number of submerged banks and shoals are located throughout the EMBA associated with the Southern Pilbara Island group (e.g. Outrim Patches, Penguin Bank). Key shoals include Rankin Bank, located 47 km north east of the PAA.
Offshore reefs and islands	Within the EMBA key reefs and islands include: • Montebello/Barrow/Lowendal Islands ~ 42 km east of PAA • Thevenard Island ~ 137 km south of PAA • Muiron Island ~ 172 km south west of PAA • Ningaloo Reef ~ 196 km south west of the PAA
WA coastline communities	The EMBA includes contact with the WA mainland coastline, predominantly along the Ningaloo and Cape Range coastline. The nearshore and coastal environments of Ningaloo on the WA coastline are approximately 198 km from the PAA. Communities within the EMBA include sandy beaches, mangroves and rocky shores.
Other habitats and communities	
Plankton	Phytoplankton within the PAA is generally 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 PAA 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) (Rosser & Gilmour, 2008; Simpson et al., 1993) and fish larvae abundance can occur throughout the year. Within the EMBA, peak primary productivity occurs in late summer/early autumn along the shelf edge of the Ningaloo Reef. It also links to a larger biologically productive

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	period in the area that includes mass coral spawning events, peaks in zooplankton and fish larvae abundance (MPRA, 2005) with periodic upwelling throughout the year.
Pelagic and demersal fish communities	Free swimming pelagic fish within the PAA and EMBA are expected to include small pelagic fishes, broadly distributed throughout the tropical pelagic environment. Larger pelagic fish include migratory species (e.g. tunas, sharks etc.) as well as commercially important species.

4.6 Protected Species

A total of 79 EPBC Act listed species considered to be MNES (listed threatened or migratory) were identified as potentially occurring within the EMBA, of which a subset of 44 species were identified as potentially occurring within the PAA. The full list of marine species identified from the PMST reports is provided in Appendix C. The PMST results also included several MNES that are not considered to be credibly impacted (e.g. terrestrial species within the EMBA). Two conservation dependent species have also been identified with a potential to occur within the PAA and three in the wider EMBA. One of those species, southern bluefin tuna, has a spawning area within the South of Java Island Ecologically or Biologically Significant Marine Areas (EBSA) directly to the north of the PAA.

Species identified as potentially occurring within the PAA and EMBA and Biologically Important Areas (BIAs) or Habitat Critical to the Survival of the Species (Habitat Critical) that overlap the PAA and EMBA are listed in Table 4-6 to Table 4-14, and a description of species is included in Woodside's Master Existing Environment. Figure 4-4 to Figure 4-9 show the spatial overlap with relevant BIAs and Habitat Critical areas and the PAA.

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4.6.1 Fish, Sharks and Rays

Table 4-6: Threatened and Migratory fish, shark and ray species predicted to occur within the PAA and EMBA

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
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
Carcharias taurus (west coast population)	Grey nurse shark	Vulnerable	N/A	Species or species habitat known to occur within area	Species or species habitat known to occur within area
Pristis clavata	Dwarf 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	Vulnerable	Migratory	Species or species habitat may occur within area	Species or species habitat likely to occur within area
Pristis zijsron	Green sawfish	Vulnerable	Migratory	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 shark	Conservation Dependent	N/A	Species or species habitat likely to 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
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

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
Isurus paucus	Longfin mako shark	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat likely to occur within area
Manta birostris (recently revised taxonomy *Mobula birostris* [White et al., 2017])	Giant manta ray	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
Manta alfredi	Reef manta ray	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
Anoxypristis cuspidata	Narrow sawfish	N/A	Migratory	Species or species habitat may 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
Lamna nasus	Porbeagle shark, Mackerel Shark	N/A	Migratory	N/A	Species or species habitat may occur within area
Centrophorus zeehaani	Southern dogfish	Conservation Dependent	N/A	N/A	Species or species habitat may occur within area

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Table 4-7: Shark BIAs within the EMBA

Species	BIA type	Approximate distance (km) and direction from PAA
Rhincodon typus (Whale Shark)	Foraging (Northward from Ningaloo along 200 m isobath)	Overlaps PAA
	Foraging (high prey density) (Ningaloo Marine park and adjacent Commonwealth waters)	210 km south

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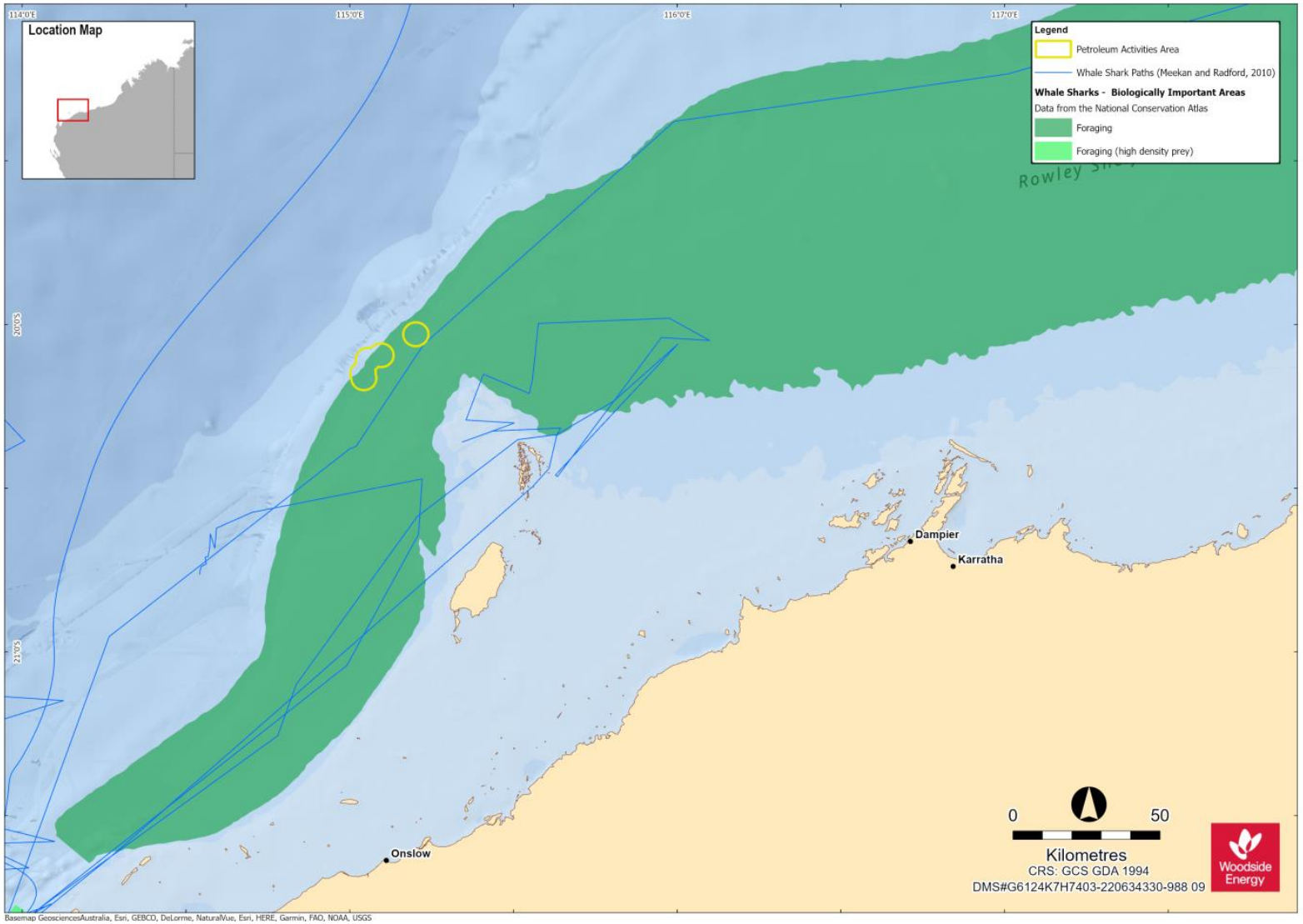

Figure 4-4: Whale shark BIA in proximity to the PAA

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4.6.2 Marine Reptiles

Table 4-8:Threatened and Migratory marine reptile species predicted to occur within the PAA and EMBA

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
Caretta caretta	Loggerhead turtle	Endangered	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	Species or species habitat 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
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
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

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Table 4-9: Marine Turtle BIAs overlapping the PAA and EMBA

Species	BIA type	Approximate distance (km) and direction from PAA
Natator depressus (Flatback turtle)	Internesting buffer (Montebello Island– Hermite Island, NW Island, Trimouille Island)	Overlaps PAA
	Internesting buffer (Thenervard Island – South coast)	43 km south
	Foraging (Coral reef habitat west of the Montebello group. Extends the entire length of Montebellos, Montebello Island – Hermite Island, NW Island, Trimouille Island)	47 km east
	Internesting buffer (Coral reef habitat west of the Montebello group. Extends the entire length of Montebellos)	47 km east
	Mating (Coral reef habitat west of the Montebello group. Extends the entire length of Montebellos, Montebello Island – Hermite Island, NW Island, Trimouille Island)	47 km east
	Aggregation (Coral reef habitat west of the Montebello group. Extends the entire length of Montebellos)	47 km east
	Nesting (Montebello Island – Hermite Island, NW Island, Trimouille Island)	44 km east
	Mating (Montebello Island – Hermite Island, NW Island, Trimouille Island)	44 km east
	Foraging (Montebello Island – Hermite Island, NW Island, Trimouille Island)	44 km east
	Nesting (Barrow Island)	62 km east
	Foraging (Barrow Island)	62 km east
	Mating (Barrow Island)	62 km east
	Internesting buffer (Dampier Archipelago (Islands to the west of the Burrup Peninsula, Intercourse Island, Legendre Island, Huay Island)	68 km east
	Internesting buffer (Intercourse Island)	80 km east
	Internesting buffer (Legendre Island, Huay Island)	103 km east
	Internesting buffer (Delambre Island)	121 km east
	Nesting (Thevernard Island – south coast)	122 km south
	Foraging (String of islands between Cape Preston and Onslow, inshore of Barrow Island)	123 km south
	Internesting buffer (Dixon Island)	133 km east
Chelonia mydas (Green turtle)	Internesting (Montebello Islands)	20 km east
	Internesting Buffer (Montebello Island – Hermite Island, NW Island, Trimouille Island)	25 km east

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	Foraging (Montebello Islands)	40 km east
	Mating (Montebello Islands)	40 km east
	Nesting (Montebello Islands)	40 km east
	Internesting (Montebello Islands)	40 km east
	Internesting buffer (Middle Is. West Coast Barrow Island West Coast and North Coast)	43 km east
	Foraging (Montebello Island – Hermite Island, NW Island, Trimouille Island)	45 km east
	Mating (Montebello Island – Hermite Island, NW Island, Trimouille Island)	45 km east
	Nesting (Montebello Island – Hermite Island, NW Island, Trimouille Island)	45 km east
	Foraging (Coral reef habitat west of the Montebello group. Extends the entire length of the Montebellos)	48 km east
	Internesting (Coral reef habitat west of the Montebello group. Extends the entire length of the Montebellos)	48 km east
	Mating (Coral reef habitat west of the Montebello group. Extends the entire length of the Montebellos)	48 km east
	Aggregation (Coral reef habitat west of the Montebello group. Extends the entire length of the Montebellos)	48 km east
	Nesting (Middle Island. West Coast Barrow Island West Coast and North Coast)	63 km east
	Mating (Middle Island. West Coast Barrow Island West Coast and North Coast)	63 km east
	Basking (Middle Island. West Coast Barrow Island West Coast and North Coast)	63 km east
	Foraging (inshore tidal and shallow subtidal areas around Barrow Island)	63 km east
	Internesting buffer (Barrow Island)	63 km east
	Foraging (String of islands between Cape Preston and Onslow, inshore of Barrow Island)	118 km east
	Internesting buffer (North and South Murion Island)	151 km south
	Nesting (North and South Murion Island)	173 km south
	Internesting buffer (North West Cape)	177 km south
	Nesting (North West Cape)	199 km south
Eretmochelys imbricata (Hawksbill turtle)	Internesting buffer (Montebello Island, Trimoulle and NW Islands, Ah Chong Island, South East Island, Barrow Island, Varanus Island, Lowendal Island group)	25 km east
	Internesting buffer (Ah chong and South East Island)	36 km east
	Internesting buffer (Barrow Island)	43 km east

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	Foraging (Montebello Island – Hermite Island, NW Island, Trimouille Island, shallow water coral reef and artificial reef (pipeline) habitat, Lowendal Island Group)	45 km east
	Mating (Montebello Island – Hermite Island, NW Island, Trimouille Island, Barrow Island, Lowendal Island Group)	45 km east
	Nesting (Montebello Island – Hermite Island, NW Island, Trimouille Island, Barrow Island, Lowendal Island Group)	45 km east
	Internesting buffer (Lowendal Island Group)	47 km east
	Internesting buffer (Varanus Island)	54 km east
	Nesting (Ah chong and South East Island)	56 km east
	Nesting (Montebello Island, Trimoulle and NW islands)	60 km east
	Nesting (Barrow Island)	63 km east
	Mating (Barrow Island)	64 km east
	Foraging (shallow water coral reef and artificial reef (pipeline) habitat)	64 km east
	Foraging (Lowendal Island Group)	67 km east
	Nesting (Lowendal Island Group)	67 km east
	Internesting (Lowendal Island Group)	67 km east
	Mating (Lowendal Island Group)	67 km east
	Internesting buffer (Thevenard Island)	114 km south
	Foraging (String of islands between Cape Preston and Onslow, inshore of Barrow Island)	119 km east
	Nesting (Thevenard Island)	136 km south
	Internesting buffer (Ningaloo coast and Jurabi Island)	179 km south
	Nesting (Ningaloo coast and Jurabi Island)	199 km south
Caretta caretta (Loggerhead Turtle)	Internesting buffer (Montebello Islands)	33 km east
	Internesting buffer (Lowenthal Island)	51 km east
	Nesting (Montebello Islands)	53 km east
	Nesting (Lowenthal Island)	71 km east
	Internesting buffer (Murion Island)	151 km south

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	Nesting (Murion Island)	171 km south
	Internesting buffer (Ningaloo coast and Jurabi coast)	179 km south
	Nesting buffer (Ningaloo coast and Jurabi coast)	199 km south

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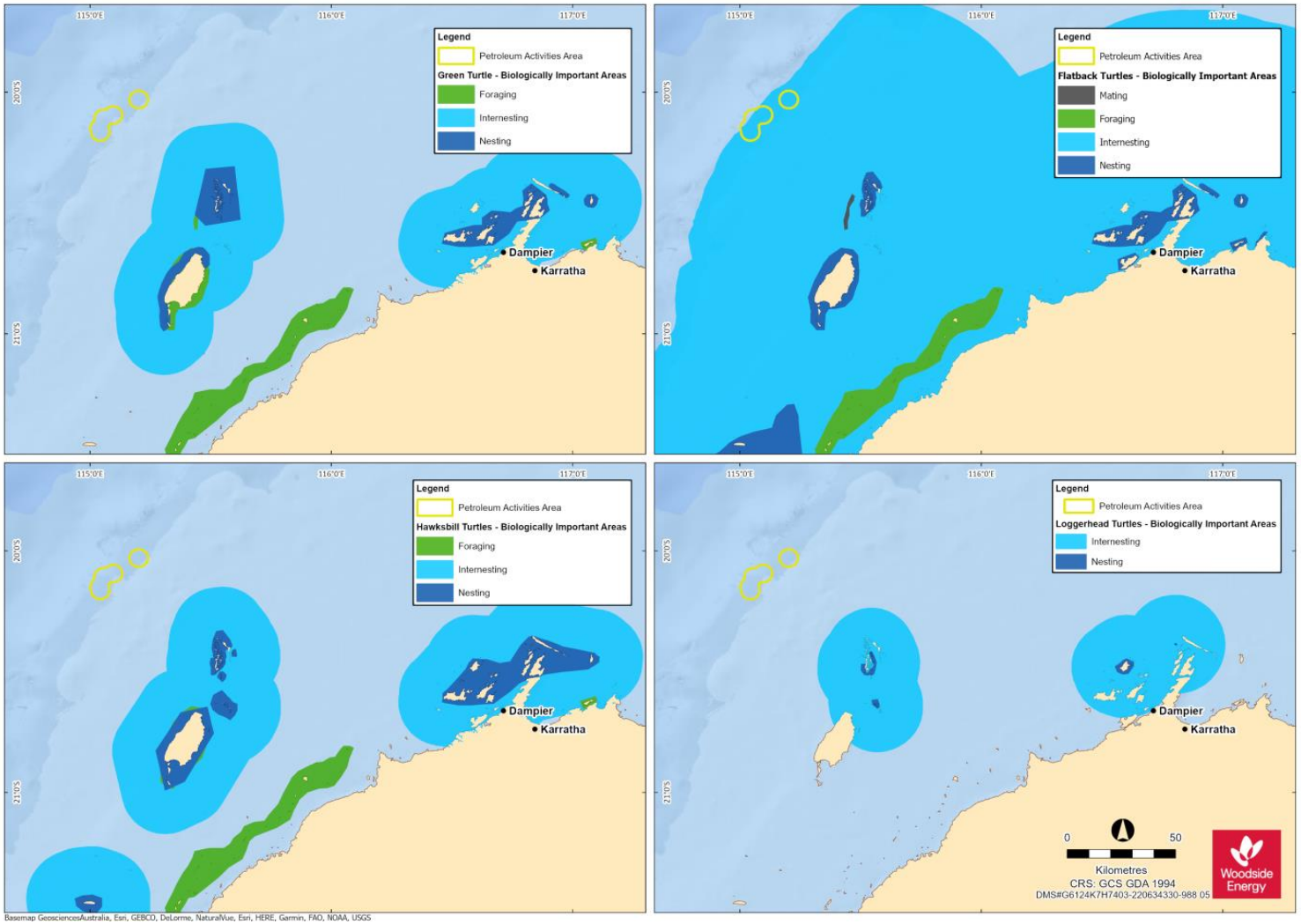

Figure 4-5: Marine turtle BIAs in proximity to the PAA

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Table 4-10: Marine turtle internesting Habitat Critical predicted to occur within the PAA and EMBA

Species	Genetic Stock	Nesting Locations	Approximate Distance of Area from PAA	Internesting Buffer	Nesting Period	Hatching Period
Flatback turtle	Pilbara	Barrow Island, Montebello Islands, coastal islands from Cape Preston to Locker Island, Dampier Archipelago, including Delambre Island and Hauy Island	Overlaps	60 km	Oct-March (peak: Feb-Mar)	Oct-Mar
Green turtle	North West Shelf	Barrow Island, Montebello Islands, Serrier Island and Thevenard Island, Dampier Archipelago, Exmouth Gulf and Ningaloo coast, Scott Reef	26 km east	20 km	Nov-Mar	Jan-May (peak: Feb-Mar)
Hawksbill turtle	Western Australia	Cape Preston to mouth of Exmouth Gulf including Montebello Islands and Lowendal Islands, Dampier Archipelago, including Delambre Island and Rosemary Island,	26 km east	20 km	All year (peak: Oct-Feb)	All year (peak: Feb-Mar)
Loggerhead turtle	Western Australia	Exmouth Gulf and Ningaloo coast, Gnaraloo Bay and beaches, Shark Bay, all coastal and island beaches out to the northern tip of Dirk Hartog Island.	181 km south-west	20km	Nov-May (Peak Jan)	Jan-May
Leatherback turtle	No overlap – nesting located in Northern Territory and North Queensland					
Olive ridley turtle	No overlap – nesting located in Northern Territory and North Queensland					

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4.6.2.1 Marine Turtles

The closest known turtle nesting beaches to the PAA are Barrow Island and the Montebello Islands. 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; Table 4-15 provides a summary of the key seasonal sensitivities for protected marine reptile species identified as occurring within the PAA. Seasonality for green turtles is not well defined from the available data (Whiting, 2018). The northernmost key loggerhead nesting areas include the North West Cape and Muiron Islands. 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.

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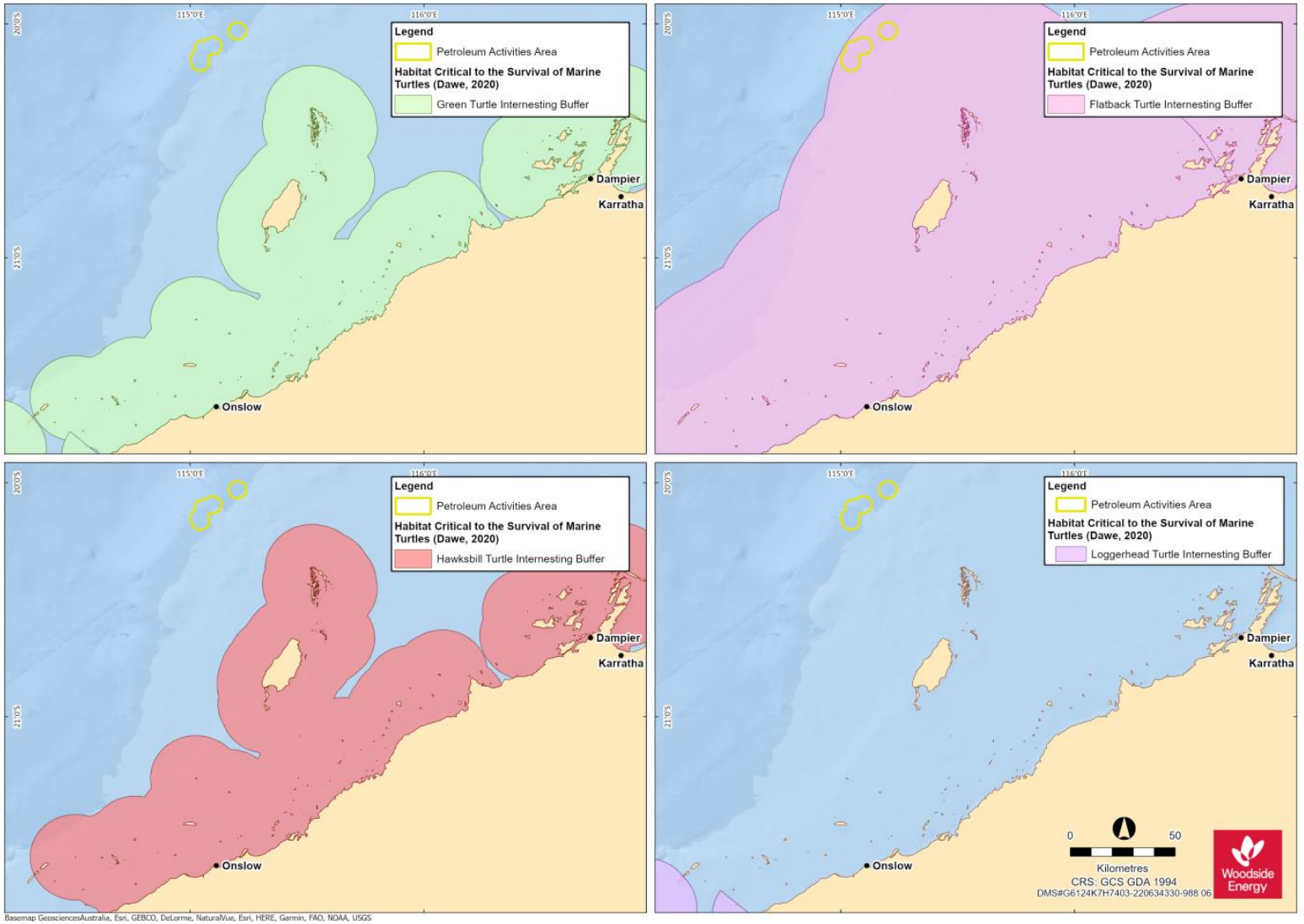

Figure 4-6: Habitat Critical to the Survival of Marine Turtles in proximity to the PAA

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4.6.3 Marine Mammals

Table 4-11: Threatened and Migratory marine mammal species predicted to occur within the PAA and EMBA

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
Balaenoptera musculus	Blue whale (true/Antarctic)	Endangered	Migratory	Migration route known to occur within area	Migration route known to occur within area
*Balaenoptera musculus brevicauda**	Pygmy blue whale	Endangered	Migratory	Migration route known to occur within area	Migration route known 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 physalus	Fin whale	Vulnerable	Migratory	Species or species habitat likely to occur within area	Foraging, feeding or related behaviour likely to occur within area
Megaptera novaeangliae	Humpback whale	N/A	Migratory	Breeding known to occur within area	Breeding known 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
Physeter macrocephalus	Sperm whale	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Orcinus orca	Killer whale, orca	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Tursiops aduncus	Spotted Bottlenose Dolphin (Arafura/Timor Sea populations)	N/A	Migratory	Species or species habitat likely occur within area	Species or species habitat known to occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
Sousa sahulensis as Sousa chinensis	Australian Humpback Dolphin	N/A	Migratory	Species or species habitat may occur in the area	Species or species habitat known to occur within area
Orcaella heinsohni	Australian Snubfin Dolphin	N/A	Migratory	Species or species habitat may occur in the area	Species or species habitat known to occur within area
Eubalaena australis	Southern Right Whale	Endangered	Migratory	N/A	Species or species habitat likely to occur within area
Balaenoptera bonaerensis	Antarctic Minke Whale, Dark-shoulder Minke Whale	N/A	Migratory	N/A	Species or species habitat likely to occur within area
Dugong dugon	Dugong	N/A	Migratory	N/A	Breeding known to occur within area

**Species not detected in PMST search but reported to occur in the area (McCauley, 2011b).*

Note: Dolphins of unconfirmed species (potentially Risso's or spinner dolphins) also present in the area (McCauley, 2011b)

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Table 4-12: Marine mammal BIAs within the EMBA

Species	BIA type	Approximate distance (km) and direction from PAA
Balaenoptera musculus brevicauda (Pygmy blue whale)	Distribution	Overlaps PAA
	Migration (north and south) (Augusta to Derby)	Overlaps PAA
	Foraging (Ningaloo)	216 km south
Megaptera novaeangliae (Humpback whale)	Migration (north and south) (Kimberley region to north-west cape)	20 km south
	Resting (Exmouth Gulf)	184 km south
Dugong dugon (Dugong)	Foraging (high density seagrass beds) (Exmouth Gulf)	181 km south
	Breeding (Exmouth Gulf)	181 km south
	Nursing (Exmouth Gulf)	181 km south
	Calving (Exmouth Gulf)	181 km south

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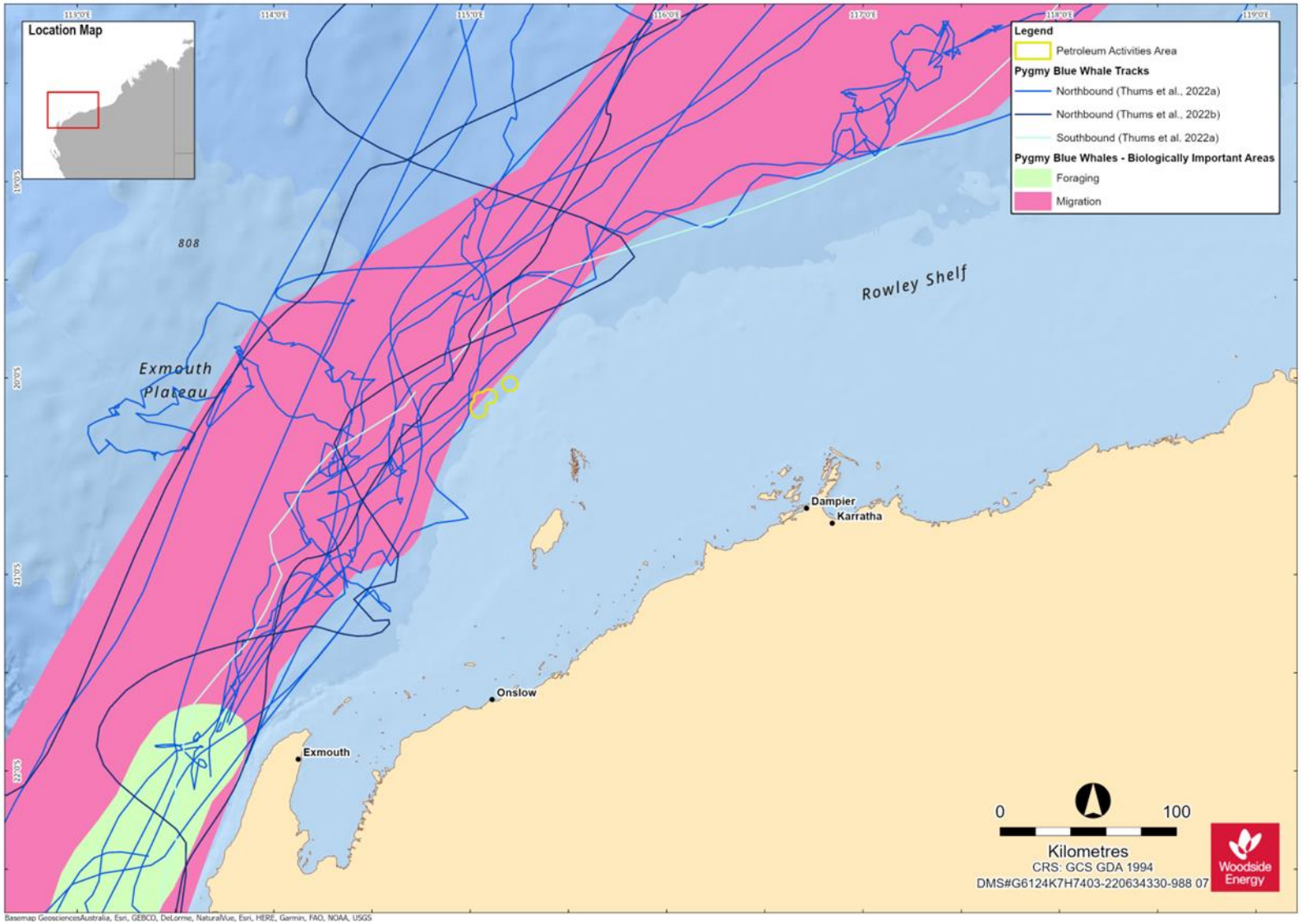

Figure 4-7: Pygmy blue whale BIAs and satellite tracks of whales tagged between 2009 and 2011 (Double et al., 2014; Thums et al., 2022)

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4.6.3.1 Pygmy Blue Whales

The PAA overlaps the pygmy blue whale distribution range, a spatially defined area representing presence certainty and not biologically important behaviour (e.g. breeding, foraging, migration), as well as a migration BIA. Telemetry data also indicates north of the North West Cape, pygmy blue whales transit through deeper waters further offshore (Thums et al., 2022 and Double et al., 2014).

Considering that the pygmy blue whale migration BIA overlaps the PAA, it is likely that individuals may transit in and around the PAA during migratory periods; however, only transient individuals or small groups are expected occasionally during the north and south bound migratory seasons (April to July and October to January, respectively) (McCauley, 2011, Gavrilov et al. 2018 and Thums et al, 2022). The Exmouth Plateau KEF (refer to Section 4.7) is an area of localised upwelling and may be a source of food for occasional pygmy blue whale foraging. Migrating pygmy blue whales (northbound) display predominately relatively fast, directed travel interspersed with relatively short periods of low move persistence indicative of foraging (Thums et al. 2022) and acoustic detection (McCauley, 2011) indicated a short, sharp pulse of southbound migrating pygmy blue whales.

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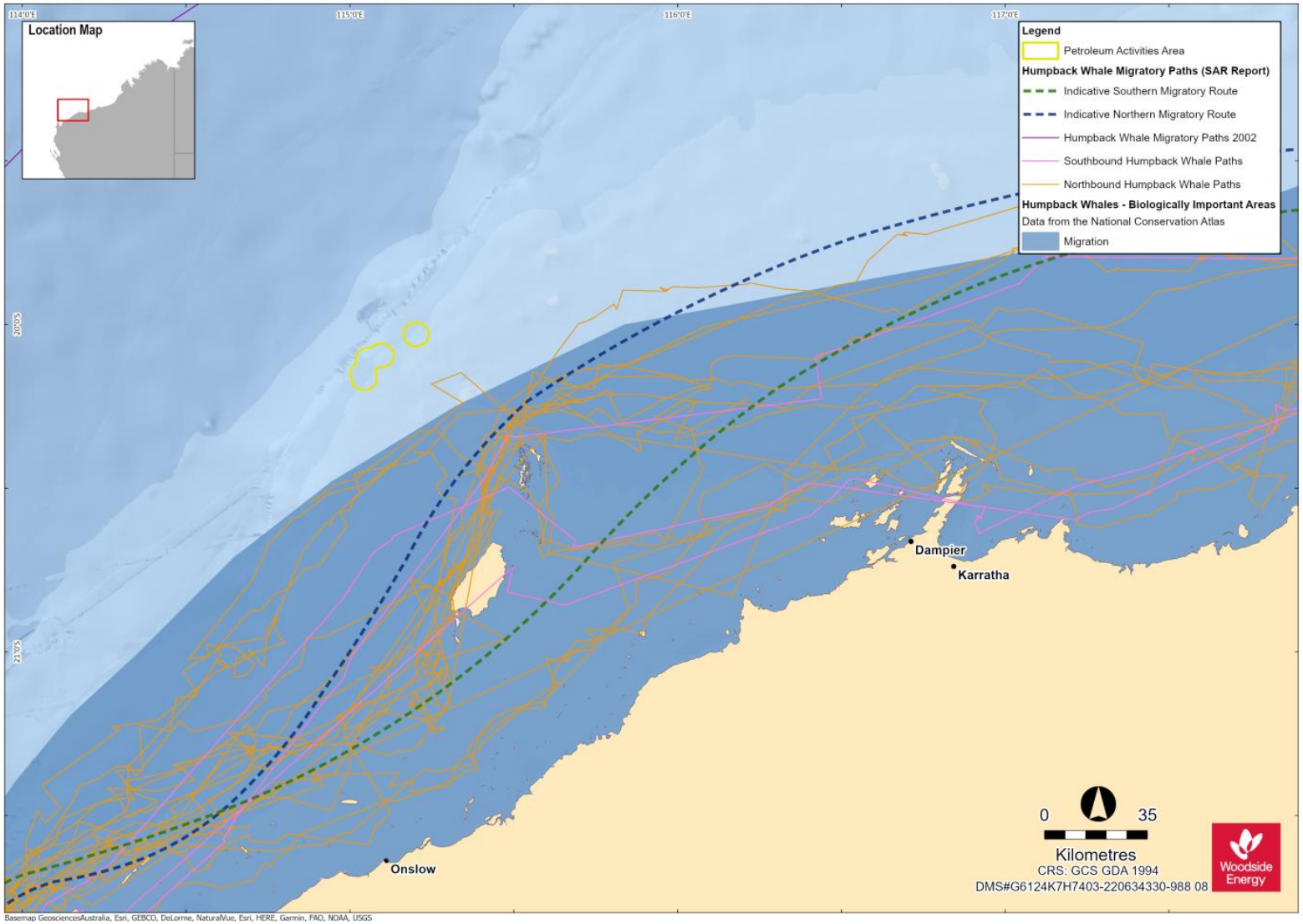

Figure 4-8: Humpback whale BIA in proximity to the PAA

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4.6.4 Seabirds and Migratory Shorebirds

Table 4-13: Threatened and Migratory seabird and shorebird species predicted to occur within the PAA and EMBA

Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
Calidris canutus	Red knot, knot	Endangered	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
Actitis hypoleucos	Common sandpiper	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
Anous stolidus	Common noddy	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat likely to occur within area
Calidris acuminata	Sharp-tailed sandpiper	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
Calidris ferruginea	Curlew sandpiper	Critically Endangered	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
Calidris melanotos	Pectoral sandpiper	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Fregata ariel	Lesser frigatebird, least frigatebird	N/A	Migratory	Species or species habitat likely to occur within area	Species or species habitat known to occur within area
Macronectes giganteus	Southern giant-petrel, southern giant petrel	Endangered	Migratory	Species or species habitat may occur within area	Species or species habitat may occur within area
Numenius madagascariensis	Eastern curlew	Critically Endangered	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
Phaethon lepturus	White-tailed tropicbird	N/A	Migratory	Species or species habitat may occur within area	Species or species habitat known to occur within area
Phaethon lepturus fulvus	Christmas island white-tailed tropicbird	Endangered	N/A	Species or species habitat may occur within the area	Species or species habitat may 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
Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel	Endangered	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
Fregata minor	Great frigatebird, greater frigatebird	N/A	Migratory	N/A	Species or species habitat may occur within area
Pterodroma mollis	Soft-plumaged petrel	Vulnerable	N/A	N/A	Foraging, feeding or related behaviour likely to occur within area
Ardenna pacifica	Wedge-tailed shearwater	N/A	Migratory	N/A	Breeding known to occur within area
Ardenna carneipes	Flesh-footed shearwater	N/A	Migratory	N/A	Species or species habitat likely to occur within area
Thalassarche impavida	Campbell albatross, Campbell black-browed albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
Charadrius leschenaultii	Greater sand plover	Vulnerable	Migratory	N/A	Species or species habitat known to occur within area
Papasula abbotti	Abbott's Booby	Endangered	N/A	N/A	Species or species habitat may occur within area
Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit	Critically Endangered	Migratory	N/A	Species or species habitat known to occur within area
Rostratula australis	Australian Painted Snipe	Endangered	N/A	N/A	Species or species likely to occur within area
Thalassarche carteri	Indian Yellow-nosed Albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area
Thalassarche cauta	Shy Albatross	Endangered	Migratory	N/A	Species or species habitat may occur within area
Thalassarche melanophris	Black-browed Albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area
Thalassarche steadi	White-capped Albatross	Vulnerable	Migratory	N/A	Species or species habitat may occur within area
Apus pacificus	Fork-tailed Swift	N/A	Migratory	N/A	Species or species habitat likely to occur within area
Hydroprogne caspia	Caspian Tern	N/A	Migratory	N/A	Breeding known to occur within area
Onychoprion anaethetus	Bridled Tern	N/A	Migratory	N/A	Breeding known to occur within area

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Species name	Common name	Threatened status	Migratory status	Potential for interaction	
				PAA	***EMBA***
Sterna dougallii	Roseate Tern	N/A	Migratory	N/A	Breeding known to occur within area
Sternula albifrons	Little Tern	N/A	Migratory	N/A	Species or species habitat may occur within area
Thalasseus bergii	Greater Crested Tern	N/A	Migratory	N/A	Breeding known to occur within area
Charadrius veredus	Oriental Plover, Oriental Dotterel	N/A	Migratory	N/A	Species or species habitat may 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 known to occur within area
Limosa lapponica	Bar-tailed Godwit	N/A	Migratory	N/A	Species or species habitat known to occur within area
Pandion haliaetus	Osprey	N/A	Migratory	N/A	Breeding known to occur within area
Tringa nebularia	Common Greenshank, Greenshank	N/A	Migratory	N/A	Species or species habitat likely to occur within area
Malurus leucopterus edouardi	White-winged fairy wren	Vulnerable	N/A	N/A	Species or species habitat likely to occur within area

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Table 4-14: Seabird BIAs within the EMBA

Species	BIA type	Approximate distance (km) and direction from PAA
Ardenna pacifica (Wedge-tailed shearwater)	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef)	Overlaps PAA
	Foraging (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef)	29 km south
Sterna dougallii (Roseate Tern)	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef)	44 km east
Sternula nereis (Fairy Tern)	Breeding (Pilbara and Gascoyne coasts and islands)	38 km east
Thalasseus bengalensis (Lesser Crested Tern)	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef)	41 km east
Phaethon lepturus (White-tailed Tropicbird)	Breeding (Kimberley, Pilbara and Gascoyne coasts and islands including Ashmore Reef)	378 km east

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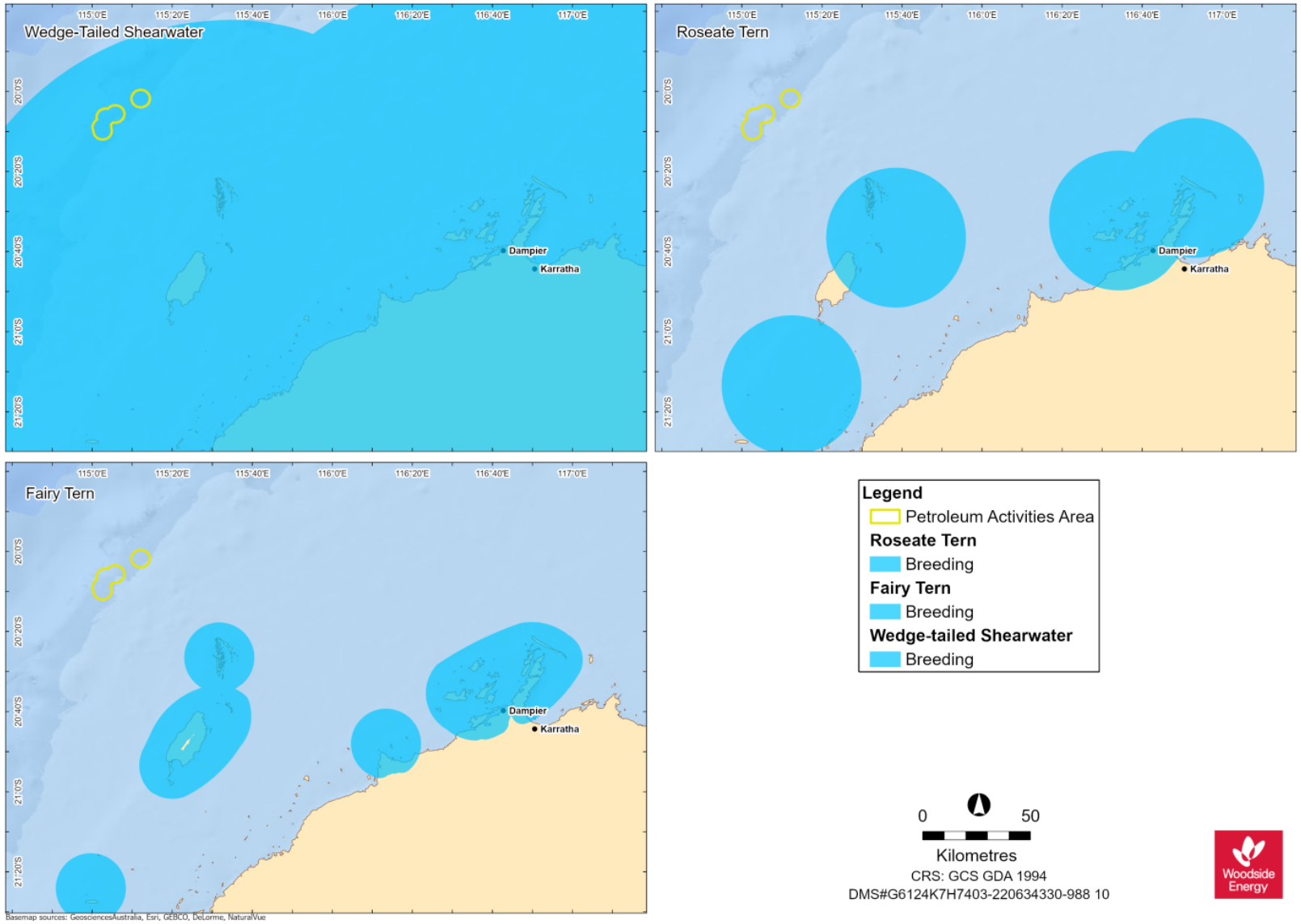

Figure 4-9: Seabird BIAs in proximity to the PAA

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4.6.5 Seasonal Sensitivities for Protected Species

Seasonal sensitivities for protected migratory species identified as potentially occurring within the PAA are identified in Table 4-15. Movement patterns of protected species are further described in Woodside's Master Existing Environment.

As shown in Table 4-12, the PAA overlaps the pygmy blue whale migratory corridor and is 216 km from the possible foraging area off North-west Cape / Ningaloo Coast.

In September 2021, the Department of Agriculture, Water and the Environment (DAWE) (now DCCEEW) and NOPSEMA released guidance on key terms within the Conservation Management Plan for the Blue Whale (the CMP)4. This guidance recognises the potential for whale foraging and feeding to occur in areas of high primary productivity outside of designated foraging areas. Migrating pygmy blue whales are not necessarily confined to the designated migratory corridor, and there is the potential for individuals to undertake opportunistic foraging within and adjacent to the PAA.

Table 4-15: Key seasonal sensitivities for protected migratory species identified as occurring within the PAA.

Species	January	February	March	April	May	June	July	August	September	October	November	December
Fish, sharks and rays												
Manta rays – presence/aggregation/ breeding (Ningaloo)[1]												
Whale shark* - foraging/aggregation (near Ningaloo)[2]												
Marine reptiles												
Green turtle – various nesting/feeding/hatchlings/ mating areas within wider region[3]												
Flatback turtle – various nesting/feeding/hatchlings/ mating areas within wider region[3]												
Hawksbill turtle – various nesting/feeding/hatchlings/ mating areas within wider region[3]												
Loggerhead turtle – various nesting/feeding/hatchlings/ mating areas within wider region[3]												
Marine mammals												
Pygmy blue whale – northern migration (Exmouth, Montebello, Scott Reef)[4]												

[4] https://www.environment.gov.au/epbc/publications/guidance-key-terms-blue-whale-conservation-management-plan

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Species	January	February	March	April	May	June	July	August	September	October	November	December
Pygmy blue whale – southern migration (Exmouth, Montebello, Scott Reef)[5]												
Humpback whale – northern migration (Jurien Bay to Montebello)[6]												
Humpback whale – southern migration (Jurien Bay to Montebello)[7]												
Seabirds and shorebirds												
Wedge-tailed shearwater – various breeding sites[8]												
Roseate tern – various breeding sites[8]												
Australian fairy tern[8]												
	Species may be present in the PAA											
	Peak period. Presence of animals is reliable and predictable each year											

1 (CALM, 2005; DSEWPaC, 2012a; Environment Australia, 2002; Sleeman et al., 2010)

2 (Chevron Australia Pty Ltd, 2015; CALM, 2005; DSEWPaC, 2012a)

3 (Chevron Australia Pty Ltd, 2015; DSEWPaC, 2012a)

4 (DSEWPaC, 2012a, b; McCauley and Jenner, 2010; McCauley, 2011a)

5 (DSEWPaC, 2012a, b; McCauley and Jenner, 2010)

6 (CALM, 2005; Environment Australia, 2002; Jenner et al., 2001a; McCauley and Jenner, 2001)

7 (McCauley and Jenner 2001)

8 (CALM, 2005; Department of Environmental Protection, 2001; DSEWPaC, 2012b; Environment Australia, 2002)

4.7 Key Ecological Features (KEFs)

The PAA overlaps with two Key Ecological Features (KEFs); The Continental Slope Demersal Fish Communities KEF and the Ancient Coastline at 125 m depth contour. KEFs overlapping the PAA and EMBA are identified in Table 4-16 and described in the Master Existing Environment. Figure 4-10 shows the spatial overlap with KEFs and the PAA.

Table 4-16: KEFs within the EMBA

Key Ecological Feature	Distance (km) and direction from PAA to KEF
Continental Slope Demersal Fish Communities	Overlaps PAA
Ancient Coastline at 125 m depth contour	Overlaps PAA
Exmouth Plateau	89 km north west
Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula	143 km south south west
Commonwealth waters adjacent to Ningaloo Reef	186 km south south west
Glomar Shoals	155 km east north east

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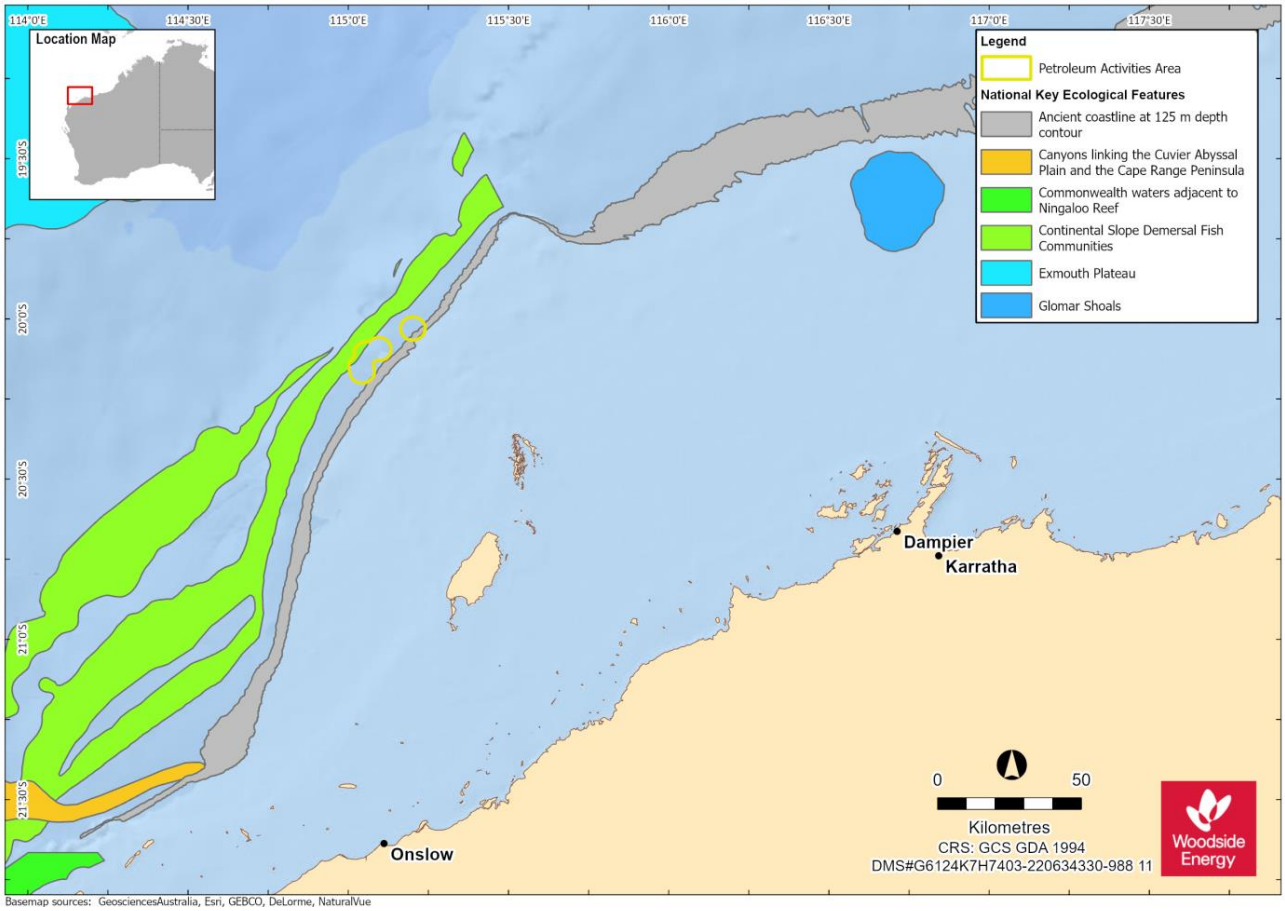

Figure 4-10: KEFs in proximity to the PAA.

4.8 Protected Places

No protected places overlap the PAA. The closest Australian Marine Park (AMP) is the Montebello Multiple Use Zone (IUCN VI) located approximately 1 km east of the PAA. Protected places within the EMBA are identified in Table 4-17 and presented in Figure 4-11. The Master Existing Environment outlines the values and sensitivities of protected places and other sensitive areas in the wider EMBA.

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Table 4-17: Established protected places and other sensitive areas overlapping the EMBA

	Distance (km) and direction from PAA to protected place or sensitive area	IUCN category* or relevant park zone
Australian Marine Parks (AMPs)		
Gascoyne	151 km south west	Multiple Use Zone (IUCN VI)
	302 km south south west	Habitat Protection Zone (IUCN IV)
	374 km west south west	National Park Zone (IUCN II)
Montebello	1 km east	Multiple Use Zone (IUCN VI)
Ningaloo	186 km south west	Recreational Use Zone (IUCN IV)
	319 km south west	National Park Zone (IUCN II)
	328 km south west	Recreational Use Zone (IUCN IV)
Shark Bay	504 km south south west	Multiple Use Zone (IUCN VI)
Agro-Rowley Terrace	282 km north east	Multiple Use Zone (IUCN VI)
State Marine Parks and Nature Reserves		
Marine Parks		
Montebello Islands	49 km south east	N/A
Barrow Island	65 km south east	N/A
Ningaloo	188 km south west	N/A
Conservation Park		
Montebello Islands	46 km south east	N/A
National Park		
Cape Range	223 km south west	IUCN II
5(1)(h) Reserve		
Unnamed WA40828	53 km south east	N/A
Unnamed WA41080 S5H	45 km south east	N/A
Unnamed WA40322	125 km south	N/A
Unnamed WA44667	118 km south east	N/A
Unnamed WA44665	150 km south south west	N/A
Jurabi Coastal Park	201 km south west	N/A
5(1)(g) Reserve		
Unnamed WA37500	350 km south south west	N/A
Marine Management Areas		
Barrow Island	47 km south east	N/A
Muiron Islands	169 km south west	N/A
Nature Reserves		
Barrow Island	62 km south east	IUCN Ia
Boodie, Double Middle Islands	74 km south east	IUCN Ia
Lowendal Islands	66 km south east	IUCN Ia
Great Sandy Island	108 km south east	IUCN Ia

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	Distance (km) and direction from PAA to protected place or sensitive area	IUCN category* or relevant park zone
North Sandy Island	117 km south east	IUCN Ia
Airlie Island	125 km south	IUCN Ia
Thevenard Island	138 km south	IUCN Ia
Bessieres Island	145 km south west	IUCN Ia
Serrurier Island	158 km south west	IUCN Ia
Muiron Islands	171 km south west	IUCN 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 North-west Marine Parks Network Management Plan 2018 and South-west Marine Parks Network Management Plan 2018.

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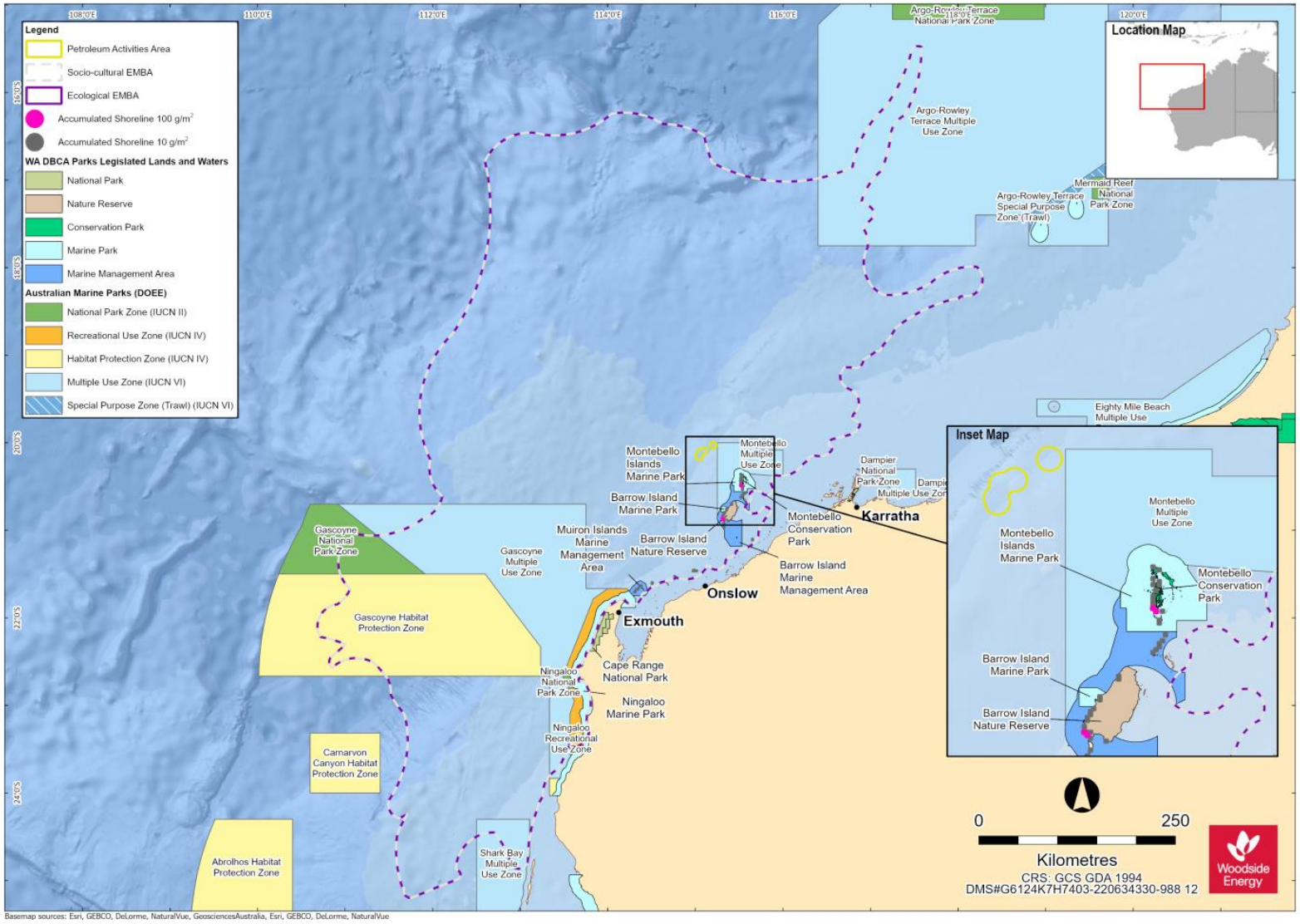

Figure 4-11: Protected areas overlapping the EMBA4.8

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4.9 Cultural Features and Heritage Values

4.9.1 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 PAA and EMBA and the cultural features of the PAA and EMBA are described.

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

Through consultation with relevant persons, Woodside recognises the deep spiritual and cultural connection to the environment[5] that First Nations peoples hold.

4.9.2 First Nations Peoples

As a starting point for understanding cultural features of the environment for First Nations groups, Woodside uses the existing systems, such as native title, to identify First Nations groups that may have functions, interests or activities that may be affected. To that end, Woodside identifies native title representative bodies and nominated representative entities, as well as 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). While acknowledging that cultural features and heritage values may exist outside of the native title framework, Woodside considers this to be the broadest extent over which First Nations groups have claimed native title rights and interests.

Native title claims are applications made to the Federal Court under the Native Title Act 1993 for a determination or decision about native title in a particular area. A claim is made by a native title claim group which asserts it holds native title rights and interests in an area of land and/or water, according to its traditional laws and customs. By making a claim, the native title claim group seeks a decision that native title exists so that its native title rights and interests are recognised by the common law of Australia. This is called a native title determination. A determination is a decision by a recognised body, such as the Federal Court or High Court of Australia, that native title either does or does not exist in relation to a particular area (National Native Title Tribunal).

A requirement to establishing a positive determination of native title in court is proving that there is an organised society that occupied the land and/or waters at the time of British annexation. The requirement of an ‘organised society’ is set out by Justice Toohey in the historic judgment of *Mabo*

[5] Definition of ‘Environment’ in Regulation 5 of the OPGGS (Environment) Regulations are defined as:
a) Ecosystems and their constituent parts, including people and communities; and
b) Natural and physical resources; and
c) The qualities and characteristics of locations, places and areas; and
d) The heritage values of places; and includes
e) The social, economic and cultural features of the matters mentioned in paragraphs (a), (b), (c) and (d)

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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 First Nations 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 (National Native Title Tribunal).

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

For the activity in this EP, there are no native title claims or determinations, ILUAs overlapping the PAA and therefore also no native title rights or interests and/or cultural values identified over the PAA (Table 4-18).

There are two native title claims overlapping the EMBA (Table 4-18). There are three ILUAs overlapping the EMBA.

4.9.3 Coastally Adjacent First Nations Groups

Woodside understands that First Nations 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 First Nations groups to be consulted 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 First Nations 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 PAA or EMBA is not necessarily a meaningful indicator of the connection of First Nations 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.

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A summary of native title claims, determinations and ILUAs overlapping or coastally adjacent to the EMBA is set out in Table 4-18. 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.

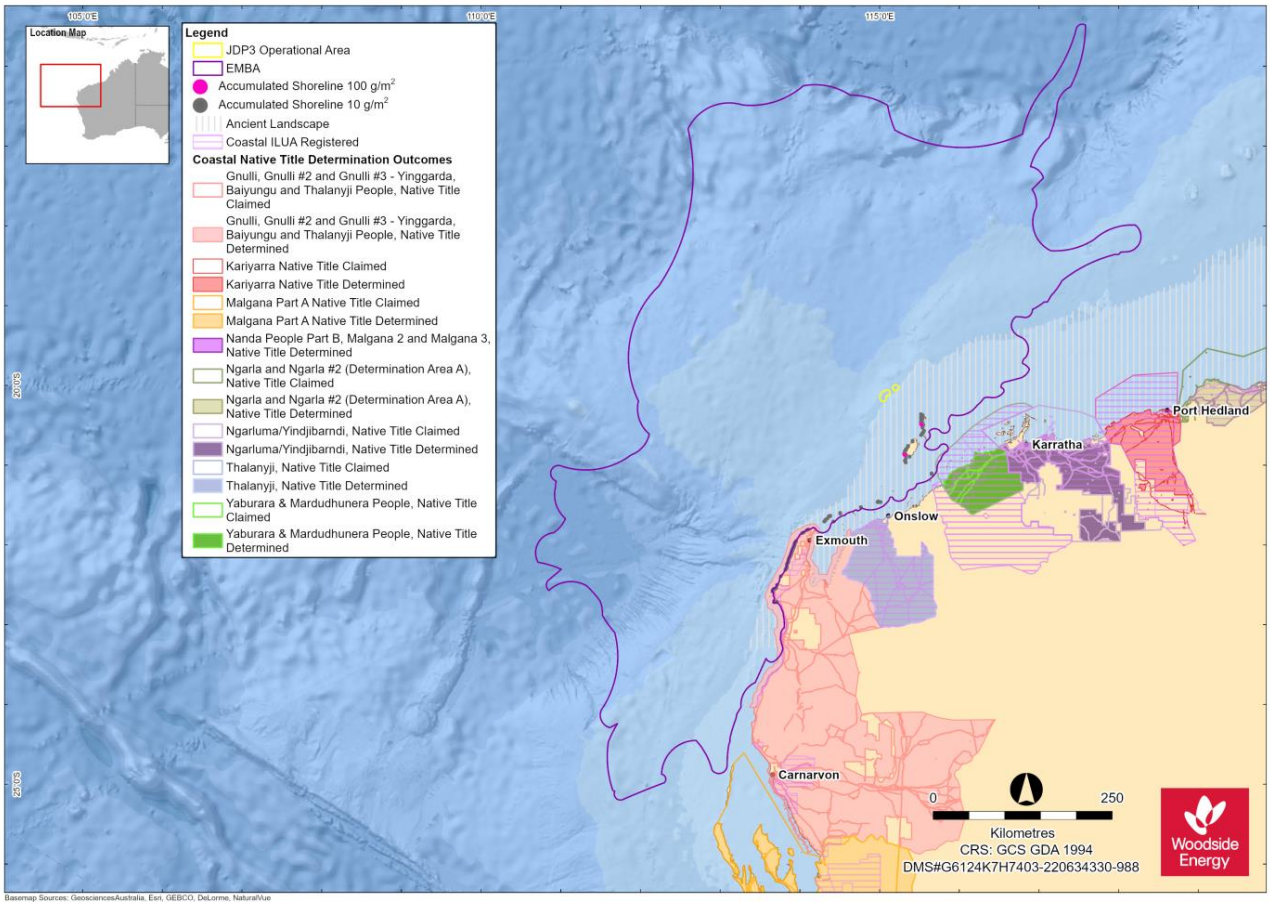

Figure 4-12: PAA and EMBA in relation to native title claims, determinations and ILUAs.

Table 4-18: Summary of Native Title Claims, Determinations and ILUAs which overlap or are coastally adjacent to the EMBA.

Claim / Determination / ILUA	Registered Native Title Body Corporate	Overlap with EMBA	Coastally Adjacent to the EMBA
Claim / Determination			
Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People	Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC), Yinggarda Aboriginal Corporation (YAC)	Yes	Yes
Kariyarra	Kariyarra Aboriginal Corporation	No	Yes
Malgana Part A	Malgana Aboriginal Corporation	No	Yes
Ngarla and Ngarla #2 (Determination Area A)	Wanparta Aboriginal Corporation	No	Yes
Ngarluma People	Ngarluma Aboriginal Corporation	No	Yes
Ngarluma/Yindjibarndi People	Ngarluma Aboriginal Corporation	No	Yes

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	(NAC), Yindjibarndi Aboriginal Corporation		
Thalanyji	Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	No	Yes
Yaburara & Mardudhunera People	Wirrawandi Aboriginal Corporation (WAC)	Yes	Yes
ILUA			
Alinta-Kariyarra Electricity Infrastructure ILUA	No representative body specified.	No	Yes
Anketell Port, Infrastruture Corridor and Industrial Estates Agreement	Ngarluma Aboriginal Corporation	No	Yes
Brickhouse and Yinggarda Aboriginal Corporation ILUA	Yinggarda Aboriginal Corporation	No	Yes
Cape Preston Project Deed (YM Mardie ILUA)	Wirrawandi Aboriginal Corporation	No	Yes
Cape Preston West Export Facility	Wirrawandi Aboriginal Corporation	No	Yes
FMG - Kariyarra Land Access ILUA	No representative body specified.	No	Yes
Gnaraloo Indigenous Land Use Agreement	Nganhurra Thanardi Garrbu Aboriginal Corporation	No	Yes
Kariyarra and State ILUA	Kariyarra Aboriginal Corporation	No	Yes
KM & YM Indigenous Land Use Agreement 2018	WAC, Robe River Kuruma Aboriginal Corporation	Yes	Yes
Kuruma Marthudunera and Yaburara and Coastal Mardudhunera Indigenous Land Use Agreement	No representative body specified.	Yes	Yes
Macedon ILUA	BTAC	No	Yes
Ngarla Pastoral ILUA	Wanparta Aboriginal Corporation	No	Yes
Ningaloo Conservation Estate ILUA	Nganhurra Thanardi Garrbu Aboriginal Corporation	Yes	Yes
Quobba – Yinggarda Pastoral ILUA	Yinggarda Aboriginal Corporation	No	Yes
RTIO Kuruma Marthudunera People ILUA	Robe River Kuruma Aboriginal Corporation	No	Yes
RTIO Ngarluma Indigenous Land Use Agreement (Body Corporate Agreement)	NAC	No	Yes

4.9.4 Sea Country Values

Woodside recognises the potential for marine ecosystems to include cultural features as well as environmental values. This is one aspect of the broader concept of “Sea country”, which can be defined as the area of sea over which a First Nations 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

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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 First Nations 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 that may travel many thousands of kilometres through areas with similar cultural values to multiple First Nations groups. Some species may travel as far as 5,000 km from Antarctica to the Kimberley region of Western Australia (Double et al., 2010, 2012), passing First Nations groups along the entire west coast of Australia. For a further description of whale distribution and whale migration patterns, see Section 4.6.3. For a further description on turtles, see Section 4.6.2.1.

As set out above, an impact to marine ecosystems has the potential to impact cultural values where the impact is detectable within Sea Country. Woodside considers that impact to cultural values of marine species will be adequately managed in areas of traditional Sea Country, and therefore management of the environmental values will preserve the cultural values of environmental receptors, as assessed in Section 6.

Sea country values have been defined using multiple lines of evidence including:

- desktop assessment of sea country values from publicly available sources
- indigenous archaeological heritage assessments
- consultation with First Nations groups and individuals.

The process for identifying First Nations groups who may have interests and connection in Sea Country are set out in Section 4.9.3 and Section 5.5.

4.9.4.1 Desktop Assessment of Sea Country Values

4.9.4.1.1 Cultural features and heritage values identified in publicly available literature

Publicly available sources were assessed for any records of previously identified Sea Country values or cultural features that may overlap with the EMBA or PAA. Where cultural features or Sea Country values were identified these are summarised in Table 4-19 according to the First Nations groups (where identified or inferable) who hold these values.

All cultural features and heritage values restricted to onshore locations or inland waters have been excluded in Table 4-19, noting that the closest boundary of the PAA is greater than 360 km west north-west of Dampier, and greater than 215 km from the closest landfall at North West Cape, while

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the boundary of the EMBA is about 40 km from closest landfall with no shoreline contact. Where the geographical extent is not specified or unclear it has been included for completeness.

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Table 4-19: Cultural features and heritage values identified in publicly available literature

First Nations Group	Features and Values	Source	Potential for overlap	
			PAA	***EMBA***
Gnulli (Baiyungu, Thalanyji, Yinggarda)	Feature: resources including marine animals. Value: traditional knowledge holds that ancestors live on the land and in the water. Therefore, people have obligations to access and care for these places (e.g. keeping them clean).	Peck on behalf of the Gnulli Native Title Claim Group v State of Western Australia [2019] FCA 2090	Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified)
	Feature: resources including mangrove crabs, gastropods, shellfish, dugong, turtle.	Morse 1993	Possible (turtle) No (other resources)	Possible (all)
	Feature: heritage sites in the Ningaloo region include shell middens, artefact scatters, skeletal material/burial sites, camps, meeting places, hunting places and water sources.	Deloitte 2020: Economic_contribution_of_Ningaloo_-_FINAL_25_11_2020.pdf (gdc.wa.gov.au) This document also includes information that is marked that cannot be copied, reproduced or used without consent.	No	Possible (Shoreline accumulation areas)
	Feature: resources including gajalbu (emu), bundgurdi (kangaroo), bardurra (bush turkey), majun (marine turtles), turtle eggs, bilygurumarda (osprey), fish, shellfish and plants.		Possible (turtles, fish) No (other resources)	Possible (turtles, turtle eggs, fish, shellfish) No (other resources)
	Feature: mudflats, mangroves and sand dunes provide a critical breeding ground for marine and terrestrial wildlife.		No	Possible (mangroves)
	Value: the Ningaloo region contains cultural heritage dating back at least 32,000 years, including ceremonial Thalu sites.		No	Possible (unspecified, but likely refers to onshore areas outside the EMBA)
	Value: connection to Country is important to the Traditional Owners' spirituality and religion.		Possible Unspecified	Possible (unspecified, but likely due to location of EMBA)
	Value: caring for Country - "The southern coastal reserves along the Ningaloo Coast are jointly managed by Traditional Owners and the DBCA. The Joint Management Body ensures that the Traditional Owners have an opportunity to make decisions about environmental management and land use".		No	Possible
Kariyarra	Value: traditional knowledge recalls that a salt water serpent lives in the sea and brings fish to shore	Zaunmayr 2016	Possible (unspecified)	Possible (unspecified)

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First Nations Group	Features and Values	Source	Potential for overlap	
			PAA	***EMBA***
Malgana	Feature: resources including bobtail, long-tail, kangaroo, emu, pinkgrey galah, mull-hawk, bird eggs (shags [cormorants], seagull, divers), turtle eggs, dugongs, turtle, mullet, bluebone, whiting, snapper, oysters, mussels, crabs, prawns, scallops, cockles, little 'redies', black snapper and mallee fowl.	Oxenham on behalf of the Malgana People v State of Western Australia [2018] FCA 1929	Possible (turtles, fish) No (other resources)	Possible (turtle, fish, dugong. invertebrates) No (onshore resources)
	Value: access to Country		No	Possible (unspecified)
	Feature: resources including dugong, green and loggerhead turtles and sharks.	Statton et al. 2021.	Possible (Turtles, sharks) No (dugongs)	Possible (turtles, dugongs, sharks)
	Value: traditional knowledge maintains records of freshwater seeps in the submerged landscape.		No	Possible (unspecified)
	Feature: resources including fish, shellfish, turtles and dugong.	Briggs and Green, 2008.	Possible (Turtles, fish) No (other resources)	Possible
	Feature: archaeological sites.		No	Possible (unspecified)
	Feature: green sea turtles, dugongs, shags and bottlenose dolphins are species of cultural significance.	Malgana Land and Sea Management et al. 2021.	Possible (turtles, dolphins, seabird) No (dugong)	Possible
	Value: sharing and controlling the sharing of knowledge.	Lyons et al. 2021.	Possible (unspecified, but unlikely due to location of PA)	Possible (unspecified)
Ngarda-Ngarli (Mardudhunera, Ngarluma, Wong-Goo-Tt-Oo, Yaburara and/or Yindjibarndi)	Feature: archaeological sites on Murujuga. Feature: ceremonial sites. Feature: dreaming sites.	Department of the Environment and Heritage 2006	No No Possible (unspecified)	Possible Possible (unspecified) Possible (unspecified)
	Value: traditional knowledge recalls that the sea is a source of creation for flying foxes. Value: petroglyphs are understood as permanent signs left by ancestral beings. Value: petroglyphs depict the law. Value: cultural obligations to look after places of special potency. Value: petroglyphs are important in initiation and education.	DEC 2013	Possible (unspecified) No No Possible (unspecified) – unlikely given distance offshore	Possible (unspecified) Possible (submerged) Possible (submerged) Possible (unspecified) – unlikely given distance offshore

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First Nations Group	Features and Values	Source	Potential for overlap	
			PAA	***EMBA***
			No	Possible (submerged)
	Value: the sea is acknowledged as a starting point for songlines, including the flying fox songline.	MAC 2023a	Possible (unspecified)	Possible (unspecified)
	Feature: resources including fishes, turtles and dugong. Value: traditional knowledge recalls a sea serpent which travelled from the coast to inland pools.	Water Corporation 2019	Possible (turtles, fish) No (dugongs) Possible (unspecified)	Possible (turtles, fish, dugongs) Possible (unspecified)
	Value: traditional knowledge recalls a water serpent from the ocean now lives in an inland pool. He created many sites and punishes law breakers. Value: In a separate account a sea serpent punishing people was driven back to the sea by a freshwater serpent.	Barber and Jackson 2011	Possible (unspecified) unlikely given distance offshore Possible (unspecified)	Possible (unspecified) unlikely given distance offshore Possible (unspecified)
	Value: traditional knowledge recalls Manggan created the seas.	NAC n.d.	Possible	Possible
	Value: traditional knowledge recalls Pannawonica Hill being carried from the sea near Barrow Island or Murujuga by a spirit bird.	Hook et al 2004	Possible (unspecified)	Possible
	Value: traditional knowledge recalls Murujuga is where ancestral beings emerged from the sea and brought the Law.	Australian Heritage Council 2012	Possible (unspecified)	Possible (unspecified)
	Feature: Submerged First Nations archaeological sites in Cape Bruguieres channel. Feature: Submerged First Nations archaeological sites in Flying Foam Passage.	Benjamin et al 2020; Benjamin et al 2023	No No	No No
	Value: traditional knowledge recalls Maarga (creation ancestors) lifted the land and sky out of the ocean.	Milroy and Revell 2013; Japingka Aboriginal Art Gallery 2023	Possible (unspecified)	Possible (unspecified)
	Feature: submerged waterholes related to the Kangaroo songline. Value; traditional knowledge holds that Songlines continue beyond the current coast and across the submerged landscape.	Kearney et al 2023	Possible (feature located on the Ancient Landscape) Possible (unspecified)	Possible (unspecified) Possible (unspecified)

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First Nations Group	Features and Values	Source	Potential for overlap	
			PAA	***EMBA***
	Value: songlines are captured through storytelling, rock art, songs and dance, and in the landmarks themselves.	Bainger 2021	Possible (unspecified, though could relate to features on the Ancient Landscape))	Possible
	Value: Murujuga is the start of many songlines, including the Seven Sisters.		No	Possible (unspecified)
	Value: songlines at Murujuga date back to times when the sea-level was lower.	MAC 2023b.	Possible (unspecified)	Possible (unspecified)
	Feature: rock art Feature: sacred sites.	Weerianna Street Media Production 2017.	Possible (unspecified)	Possible (submerged) Possible (unspecified)
	Feature: resources including fish, turtles.	Leach 2020	Possible	Possible
	Feature: fish traps exist throughout the archipelago.		No	Possible
	Feature: shell middens exist on coastal margins.		No	Possible
	Feature: submerged archaeological sites.		Possible (feature located on the Ancient Landscape)	Possible
	Value: Law emerged from the sea and travelled inland.		Possible (unspecified)	Possible (unspecified)
	Feature: archaeological sites on Murujuga.	McDonald 2023	No	Possible (submerged)
	Feature: archaeological sites on Murujuga.	McDonald 2015	No	Possible (submerged)
	Feature: archaeological sites on Enderby Island.	McDonald et al 2022a	No	Possible (unspecified)
	Feature: archaeological sites on Rosemary Island.	McDonald et al 2022b	No	Possible (unspecified)
	Feature: petroglyphs on Murujuga.	Mulvaney 2015.	No	Possible (submerged)
	Feature: resources including mangrove seeds, turtles, turtle eggs).	Smyth 2007	Possible (turtle) No (other resources)	Possible (turtle; turtle eggs, mangrove seeds)
	Value: it is recalled that ceremonies were conducted on islands.		No (onshore)	Possible (not onshore; likely shoreline

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First Nations Group	Features and Values	Source	Potential for overlap	
			PAA	***EMBA***
				accumulation around islands)
	Feature: petroglyph and other archaeological sites at Murujuga.	Dortch et al 2019.	No	Possible (submerged)
Ngarla	Value: traditional knowledge recalls that Solitary Island is the petrified form of the ancestral octopus Marnmulkura.	Wanparta Aboriginal Corporation 2022	No	No
	Value: people access waters	Brown (on behalf of the Ngarla People) v State of Western Australia, [2007] FCA 1025	Possible (unspecified)	Possible (unspecified)
	Value: use the waters for subsistence.		Possible (unspecified)	Possible (unspecified)
Thalanyji	Feature: resources including fish, shellfish, crabs, crustaceans, sea urchins, turtle, dugong and flora and fauna associated with mangrove communities. Feature: archaeological sites on Barrow Island. Value: connection to Country.	Commonwealth of Australia 2002	Possible (turtle; fish) No (other resources) No Possible (unspecified)	Possible (all resources) Possible (Barrow Island based on potential shoreline contact) Possible (unspecified)
	Feature: resources include turtles, eggs, fish, shellfish and plants.	DBCA et al. 2002	Possible (turtle; fish) No (other resources)	Possible
	Value: traditional knowledge recalls a water snake is located in inland waters.	Hayes on behalf of the Thalanyji People v State of Western Australia [2008] FCA 1487	No (inland waters)	No (inland waters)
	Value: connection to Country. Value: transfer of knowledge. Value: access to Country.	DBCA 2022	Possible (unspecified) Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified) Possible (unspecified)
	Value: access to Barrow and possibly Montebello Islands.	Hook et al. 2004	No	Possible (shoreline accumulation areas)

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First Nations Group	Features and Values	Source	Potential for overlap	
			PAA	***EMBA***
	Feature: artefact scatters are located in coastal sand dunes. Feature: burials are located in coastal sand dunes. Value: traditional knowledge recalls a water snake is located in inland waters.	Hook 2020.	No No No	Possible (Shoreline accumulation areas) Possible (Shoreline accumulation areas) No (inland waters)
	Feature: archaeological sites are located on Barrow Island.	Ditchfield et al. 2018	No	Possible (Shoreline accumulation areas)
	Feature: thalu ceremonial sites for the increase of turtle, shark, ray, fish, squid, octopus, hill kangaroo and emu. Feature: ceremonies. Value: connection to Country. Value: transfer of knowledge. Value: access to Country.	DBCA 2022	No No Possible Possible Possible	No (ceremonial use) Possible (submerged thalu sites e.g., petroglyphs) No Possible Possible Possible
	Feature: archaeological sites are located at Barrow and Montebello Islands. Feature: archaeological evidence of the use of resources including fish, turtles, marine mammals, crocodiles, crabs and sea urchins.	Dortch et al. 2019.	No No	Possible (Shoreline accumulation areas) Possible (submerged, highly unlikely for most evidence of faunal use to survive inundation)
	Feature: archaeological sites are located on Barrow Island.	Paterson 2017	No	Possible (Shoreline accumulation areas)
Unspecified	Feature: the ocean can include sacred sites and songlines. Value: people have kin relationships to important animals, plants tides and currents.	Smyth 2008	Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified)
	Feature: archaeological sites in submerged landscapes.	Bradshaw 2021	Possible (unspecified)	Possible (unspecified)
	Value: Sea Country has customary law defining ownership and management rights and responsibilities.	Muller 2008	Possible (unspecified)	Possible (unspecified)

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First Nations Group	Features and Values	Source	Potential for overlap	
			PAA	***EMBA***
	Value: knowledge of Sea Country. Value: connection to Sea Country. Value: care for Sea Country. Value: the extent of Sea Country is determined by the travels of dreaming ancestors. This is recorded and conveyed through songlines.	Kearney et al 2023	Possible (unspecified) Possible (unspecified) Possible (unspecified) Possible (unspecified)	Possible (unspecified) Possible (unspecified) Possible (unspecified) Possible (unspecified)
	Feature; archaeological sites indicate that islands were occupied prior to sea level rise.	DBCA 2020	No	Possible (submerged)
	Value: Sea Country includes values, places, resources, stories and cultural obligations. Value: activities relating to resources included: Dugong hunting; Turtle hunting; Turtle egg collecting; Seabird egg collecting; Spearing fish; Reef trapping fish; Herding fish; Line fishing; Collecting fish in stone fish traps; Poisoning fish; Gathering shellfish and other marine resources.	Smyth 2007	Possible (unspecified) Possible (fauna present)	Possible (unspecified) Possible (activities and fauna present)
	Value: people have kinship relationships with every plant and animal. Value: certain species, including fish and seafood, must not be eaten during initiation rituals due to their sacredness to the creation being Barrimirndi. Breaking this law may lead to cyclones.	Juluwarlu 2004	Possible (unspecified)	Possible (unspecified)
	Feature: tangible and intangible heritage. Feature: archaeological evidence of varied occupation and adaptation.	Macfarlane and McConnell 2017	Possible (unspecified) No (feature restricted to Ancient Landscape)	Possible (unspecified) Possible (submerged, highly unlikely for most

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First Nations Group	Features and Values	Source	Potential for overlap	
			PAA	***EMBA***
	Value: a distinct way of life centred around the use of limited water and coastal resources.		No	evidence of faunal use to survive inundation) No

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4.9.4.2 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). Woodside also understands that, at its lowest level during Indigenous occupation, sea level was between 125 m (O'Leary et al. 2020, Veth et al. 2019, Williams et al., 2018) and 130 m below current levels (Benjamin et al. 2020, Benjamin et al. 2023, 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, 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 Section 4.7) 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 Indigenous 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 areas subject to declarations or prescriptions under these Acts are located within the EMBA.

The Department of Planning, Lands and Heritage (DPLH) Aboriginal Heritage Inquiry system was searched for the EMBA, which indicated 40 Registered Aboriginal Sites and 48 Other Heritage Places (Appendix D). 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 DPLH and relevant local Aboriginal communities.

No sites of significance within the PAA or EMBA were identified by Traditional Custodians during consultation in the course of preparing the EP.

The PAA intersects part of the Ancient Landscape but also extends beyond the furthest extent of the Ancient Landscape.

Archaeological material on the Ancient Landscape is a relevant matter for the proposed activity as there is overlap between the PAA and the Ancient Landscape, and potential for seabed disturbance from planned activities and therefore potential for impacts to archaeological material. Woodside is triggered to undertake desktop assessments of archaeological potential, based on geophysical and bathymetric data, for any seabed disturbance at depths of less than 130 m. In Australia until recently, the consideration of submerged archaeological sites has generally focused on the sub-discipline of maritime archaeology with connection to Australian Indigenous archaeology through studies of Indigenous fish-traps, whaling stations and shipwreck survivor camps. However, with the exception of Indigenous fish traps in intertidal zones, the consideration of Indigenous heritage sites submerged by post-glacial sea-level rise has only recently been considered (Mott, 2019).

There has been long and continuous occupation of the coastal Pilbara region as evidenced by scientific studies (Balme et al., 2009; McDonald et al., 2018; Veth et al., 2017). Petroglyph motifs

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feature a range of subject matter with many examples depicting extinct fauna and early stylistic techniques (McNickle, 1984; McDonald, 2005; Mulvaney, 2009, 2010, 2013).

The sites considered most likely to survive inundation, based on the review of existing literature, were logically the more robust forms including:

- midden and artefacts within cemented dunes, relict water holes, and beach rock deposits
- quarry outcrops, extraction pits, and associated reduction debris in fine-grained volcanic outcrops
- curvilinear stone structures and standing stones sitting on volcanic pavements and jammed into volcanic rock piles
- lag deposits of artefacts and possibly midden on hardpan in suitable landscape contexts with good preservation conditions (e.g. shallow declination shorelines in sheltered passages of the inner archipelago or on the leeward side of hard-rock/fringing reef cause-ways adjacent to the outer islands)
- small overhangs and shelters with preserved deposits, facing away from the dominant wave and wind action. (Veth et al., 2019)

An additional review was undertaken by a suitably qualified marine archaeologist, which is not inconsistent with the draft guidelines for working in the near and offshore environment to protect Underwater Cultural Heritage (DCCEEW, 2023).

A further submerged heritage assessment was completed by an external consultant for Woodside for the PAA in September 2023. From the analysis of sub-surface data within the PAA the risk of negative impacts has been assessed as low. This is due to the absence of evidence of terrestrial land surfaces or significant features such as former islands or river systems. However, in the absence of regional or localised sea-level curve data, it cannot be concluded with certainty that no areas of the study area were not terrestrial or habitable at least for a short period of time (Comber Consultants 2023). The outcomes of the heritage assessment will also be shared with relevant First Nations groups as was recommended in the report (Comber Consultants 2023).

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 7.7.1).

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.

4.9.4.3 Feedback to Inform Existing Environment Description

First Nations cultural values are communally held. This is reflected in Vision 3 of Dhawura Ngilan that “Aboriginal and Torres Strait Islander heritage is managed... according to community ownership” (Heritage Chairs of Australia and New Zealand 2021). Dhawura Ngilan also specifically notes that “Aboriginal and Torres Strait Islander... intangible knowledge systems, which are held in songlines and language, are endangered. This knowledge is held by Elders and the community...” Through consultation with relevant persons, Registered Native Title Bodies Corporate have identified or raised topics relating to environmental values of cultural interest. These include a broad interest in the marine fauna (See Appendix F, Table 1).

Additional cultural values and broader interests in the environment are known and have been shared with Woodside in the course of consultation on this activity and other EPs. These cultural values and broader interests that are known to exist within the EMBA are identified below:

- Migratory marine animals including whales and whale sharks
- Fish including species of sharks and rays

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- Octopus
- Turtles
- Dugongs
- Crabs
- Plankton
- Seagrass
- Songlines
- Shorelines, particularly in the region from Willigabi (on the coast near Northhampton) to Shark Bay, Hamelin Pool and Yaringa
- Where saltwater and freshwater meet
- Freshwater (rivers)
- Saltwater (ocean)
- Archaeological sites on nearshore islands (Ashburton region of South-West Pilbara)
- Access to Country including visiting offshore islands at low tide (unspecified)
- Creation/dreaming sites associated with Sea Country including secret habitat totems (unspecified) and Yinta [sites of significance] association with Sea Country
- Jarrkunpungu/ Solitary Island (nearshore island north of Port Headland that is linked to a Ngarla Dreaming story).
- Presence of mythic creatures (snakes/serpents)
- Underwater cultural heritage
- Cultural obligations to care for Sea Country
- Resource collection including fishing, trapping, crabbing, catching turtle, hunting dugong, using stingray barbs for spears, collecting shellfish and molluscs
- Intergenerational knowledge transfer
- Coastal landforms
- Coastal vegetation
- Intangible heritage associated with the coast and ocean

Cultural values and broader interests that have been shared through consultation that do not intersect with the EMBA include:

- Malgana noted the ecological importance of Shark Bay, including Stromatolites. Modelling conducted for JDP3 did not predict that hydrocarbons would enter Shark Bay.
- The marine ecosystem description in Section 4.9.3 encompasses the description of the cultural features and Sections 4.6.2.1 and 4.6.3 provides a description of turtles and marine cetaceans respectively.

Woodside has committed to ongoing engagement to further understand these values. The Program of Ongoing Engagement with Traditional Custodians (Appendix G), provides a mechanism for ongoing dialogue between Woodside and Traditional Custodians. 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 7.7.1).

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4.9.4.4 Summary of Cultural Features and Heritage Values

Woodside has developed a robust understanding of cultural features and heritage values relevant to the activity through examination of publicly available information, studies and consultation with relevant persons under Regulation 25.

The cultural features and heritage values identified in Section 4.9.4.1 to 4.9.4.3 confirms whether there is any potential for these to exist within the PAA or EMBA. As previously described topics which have been raised in the context of an interest linked to the natural environment are impact and risk assessed in Section 6.6 and 6.7.

As cultural features are physical elements of a place, these can generally be assessed for impacts; where a feature is avoided, it is not impacted. Heritage values relate less to what is significant and more to why something is significant; interaction between heritage values and the PAA can only be reliably informed by consultation with Traditional Custodians where they are willing to share the necessary knowledge. Assessment of heritage values beyond cultural features alone is addressed in Section 6.9 subject to these caveats.

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Table 4-20: Summary of cultural features and heritage values

Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	***Desktop Literature Assessment***	***PAA***	***EMBA***
Archaeological Heritage and Landscapes					
Coastal/ island archaeological sites	Coastal archaeological sites include shell middens, artefact scatters, skeletal material/burial sites, camps, meeting places, hunting places and water sources.	✓	✓	No	Possible (shoreline accumulation only)
Petroglyphs	Petroglyphs are a form of rock art. Petroglyphs are a prominent feature particularly at Murujuga where it is found on hard, volcanic rock.	x	✓	Possible (submerged)	Possible (submerged)
Fish traps	Stone arrangements constructed in intertidal areas which fill with fish at high tide and trap them at low tide.	x	✓	Possible (submerge)	Possible (submerged)
Submerged archaeological sites	The Ancient Landscape extends between 125m and 130m below current sea level. Ancient occupation of this area may have left traces through now submerged archaeological sites.	x	✓	No	Possible
Rivers, waterholes, tidal channels and seeps	Water sources on the Ancient Landscape which may be culturally significant or archeologically prospective. Traditional knowledge retains knowledge of some water sources on the Ancient landscape and some submerged waterholes are related to a Kangaroo songline.	x	✓	No	Possible
Submerged hills	Hills on the Ancient Landscape which may be culturally significant or archeologically prospective. As sea level rose these hills would have become islands and eventually submerged.	x	✓	No	Possible
Intangible values					

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Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	*Desktop Literature Assessment*	*PAA*	*EMBA*
Songlines	Publicly available literature talks to songlines associated with ancestral beings that travelled Sea Country.	x	✓	Possible (unspecified)	Possible (unspecified)
Creation/ dreaming sites, sacred sites and ancestral beings	Publicly available literature talks to creation/dreaming and ancestral beings, including water serpents, connected to or originating from the sea generally.	✓	✓	Possible (unspecified)	Possible (unspecified)
Ceremonial sites	Places where ceremony (e.g. thalu ceremonies) are performed. All identified ceremonial sites are located onshore.	x	✓	No	Possible (unspecified)
Cultural obligations to care for Country	Cultural obligation to care for the environmental values of Sea Country. Exclusion of Traditional Custodians from Sea Country or decision making processes may inhibit ability to care for Country.	✓	✓	Possible (unspecified)	Possible (unspecified)
Knowledge of Country/ customary law and transfer of knowledge	The preservation and transmission of knowledge is dependent on the preservation of the environment generally. Exclusion of Traditional Custodians from Sea Country may inhibit the transfer of knowledge.	✓	✓	Possible (unspecified)	Possible (unspecified)
Connection to Country	Connection to Country is described in publicly available literature as “important to the Traditional owners’ spirituality and religion”. Connection to Country may be damaged where people are displaced or disrupted (e.g. during colonisation) or where there is a loss of technical skills or environmental knowledge	x	✓	Possible (unspecified)	Possible (unspecified)

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Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	***Desktop Literature Assessment***	***PAA***	***EMBA***
Access to Country	Limitations on Traditional Custodians accessing or enjoying areas of Sea Country	✓	✓	No	No (No limitations on access beyond the PAA)
Kinship systems and totemic species	Traditional Custodians have connection to species through kinship and totemic systems. An individual may have obligation to care for or not consume a species to which they are kin.	✓	✓	Possible	Possible
Resource collection	Fishing, trapping, crabbing, hunting, gathering of marine species including marine mammals, marine reptiles, fish, invertebrates and molluscs.	✓	✓	No	Possible
Marine ecosystems and species					
Water quality	Interest only, raised as a natural environment interest	x	✓	Possible	Possible
Marine species	Generally raised in consultation and literature as an interest	✓	✓	Possible	Possible
Marine mammals: Whales	Generally raised in consultation and identified in publicly available literature Thalu species of totemic importance Linked to songlines and dreaming stories Humpback whales in particular	✓	✓	Possible	Possible
Marine mammals: Dolphins	Cultural ceremonies associated with communicating with dolphins Culturally important species	x	✓	Possible	Possible
Marine mammals: Dugongs	Culturally important species Used as a resource	✓	✓	No	Possible

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Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	*Desktop Literature Assessment*	*PAA*	*EMBA*
Marine reptiles: Marine turtles	Culturally important species and migration There are Thalu ceremonies associated with turtles Turtles and turtle eggs as a resource	✓	✓	Possible	Possible
Fish: Fish, whale sharks, sharks and rays	Culturally important species Used as a resource Law run through the sea, including fish There are Thalu ceremonies associated with increasing fish stocks Fish, including bream and sting rays are totemic species Fish, including sharks and rays raised as a natural environment interest	✓	✓	Possible	Possible
Cephalopods: Squid and Octopus	Thalu species of totemic importance Resource	x	✓	Possible	Possible
Intertidal communities: Bivalves, gastropods, echinoderms (sea urchins), crustaceans	Resource.	✓	✓	No	Possible
Seabirds	Culturally important species Birds (including shags, seagulls and osprey) and bird eggs as a resource	x	✓	Possible	Possible
Benthic habitats: Macroalgal communities	Interest only, raised as a natural environment interest.	x	✓	No	Possible

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Identified cultural features and heritage values	Context	EP Source		Potential for overlap	
		Consultation Feedback	***Desktop Literature Assessment***	***PAA***	***EMBA***
Shoreline habitats: Mangroves	Critical breeding ground for marine and terrestrial wildlife. Mangroves would have provided shelter, crabbing, digging for shellfish, could be turtle nurseries. Mangrove seeds as resource	x	✓	No	Possible
Shoreline habitats: Intertidal sand/ mudflat communities	Interest only, raised as a natural environment interest.	x	✓	No	Possible
Shorelines	Interest only, raised as a natural environment interest. Coastal landforms and coastal vegetation raised as an interest.	✓	x	No	Possible
Marine Park/ coastal reserves	Interest and responsibility	x	✓	No	Yes

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4.9.4.4.1 Further Context: Archaeological Heritage

Assessment of the PAA has not identified archaeological sites. Consultation with Traditional Custodians has not identified any Aboriginal cultural features or heritage values specifically associated with the PAA.

No coastal areas or islands exist within the PAA. Islands do exist within the EMBA boundary, however given the EMBA is driven by an unplanned loss of well containment, there is no anticipated impact pathway from this activity to onshore archaeological sites above highest astronomical tide (HAT). No archaeological areas have been identified beyond terrestrial or intertidal areas, with the exception of two sites at Murujuga in Cape Bruguieres channel and Flying Foam Passage (Benjamin et al. 2020; Benjamin et al 2023), which are outside of the EMBA. However, it is recognised that there is the potential for submerged archaeological sites on the Ancient Landscape which is overlapped by the PAA and EMBA.

Archaeological sites identified onshore with the potential to exist in intertidal or submerged locations include petroglyphs, fish traps and artefact scatters or burials contained within sand dunes. As archaeological sites, these features have archaeological value which relates to the preservation of their fabric (i.e. the tangible features) and their context (i.e. their location and relationship to other archaeological and natural features). Archaeological sites may also have intangible dimensions (ICOMOS 2013) cultural value that exist in addition to their archaeological or scientific value and are assessed separately.

Certain landscapes have been identified as archaeologically prospective on the submerged Ancient Landscape, including:

- submerged water sources (rivers, waterholes, tidal channels and seeps) which have an increased likelihood of use or habitation as past generations used the associated resources (UWA 2021)
- submerged calcarenite ridges younger that human occupation of the continent which may have formed over and protected artefacts in situ (Veth 2019)
- prominent landscape features (e.g. hills, particularly of igneous rock formations) that may have been foci for cultural activity (UWA 2021)
- karst depressions and other “catch points” where artefacts may accumulate following disturbances caused by inundation (UWA 2021, Nutley 2022, Nutley 2023a).

4.9.4.4.2 Further Context: Intangible Cultural Heritage:

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

In terms of identified cultural features and heritage values related to intangible values, see below some additional context:

- Songlines: Oral Songlines are often described by First Nations people as the law of the land and make up part of the Dreaming (Neale and Kelly, 2020). Songlines are viewed in Western academia as a framework for relating people to land and consist of a series of invisible, interconnected routes along the landscape that mark significant sites for First Nations people (Higgins, 2021). Songlines demonstrate First Nations peoples’ strong connections to land by revealing scared knowledge that is place-specific (Roberts 2023). The land’s physical features are instrumental in maintaining songlines because this is how ancestral spirits journeyed through, and interacted with, the physical landscale leaving scared knowledge behind. The

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interconnection between the physical and spiritual is where songlines become intrinsically tied to significant places across Country. As a result, geographical landforms are recorded within songlines and become sacred places. Such landforms can include inter alia: rocks, mountains, rivers, caves and hills (Higgins, 2021). Songlines can become lost, fragmented or broken when there is a loss of Country or forced removal from Country (Neale and Kelly, 2020). Physical sites that have been identified as comprising a component of a songline are important to protect in order to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. No specific details of songlines have been provided by relevant persons during consultation for this Activity. The Activity is located beyond the Ancient Landscape where prominent landscape features (e.g. rocks, mountains, rivers, caves and hills) would have been visible or used by Traditional Custodians and therefore likely to be incorporated in songlines.

- In Australia, songlines can stretch thousands of kilometres, making up a complex and organic network of stories containing cultural knowledge of First Nations communities across the land (Neale and Kelly, 2020). Songlines can also extend out to Sea Country and contain cultural knowledge that is tied to geographic features, atmospheric phenomena and marine plants and animals. Often songlines containing references to a seascape or Sea Country make mention of mythical events occurring around marine life, fishing areas, submerged rocks or coral. Songlines that embody seascapes can reflect how a group may relate to, or value, Sea Country—for example connections to nearby islands that they once inhabited in their songlines (Smyth and Isherwood, 2016). Songlines can also be used as proof of long-standing connection to land and support a legal entitlement to land rights (Higgins, 2021). Examples where songlines contain strong references to Sea Country are more common in Pacific Islander and Torres Strait Islander communities, who often refer to seascapes and skylines in their songlines in order to communicate sacred knowledge that assists in safe navigation of the ocean (Neale and Kelly, 2020).
- Creation/dreaming sites, sacred sites and ancestral beings: The only sources identified by Woodside that contained detailed descriptions of the location of ancestral beings or creation/dreaming/ sacred sites placed these locations or sites on land, islands or within inland water sources such as rivers or pools. It is acknowledged that some ancestral beings are noted to live within or originate from the sea generally, and some creation stories talk to the creation of features from or in the sea. Additionally, places on shore or at sea are (without further information or specificity) assumed to have been created on some level in First Nations cosmology.
- Cultural obligations to care for Country: Caring for Country collectively refers to the cultural obligations of individuals and groups, as well as rituals and ceremonies required for the physical and spiritual health of the environment. In the literature reviewed by Woodside, caring for Country was noted to include, but is not limited to, maintenance of the physical environment and ecosystem. It may also have cultural, spiritual and ritual dimensions such as caring for ancestral beings or ensuring cultural safety. Thalu sites are places where increase ceremonies are performed to increase, enhance or maintain populations of plants, animals or phenomena. All references to active ceremonial sites were confined to onshore locations, though the values may extend offshore where e.g., a thalu relates to marine species populations.
- Knowledge of Country/customary law and transfer of knowledge: Knowledge of and familiarity with the features of Sea Country is itself a “value”. The inherent potential for restricted or secret knowledge (or information that is not wished to be shared) makes this difficult to assess even through consultation with Traditional Custodians. However, aspects such as limitations on access to sites or disruption/relocation of First Nations communities may have implications for the preservation of First Nations knowledge. Further, connection to Country may be damaged where people are displaced or disrupted (e.g., during colonisation) or where there is a loss of technical skills or environmental knowledge (McDonald and Phillips, 2021). Transfer of

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knowledge includes continuing traditional practices to pass on practical skills. This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO 2003).

- Connection to Country: Describes the multi-faceted relationship between First Nations people and the landscape, which is envisioned as having personhood and spirit. It is also an aspect of personal identity for many First Nations people. In the case of Sea Country this can mean identifying as a Saltwater person, where "essence of being a 'Saltwater' person is ontological… it is about how people relate spiritually to the sea and engage with spiritual forces that created it, the marine flora and fauna and people" (McDonald and Phillips, 2021).
- Access to Country, including Sea Country: Is necessary for the continuation of other values including caring for Country and the transfer of traditional knowledge. Being on Country can be an important way of expressing or maintaining connection to Country (Australian Indigenous HealthInfoNet n.d.). Access is also a value in its own right, as a continuation of traditional Sea Country access and use.
- Kinship systems and totemic species: Individuals may have kinship to specific species (Smyth 2008, Juluwarlu 2004) and/or a responsibility to care for species (Muller 2008). Kinship arises from totemic associations within First Nations "skin group" systems. It is forbidden for an individual to kill or eat a species who is from the same "skin group" (Juluwarlu 2004). They may also have certain obligations linked to the discussion of caring for Country below. It is assumed that marine species may have kinship/totemic relationships to Traditional Custodians, but it is understood that these relationships do not prohibit people outside of that "skin group" from hunting or eating that same species (Juluwarlu 2004).
- Resource collection: A number of marine species are identified through consultation and literature as important resources, particularly as food sources. In addition to their immediate value as sustenance, the gathering and preparation of these resources is informed by cultural knowledge, and an inability to use these resources may result in a loss of ability to transfer that knowledge to future generations.

4.9.4.4.3 Further Context: Marine Ecosystems and Species

First Nations people have noted through consultation that they have a general interest in environmental management and ecosystem health (i.e., natural environment interest). This was noted in the context of a group/individual seeking further information about potential impacts and risks from the PAA on marine species and benthic communities in the PAA and EMBA. This includes marine mammals, marine reptiles, fish, seabirds, plankton, benthic and shoreline habitats and marine parks, which are described in context of their distribution and populations in Sections 4.5 and 4.6, with further details in Master Existing Environment.

In terms of identified cultural features and heritage values related to marine ecosystems and species summarised in 4.6, see below some additional context:

- Marine mammals: Whales, and in particular humpback whales, have been identified through consultation with First Nations people as culturally important species, with totemic importance including their populations, biodiversity, and migration patterns. Cultural ceremonies associated with communicating with dolphins have also been raised by Murujuga Aboriginal Corporation through consultation and dugongs predominantly as a resource. Details pertaining to whales, dugongs and dolphins, their distribution, migration patterns and populations are described in Section 4.6, with further details in Master Existing Environment.
- Marine reptiles: Turtles and sea snakes have been identified through consultation with First Nations people as culturally important species, with turtles identified as a resource. First Nations people that identify marine reptiles as species of totemic importance or integral to songlines may place high cultural value on their protection. No specific marine reptiles-related songlines have been identified as per Section 4.8 that have the potential to interact with the PAA or EMBA. Note the only specific songline related to marine reptiles (turtles) was shared by

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Murujuga Aboriginal Corporation, and was geographically restricted from Fortescue to Withnell Bay, in Mermaid Sound (MAC 2021). Cultural knowledge of turtles at a population level (turtle migration, behaviour and the related marine environment) may all be important in ensuring the continuation of cultural functions and activities that remain valuable to First Nations people (Fijn 2021:47; Delisle et al.2018). Details pertaining to marine reptiles, their distribution, and populations are described in Section 4.6, with further details in Master Existing Environment.

- Fish and Cephalopods: Fish and squid have been identified through consultation with First Nations people as a culturally important species, with fish generally being identified as a resource. First Nations may identify cultural values associated with fish species as important to maintaining both tangible (physical cultural sites) and intangible (cultural knowledge) cultural heritage. Tangible cultural heritage associated with fish can include important cultural sites such as midden sites, fish traps and thalu sites. While the octopus is an important totem to Ngarla People and features in the creation story of Solitary Island. There are increase ceremonies / rituals for species of squid and octopus to enhance or maintain populations. Thalu are places where these increase ceremonies are performed. Details pertaining to fish and cephalopods are described in Section 4.6, with further details in Master Existing Environment.
- Seabirds: Seabirds, and in particular shags, have been identified through literature as a culturally significant species (Malgana Land and Sea Management et al. (2021), as well as a resource (seabird eggs; Smyth 2007). Details pertaining to seabirds and migratory shorebirds are described in Section 4.6, with further details in Master Existing Environment.
- Benthic habitats: Through consultation, First Nations groups identified benthic habitats as valuable for their ecological values, including corals attracting fish and seagrass providing shelters for fauna, as well as an important resource for dugongs. Additionally, coral is valued by Murujuga Aboriginal Corporation for its aesthetic values. Details pertaining to benthic habitats and communities, including their distribution, are described in Section 4.5, with further details in Master Existing Environment.
- Shoreline habitats: Through consultation, First Nations groups identified shoreline habitats as valuable for their ecological values, including mangroves for providing shelter to marine invertebrates, which are identified resources, and potential nursery for turtles. Literature also notes that mangroves are also valued for the flora and fauna they are associated with and support (Commonwealth of Australia 2002) and Smyth (2007) reports that mangrove seeds are used as a resource by Ngarda-Ngarli. Details pertaining to shoreline and coastal habitats, including their distribution, are described in Section 4.5, with further details in Master Existing Environment.

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4.9.5 Historic Sites of Significance

There are no known sites of European cultural historic heritage significance within the PAA. The Master Existing Environment describes cultural heritage sites within the EMBA.

4.9.6 Historic Underwater Heritage

A search of the Australasian Underwater Cultural Heritage Database, which records all known Maritime Cultural Heritage (shipwrecks, aircraft, relics and other underwater cultural heritage) in Australian waters indicated that there are no underwater heritage sites or shipwrecks within the PAA (DCCEEW, 2022).

There are six shipwrecks within 50 km of the PAA. These six vessels are classified as a historic shipwreck under the Commonwealth Historic Shipwrecks Act 1976 and a Protected Place under the EPBC Act and listed in Table 4-21.

Table 4-21: Recorded shipwrecks within 50 km of the PAA

Vessel Name	Year Wrecked	Where Lost	Latitude	Longitude	Distance from PAA
Curlew	1911	At Onslow, Montebellos Group	20.0ºS	115.17ºE	0.96 km north east
Marietta	1905	Montebello Islands	20.0ºS	115.17ºE	0.96 km north east
Vianen	1682	Barrow Island Area	20.0ºS	115.17ºE	0.96 km north east
Wild Wave (China)	1873	Montebello Islands	20.0ºS	115.17ºE	0.96 km north east
Tanami	Unknown	Trial Rocks	20.37ºS	115.37ºE	29 km south east
Trial	1622	Trial Rocks	20.29ºS	115.38ºE	30 km south east

4.9.7 World, National and Commonwealth Heritage Listed Places

There are no listed World, National or Commonwealth Heritage Places within the PAA. World (WHP), National (NHP) and Commonwealth (CHP) Heritage places within the EMBA are listed in Table 4-22. The conservation values and sensitivities of these places are described in the Master Existing Environment.

Table 4-22: World, National And Commonwealth Heritage Listed Places within the EMBA

Listed Places	Approximate Distance from PAA (km)
World Heritage Places	
The Ningaloo Coast WHP	167 km south west
National Heritage Places	
The Ningaloo Coast NHP	167 km south west
Commonwealth Heritage Places	
Ningaloo Marine Area – Commonwealth Waters CHP	184 km south east

4.10 Socio-economic Environment

4.10.1 Commercial Fisheries

A number of Commonwealth and State fishery management areas are located within the PAA and EMBA. FishCube data was requested to analyse the potential for interaction of fisheries and tour

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operators with the PAA and EMBA, which was used to determine consultation with fisheries that may be impacted by proposed petroleum activities (Department of Primary Industries and Regional Development (DPIRD), 2022). Table 4-23 provides an assessment of the potential interaction and the Master Existing Environment provides further detail on the fisheries that have been identified through desk-based assessment and consultation (Section 5). One Commonwealth managed fishery and six State managed fisheries, as well as charter fishing operators, were identified as having a potential interaction within the PAA-. Fisheries identified as having a potential for interaction are shown in Table 4-23.

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Table 4-23: Commonwealth and State commercial fisheries management areas overlapping the PAA and EMBA and potential for interaction during the PAP

Fishery	Potential for Interaction in PAA[1]	Potential for interaction in EMBA[1]	Description
Commonwealth Managed Fisheries			
North West Slope Trawl Fishery	✓	✓	The North West Slope Trawl Fishery management area overlaps the PAA and EMBA. Between one to six vessels have been active in the fishery since 2005. Fishery Status Reports indicate most recent activity inside the EMBA occurred in the 2021-2022 season (Patterson et al., 2022). There has been fishing effort reported within the PAA in the last 5 years. Accordingly, Woodside considers it a possibility that interactions with the fishery may occur in the PAA and the EMBA.
Western Tuna and Billfish Fishery	×	✓	The Western Deepwater Trawl Fishery management area overlaps the PAA and the EMBA. Fishery Status Reports indicate most recent activity overlapping the EMBA occurred in the 2021-2022 season (Patterson et al., 2022). There has been no fishing effort reported within the PAA in the last 5 years. Woodside considers it a possibility that interactions with the fishery may occur in the EMBA.
Western Deepwater Trawl Fishery	×	✓	The Western Deepwater Trawl Fishery management area overlaps the EMBA. Fishery Status Reports indicate most recent activity overlapping the EMBA occurred in the 2021-2022 season (Patterson et al., 2022). There has been no fishing effort reported within the PAA in the last 5 years. Woodside considers it a possibility that interactions with the fishery may occur in the EMBA.
Southern Bluefin Tuna Fishery	×	×	The Southern Bluefin Tuna Fishery management area overlaps the PAA and EMBA. 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). Accordingly, Woodside considers there to be no potential for interaction with this fishery and the PAP.
Western Skipjack Tuna Fishery	×	×	The Western Skipjack Tuna Fishery management area overlaps the PAA and the EMBA. The Western Skipjack Tuna 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). Accordingly, Woodside considers there to be no potential for interaction with this fishery and the PAP.
State Managed Fisheries			

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Pilbara Line Fishery	✓	✓	The Pilbara Line Fishery licensees are permitted to operate anywhere within Pilbara waters (Newman et al., 2021), overlapping the EMBA and PAA. The fishery is active in the EMBA, with eight 60 NM Catch and Effort System (CAES) blocks reporting up to five vessels across the 2017 – 2022 seasons (DPIRD, 2022). The PAA overlaps 60 NM CAES blocks 19150 and 20150. FishCube data for the Pilbara Line Fishery is not provided at the 10 NM scale, therefore it is uncertain if the effort reported in the 60 NM CAES blocks 19150 and 20150 overlaps with the PAA. However, Woodside considers it a possibility that interactions with the fishery may occur within both the PAA and the EMBA.
Mackerel Managed Fishery (Area 2 and Area 3)	✓	✓	The Mackerel Managed Fishery management area overlaps the EMBA and PAA. The fishery has remained consistently active over the last 5 years, with ten 60 NM CAES blocks reporting up to six vessels across each season between 2017 – 2022 (DPIRD, 2022). The fishery is active across the PAA with two 10 NM CAES blocks reporting less than three vessels active between the 2018 – 2021 seasons (DPIRD, 2022). Accordingly, Woodside considers it a possibility that interactions with the fishery may occur within the PAA and the EMBA.
Pilbara Crab Managed Fishery	×	✓	The Pilbara Crab Managed Fishery management area overlaps the EMBA and PAA. FishCube data reports fishing effort occurs within the EMBA in one 60 NM CAES blocks reporting less than three vessels across 2017 – 2022 seasons (DPIRD, 2022). FishCube data reported no active fisheries at 10 NM overlapping the PAA (DPIRD, 2022). Woodside considers it a possibility that interactions with the fishery may occur in the EMBA.
Pilbara Trap Managed Fishery	✓	✓	The Pilbara Trap Managed Fishery management area overlaps the EMBA and PAA. FishCube data reports fishing effort occurs within the EMBA across ten 60 NM CAES blocks reporting up to three vessels across 2017 – 2022 seasons (DPIRD, 2022). FishCube data reported active fisheries at 10 NM CAES blocks overlapping the PAA over the same period(DPIRD, 2022). Woodside considers it a possibility that interactions with the fishery may occur within the PAA and EMBA.
Marine Aquarium Managed Fishery	✓	✓	The Marine Aquarium Managed Fishery management area overlaps the EMBA and PAA. The fishery has remained consistently active in the EMBA between the 2017 – 2022 seasons with six 60 NM CAES blocks overlapping the EMBA reported up to six licences with active fishing effort (DPIRD, 2022). FishCube data for the Pilbara Line Fishery is not provided at the 10 NM scale (DPIRD, 2022)., therefore it is uncertain if the effort reported in the intersecting 60 NM CAES blocks overlaps with the PAA. However, Woodside considers it a possibility that interactions with the fishery may occur within both the PAA and the EMBA.

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West Coast Deep Sea Crustacean Managed Fishery	✗	✓	The West Coast Deep Sea Crustacean Managed Fishery is permitted to fish in waters deeper than the 150 m isobath overlapping the PAA and EMBA. The fishery has remained consistently active in the EMBA between the 2017 – 2022 seasons with eight 60 NM CAES blocks overlapping the EMBA reported less than three vessels with active fishing effort (DPIRD, 2022). The FishCube data reported no active fisheries at 10 NM overlapping the PAA (DPIRD, 2022). Woodside considers it a possibility that interactions with the fishery may occur in the EMBA.
Western Australian Sea Cucumber Fishery	✓	✓	The Western Australian Sea Cucumber Fishery management area overlaps the EMBA and the PAA. The fishery is permitted to operate throughout all WA waters. The target species typically inhabit nearshore waters. FishCube data reports fishing effort occurs within the EMBA across two 60 NM CAES blocks reporting less than three licenses across 2017 – 2019 seasons (DPIRD, 2022). FishCube data for the Pilbara Line Fishery is not provided at the 10 NM scale (DPIRD, 2022)., therefore it is uncertain if the effort reported in the 60 NM CAES blocks 19150 and 20150 overlaps with the PAA. However, Woodside considers it a possibility that interactions with the fishery may occur within both the PAA and the EMBA.
Onslow Prawn Managed Fishery (Area 2 and 3)	✓	✓	The Onslow Prawn Managed Fishery management area overlaps the EMBA (Area 2 and 3) and PAA (Area 2). The boundaries of the Onslow Prawn Managed Fishery boundaries are all the Western Australian Waters between Exmouth Prawn Fishery and the Nickol Bay prawn fishery east of 114º39.9' on the landward side of the 200 m depth isobath (Sporer et al., 2012). Area two incorporates the Mangrove Island and Weld Island size management fish grounds and Coolgra Point Nursery (Sporer et al., 2012). FishCube data reports fishing effort occurs within the EMBA across five 60 NM CAES blocks reporting less than three licenses across 2018 – 2022 seasons (DPIRD, 2022). FishCube data for the Pilbara Line Fishery is not provided at the 10 NM scale (DPIRD, 2022)., therefore it is uncertain if the effort reported in the intersecting 60 NM CAES blocks overlaps with the PAA. However, Woodside considers it a possibility that interactions with the fishery may occur within both the PAA and the EMBA.
Specimen Shell Managed Fishery	✗	✓	The Specimen Shell Managed Fishery management area overlaps the EMBA and PAA. The fishery has remained consistently active in the EMBA between the 2017 – 2022 seasons with seven 60 NM CAES blocks overlapping the EMBA reported up to six licences with active fishing effort (DPIRD, 2022). The FishCube data reported no active fisheries at 10 NM overlapping the PAA (DPIRD, 2022). Woodside considers it a possibility that interactions with the fishery may occur in the EMBA.

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Pilbara Fish Trawl (Interim) Managed Fishery	×	✓	The Pilbara Fish Trawl (Interim) Managed Fishery management area overlaps the EMBA and the PAA. The fishery has remained consistently active over the last 5 years, with four 60 NM CAES blocks reporting up to four vessels across each season between 2017 – 2022 (DPIRD, 2022). No fishing effort has been reported in the 10 nm CAES blocks overlapping the PAA within the last 5 years (DPIRD, 2022). Accordingly, Woodside considers there to be potential for interaction with this fishery within the EMBA.
Exmouth Gulf Prawn Managed Fishery	×	✓	The Exmouth Gulf Prawn Managed Fishery management area overlaps the EMBA. The fishery has remained consistently active over the last 5 years, with two 60 NM CAES blocks reporting up to six vessels across each season between 2017 – 2022 (DPIRD, 2022). No fishing effort has been reported in the 10 nm CAES blocks overlapping the PAA within the last 5 years (DPIRD, 2022). Accordingly, Woodside considers there to be potential for interaction with this fishery within the EMBA.
Nickol Bay Prawn Managed Fishery	×	✓	The Nickol Bay Prawn Managed Fishery management area overlaps the EMBA. The fishery has remained consistently active over the last 5 years, with three 60 NM CAES blocks reporting up to eight vessels across each season between 2017 – 2022 (DPIRD, 2022). No fishing effort has been reported in the 10 nm CAES blocks overlapping the PAA within the last 5 years (DPIRD, 2022). Accordingly, Woodside considers there to be potential for interaction with this fishery within the EMBA.
Gascoyne Demersal Scalefish Managed Fishery	×	✓	The Gascoyne Demersal Scalefish Managed Fishery management area overlaps the EMBA. FishCube data reports fishing effort occurs within the EMBA across four CAES blocks reporting up to twelve licenses across 2017 – 2022 seasons (DPIRD, 2022). FishCube data reported no active fisheries at 10 NM CAES blocks overlapping the PAA (DPIRD, 2022). Accordingly, Woodside considers there to be potential for interaction with this fishery within the EMBA
Shark Bay Scallop Managed Fishery	×	✓	The Shark Bay Scallop Managed Fishery management area overlaps the EMBA. FishCube data reports fishing effort occurs within the EMBA in one 60 NM CAES block reporting up to fourteen licenses across 2017 – 2018 season (DPIRD, 2022). FishCube data reported no active fisheries at 10 NM CAES blocks overlapping the PAA (DPIRD, 2022). Accordingly, Woodside considers there to be potential for interaction with this fishery within the EMBA
Shark Bay Prawn Managed Fishery	×	✓	The Shark Bay Prawn Managed Fishery management area overlaps the EMBA. The fishery has remained consistently active over the last 5 years, with one 60 NM CAES block reporting up to eighteen vessels across each season between 2017 – 2022 (DPIRD, 2022). No fishing effort has been reported in the 10 nm CAES blocks overlapping the PAA within the last 5 years (DPIRD, 2022). Accordingly, Woodside considers there to be potential for interaction with this fishery within the EMBA

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Shark Bay Crab Managed Fishery	×	✓	The Shark Bay Crab Managed Fishery management area overlaps the EMBA. The fishery has remained consistently active over the last 5 years, with one 60 NM CAES block reporting up to twenty vessels across each season between 2017 – 2022 (DPIRD, 2022). No fishing effort has been reported in the 10 nm CAES blocks overlapping the PAA within the last 5 years (DPIRD, 2022). Accordingly, Woodside considers there to be potential for interaction with this fishery within the EMBA
West Coast Rock Lobster Managed Fishery	×	✓	The West Coast Rock Lobster Managed Fishery management area overlaps the EMBA. FishCube data reports fishing effort occurs within the EMBA in one CAES blocks reporting less than three vessels across 2017 – 2018 season (DPIRD, 2022). FishCube data reported no active fisheries at 10 NM CAES blocks overlapping the PAA (DPIRD, 2022). Woodside considers there to be potential for interaction with this fishery within the EMBA.
Land Hermit Crab Fishery	×	✓	The Land Hermit Crab Fishery management area overlaps the EMBA where shoreline contact is predicted. FishCube data reports fishing effort occurs within the EMBA in one CAES block reporting up to three licenses across 2017 – 2018 season (DPIRD, 2022). FishCube data reported no active fisheries at 10 NM CAES blocks overlapping the PAA (DPIRD, 2022). Woodside considers there to be potential for interaction with this fishery within the EMBA.
Open Access in the North Coast, Gascoyne Coast and West Coast Bioregions	×	✓	There is no publicly available information on the extent of the management area for the Open Access Fishery, however, FishCube data reports fishing effort occurs within the EMBA in one 60 NM CAES blocks reporting less than three vessels across the 2017 - 2019 seasons (DPIRD, 2022). FishCube data reported no active fisheries at 10 NM CAES blocks overlapping the PAA (DPIRD, 2022). Woodside considers there to be potential for interaction with this fishery within the EMBA.
Western Australian Abalone Managed Fishery	×	×	The Western Australian Abalone Managed Fishery management area overlaps the EMBA and the PAA. The Western Australian Abalone Fishery includes all coastal waters from the Western Australian and South Australian border to the Western Australian and Northern Territory border. No commercial fishing has occurred north of Moore River since 2011-2012 (Strain et al., 2021). In addition, abalone is harvested by hand using an abalone iron from reefs and rock shelves within Western Australian waters (Strain et al., 2021), limiting the fishery to shallow waters. Accordingly, Woodside considers there to be no potential for interaction with this fishery.
Pearl Oyster Managed Fishery (Zone 1)	×	×	The Pearl Oyster Managed Fishery management area overlaps the EMBA and the PAA. No fishing has occurred in Zone 1 from 2017 to 2020 with only 4594 culture shells taken in 2016 (Hart et al., 2021). FishCube reported no fishing effort within the EMBA and Woodside considers there to be potential for interaction with this fishery within the EMBA

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South West Coast Salmon Managed Fishery	×	×	The South West Coast Salmon Managed Fishery management area overlaps the EMBA and PAA. No fishing occurs north of the Perth Metropolitan Area. Therefore, no effort occurs within the EMBA or PAA and Woodside considers there to be no potential for interaction with this fishery.
WA North Coast Shark Fishery	×	×	The WA North Coast Shark Fishery management area overlaps the EMBA. The PAA overlaps with the WA North Coast Shark Fishery (WANCSF) management area which extends from longitude 114°06'E to 123°45'E (Patterson et al., 2021). However, fishing activity has not been reported by this fishery since the 2008-2009 fishing season (Patterson et al., 2021). Accordingly, Woodside considers there to be no potential for interaction with this fishery within the EMBA or PAA.
Charter based commercial operators			
Tour Operators	✓	✓	Fishing Tour Operators are permitted to operate across WA state waters and are required to report monthly logbook records of client fish catches. FishCube data indicate tour operator fishing effort highest around Ningaloo and Murion Islands and at Barrow Island and the Montebello Islands. FishCube data reports consistent fishing effort across fifteen 60 NM CAES blocks that overlap the EMBA (DPIRD, 2022). Fishing effort was reported by up to 20 licences across the 2017 – 2022 seasons (DPIRD, 2022). FishCube data reports fishing effort across two 10 NM CAES block that overlaps the PAA (DPIRD 2022). Fishing effort was reported by up to four licences across the 2018 – 2022 seasons (DPIRD, 2022). Accordingly, Woodside considers it a possibility that interactions with tour operators may occur in both the PAA and EMBA.

1. Blue highlights in these columns denotes overlap between the PAA and/or EMBA with the fishery management area. Ticks or crosses indicate the potential for interaction.

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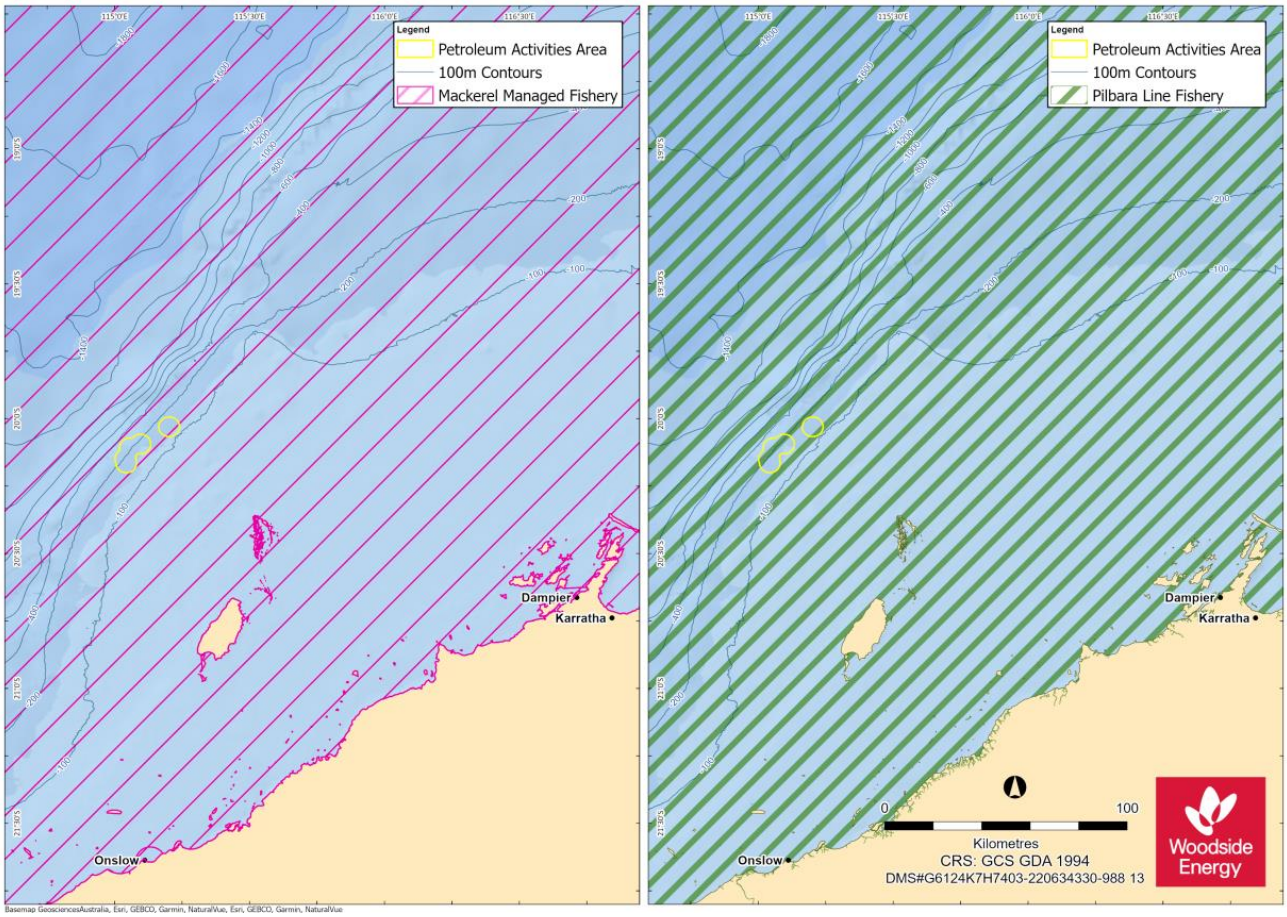

Figure 4-13: State managed fisheries with a potential for interaction with the PAP

4.10.2 Aquaculture

There are no aquaculture activities within or adjacent to the PAA. Aquaculture in the wider region is typically restricted to shallow coastal waters and consists primarily of culturing hatchery reared and wild caught oysters (*Pinctada maxima)* for pearl production.

Pearl farm site locations nearest to the PAA, in the EMBA, are those at the Montebello Islands. In the Gascoyne Coast region oyster, hatcheries are important, with those located in Carnarvon and Exmouth supplying significant quantities of *P. maxima* spat to pearl farms in Exmouth Gulf and Montebello Islands (DoF, 2011b). Leases typically occur in shallow coastal waters at depths of less than 20 m (DoF, 2011b).

Primary spawning of the pearl oyster occurs from mid-October to December. A smaller secondary spawning occurs in February and March (Fletcher & Santoro, 2012).

4.10.3 Traditional Fisheries

There are not expected to be any traditional or customary fisheries that operate within the PAA, as these traditional fisheries are typically restricted to shallow coastal waters and/or areas with structures such as reefs. However, it is recognised that Barrow Island, Montebello Islands, Ningaloo Reef and the adjacent foreshores (in the wider EMBA) have a known history of fishing when areas were occupied (as from historical records).

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

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4.10.4 Tourism and Recreation

No tourism activities take place specifically within the PAA but it is acknowledged that there are growing tourism and recreational sectors in WA. These sectors have expanded spatially over the last two decades. Potential for growth and further expansion in tourism and recreational activities in the Pilbara and Gascoyne regions is recognised, particularly with the development of regional centres and a workforce associated with the resources sector (Gascoyne Development Commission, 2012).

Recreational fishing in the North West Shelf Province is mainly concentrated around the coastal waters and islands (including Ningaloo Marine Park, North West Cape area, the Montebello Islands, and other islands and reefs in the region) (DoF, 2011b). It has grown substantially with the expanding regional centres and increasing residential and fly in/fly out work force, particularly in the Pilbara region. Occasional recreational fishing occurs at Rankin Bank and Glomar Shoals (located about 47 km and 155 km from the PAA, respectively). The Montebello Islands (45 km from the PAA) are the next closest location for tourism, with some charter boat operators taking visitors to these remote islands. Charter based commercial operators are active within the PAA and EMBA.

Within the EMBA, tourism is one of the major industries of the Gascoyne region and contributes significantly to the local economy in terms of both income and employment. The main marine nature-based tourist activities are concentrated around and within the Ningaloo Marine Park and North West Cape area. Activities include recreational fishing, snorkelling and scuba diving, whale shark (April to August) and manta ray (September to November) encounters, whale watching (July to October) and turtle watching (all year round) (Department of Biodiversity, Conservation and Attraction (DBCA), 2022). Recreational use of the Ningaloo Marine Park varies in intensity throughout the year, depending on school holidays and seasonal peaks of marine fauna being observed. Coral Bay is documented as one of the most heavily used areas (MPRA, 2005). Further information on tourism and recreational activity is provided in the Master Existing Environment.

4.10.5 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. None of these fairways intersect with the PAA; the nearest fairway is approximately 27 km east of the PAA (Figure 4-14). Vessel tracking data suggest the majority of shipping traffic in the area is likely associated with the ports of Dampier and Barrow Island. Further information on commercial shipping is provided in the Master Existing Environment.

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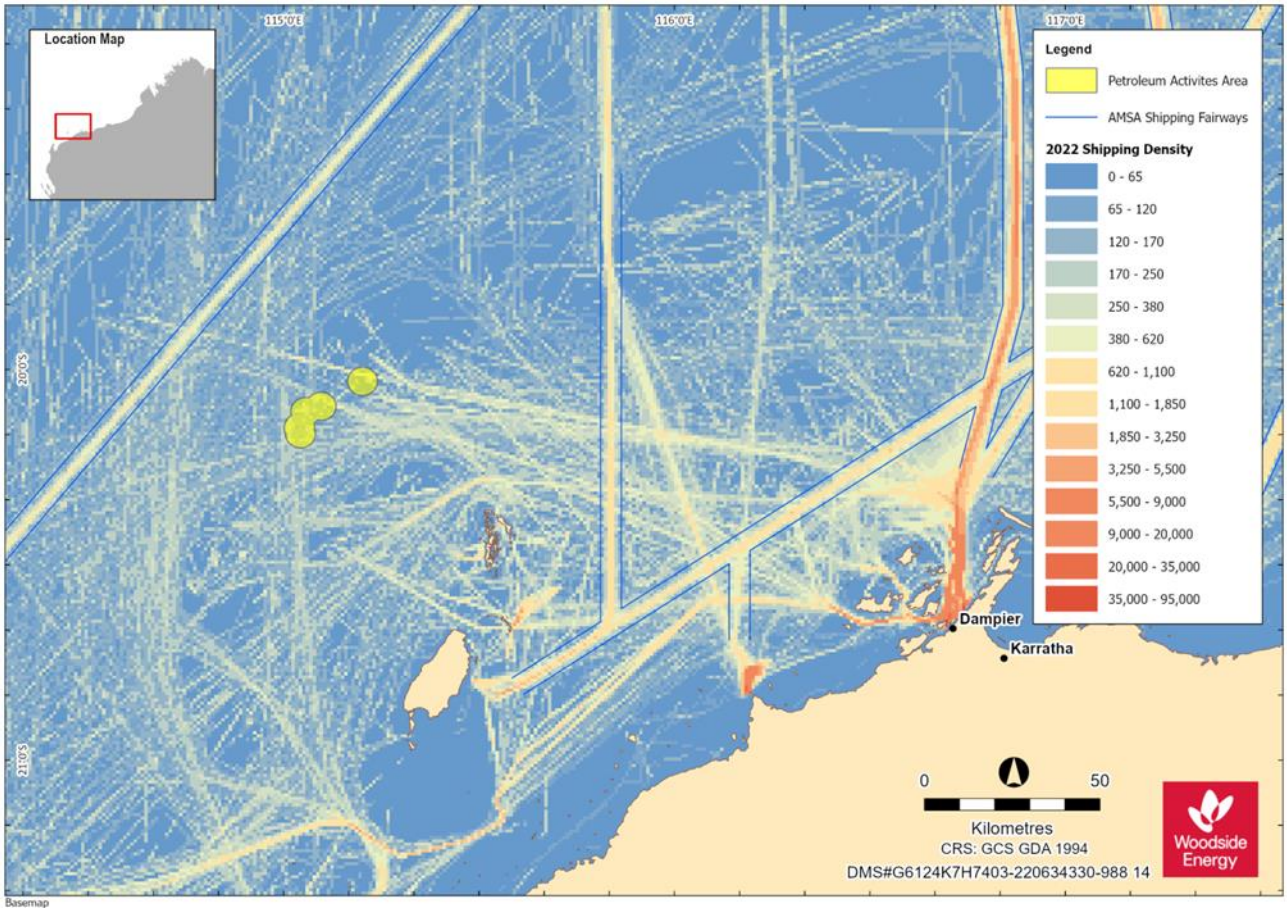

Figure 4-14: Vessel density map in proximity to the PAA, derived from AMSA satellite tracking system data (vessels include cargo, LNG tanker, passenger vessels, support vessels, and others/unnamed vessels)

4.10.6 Oil and Gas

The PAA is located within an area of established oil and gas operations as shown in Figure 4-15. As such there are a number of oil and gas processing platforms within 110 km of the PAA as described in Table 4-24

The PAA also contains live infrastructure, specifically the:

- Existing Julimar Field Production System
- Wheatstone trunkline owned and operated by Chevron.

Table 4-25 outlines the existing live infrastructure within the PAP and approximate distances from infrastructure associated with the PAP. Existing live infrastructure is also shown in Figure 4-16

Table 4-24: Oil and Gas Processing Platforms within the Vicinity of the PAA

Facility Name and Owner	Approximate Distance from PAA
Pluto Platform (operated by Woodside)	13 km east
Wheatstone Platform (operated by Chevron)	17 km north east
John Brookes (operated by Santos Ltd)	27 km south
East Spar (operated by Santos Ltd)	57 km south
Goodwyn Alpha (operated by Woodside)	88 km north east

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North Rankin (operated by Woodside)	110 km north east

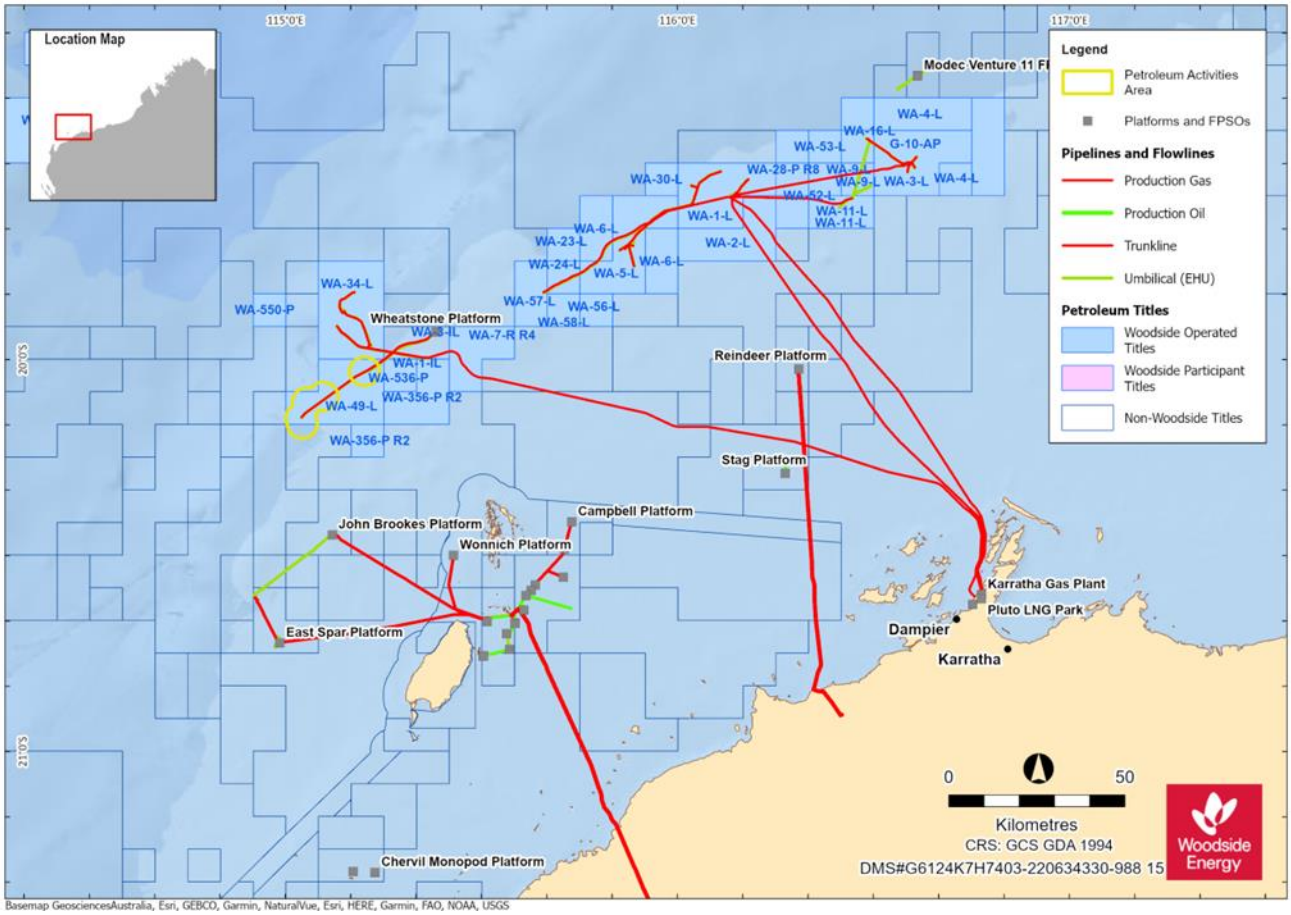

Figure 4-15: Oil and gas titles and infrastructure in proximity to the PAA

Table 4-25: Live infrastructure within the PAA

Component	Distance from Proposed Infrastructure at the Closest Point	Operator
JULA02 production well	<~100 m	Woodside
JULA04 production well	<~100 m	Woodside
JULA01 production well	<~100 m	Woodside
JULA manifold	Tie-in to this infrastructure will occur under this EP	Woodside
JDP2 ILT Assembly	Tie-in to this infrastructure will occur under this EP	Woodside
Julimar Field Production System flowlines, umbilicals and pipelines	Tie-in to this infrastructure will occur under this EP	Woodside
BRUA-4 production well	Intervention on this well may occur under this EP	Woodside
BRUA-6 production well	Intervention on this well may occur under this EP	Woodside
BRUA-2 production well	Intervention on this well may occur under this EP	Woodside

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BRUA-5 production well	Intervention on this well may occur under this EP	Woodside
BRUA-3 production well	Intervention on this well may occur under this EP	Woodside
Wheatstone trunkline	~1.8 km	Chevron

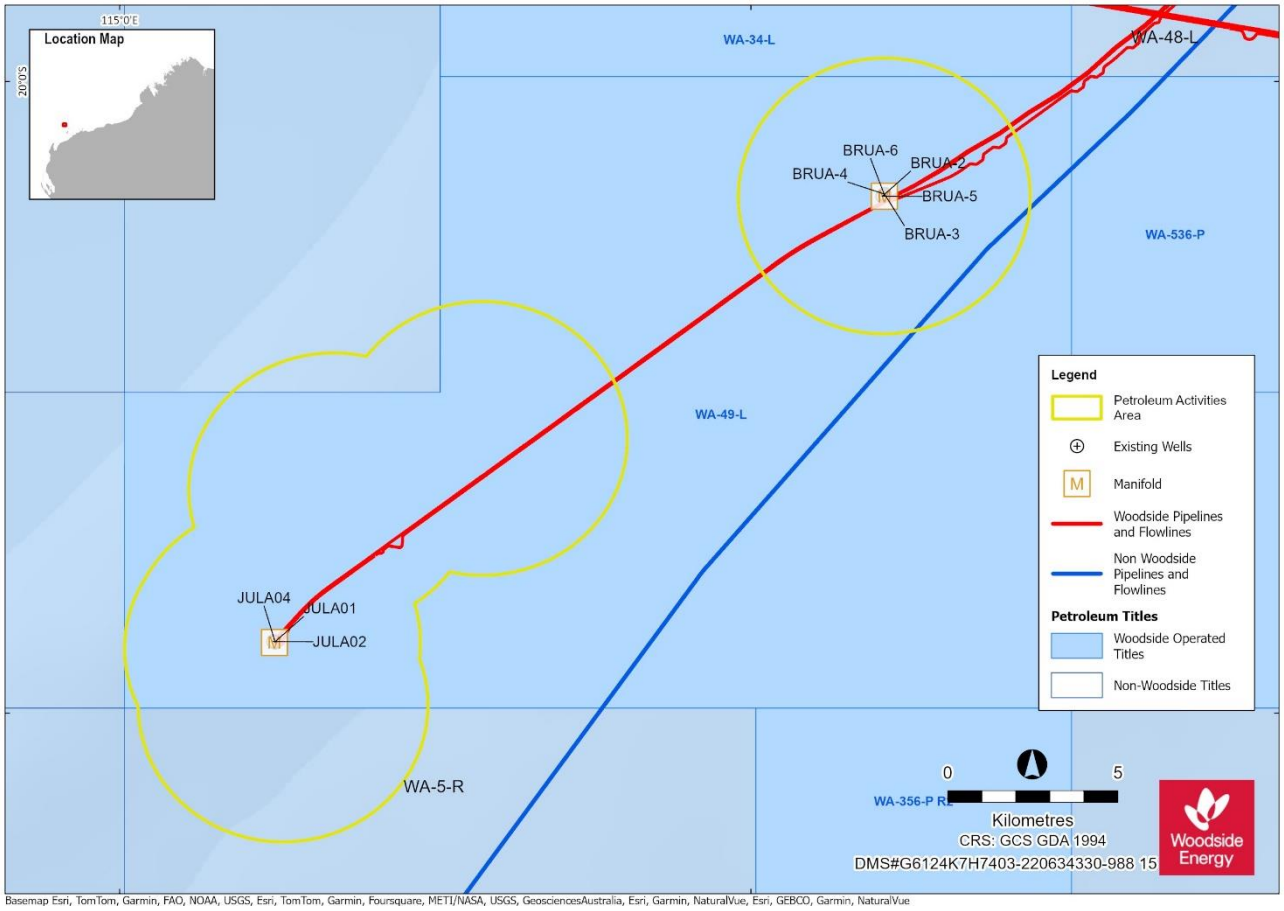

Figure 4-16: Live Oil and Gas Infrastructure within the PAA

4.10.7 Defence

There are designated defence practice areas in the offshore marine waters off Ningaloo and the North West Cape in the EMBA. The PAA lies within the northern tip of one of these defence practice areas, the Royal Australian Air Force Base Learmonth (refer to Figure 4-17). The closest site where unexploded ordinance is known to occur is 8 km east of Trimouille Island in depths of about 40 m, located about 666 km south east of the PAA.

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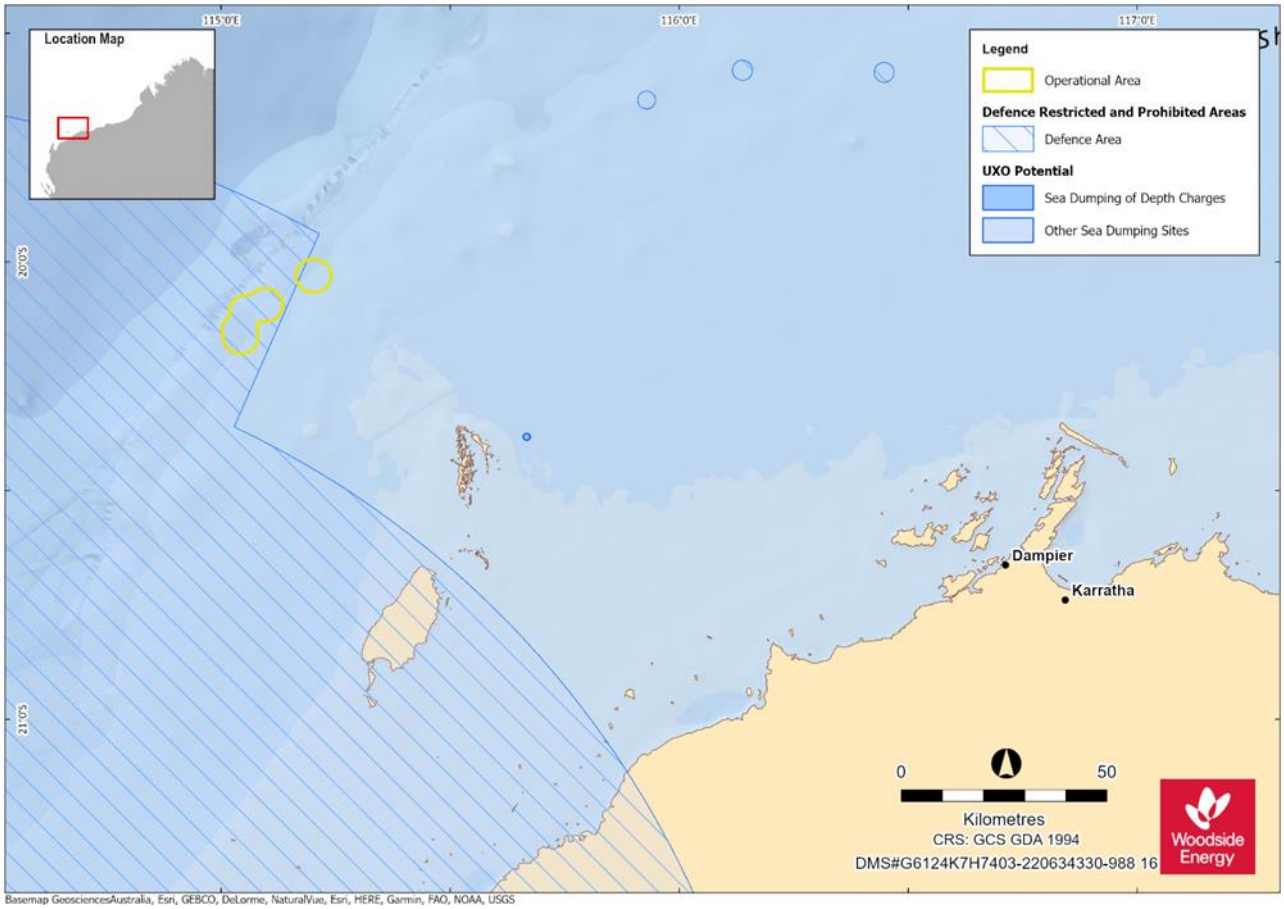

Figure 4-17: Defence training areas in proximity to the PAA

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5. CONSULTATION

5.1 Summary

Woodside consults relevant persons in the course of preparing an EP in accordance with Regulation 25 of the Environment Regulations. Consultation is designed to identify relevant persons and provide them with sufficient information and a reasonable period to allow them to make an informed assessment of the possible consequences of the proposed activity on their functions, interests or activities to enable titleholders to consider and adopt appropriate measures in response to the objections or claims received from relevant persons. Consistent with Regulation 4 of the Environment Regulations, consultation also supports the objective to ensure that the activity is carried out in a manner by which the environmental impacts and risks of the activity will be reduced to as low as reasonably practicable (ALARP) and will be of an acceptable level.

Woodside acknowledges that a titleholder's approach to consultation is to be informed by both the Environment Regulations and the findings of relevant Courts, including the Full Federal Court in the *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 (Tipakalippa Appeal) (see Section 5.2 and 5.5.1) delivered on 2 December 2022 and *Munkara v Santos NA Barossa Pty Ltd (No 3)* [2024] FCA 9 (Munkara Case).

For this PAP, Woodside has considered both the PAA 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 two parts:

- The first section (Section 5.2 to 5.5) provides an overview of Woodside's consultation methodology for its EPs, including how we apply Regulation 25(1) of the Environment Regulations to identify relevant persons (see Section 5.3.4).
- The second section (Section 5.6 to Section 5.7) details Woodside's approach to accepting feedback and assessment of the merit of each objection or claim, and engaging in ongoing consultation for this EP.

Woodside's consultation record is at Appendix F and includes:

- Assessment and identification of relevant persons.
- Consultation information provided to relevant persons, feedback received and Woodside's assessment of the merits of objections or claims.
- Engagement with persons or organisations that Woodside chose to contact who are not relevant persons for the purposes of Regulation 25(1) of the Environment Regulations (see Section 5.3.4).
- Opportunities provided to persons or organisations to be aware of Woodside's proposed EP and participate in consultation, including individual Traditional Custodians.

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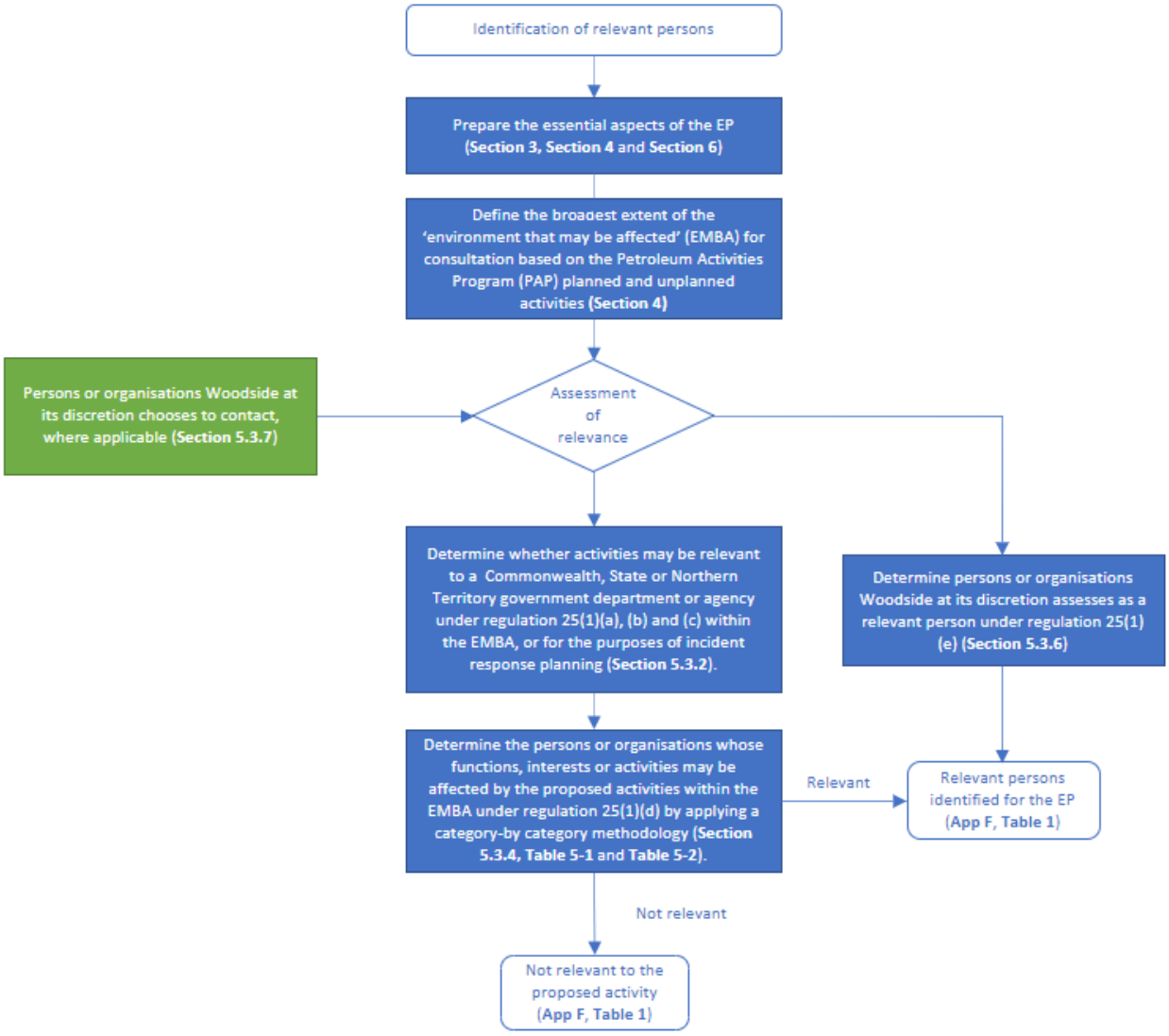

Figure 5-1: Overview of Woodside's methodology to identify relevant persons

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 reviewed and updated periodically.

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

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

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

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

- our planned activities in the PAA, being the area in which our planned activities are proposed to occur (see Section 3.4); and
- the geographical extent to which the environment may be affected (EMBA) by risks and impacts from our activities (unplanned) (identified in Section 4.1 and assessed in Section 6.8).

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

- consult with each of the following (a ***relevant person***) in the course of preparing an EP:
  - each Commonwealth, State or Northern Territory agency or authority to which the activities to be carried out under the environment plan, may be relevant
  - if the plan relates to activities in the offshore area of a State – the Department of the responsible State Minister
  - if the plan relates to activities in the principal Northern Territory offshore area – the Department of the responsible Northern Territory Minister
  - a person or organisation whose functions, interests or activities may be affected by the activities to be carried out under the EP
  - any other person or organisation that the titleholder considers relevant (Regulation 25(1) of the Environment Regulations).
- give each relevant person sufficient information to allow the relevant person to make an informed assessment of the possible consequences of the activity on their functions, interests or activities (Regulation 25(2) of the Environment Regulations)

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- allow a relevant person a reasonable period for the consultation (Regulation 25(3) of the Environment Regulations)
- tell each relevant person that the titleholder consults with, that the relevant person may request that particular information it provides in the consultation not be published and any information subject to such a request is not to be published (Regulation 25(4) of the Environment Regulations).

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 (Regulation 4 of the Environment Regulations)
- seeks to ensure that the environmental impacts and risks of the activity will be of an acceptable level (Regulation 4 of the Environment Regulations)
- is intended to minimise harm to the relevant person and the environment from the proposed petroleum activities and to enable Woodside to consider measures that may be taken to mitigate the potential adverse environmental impacts from the petroleum activity
- is collaborative; Woodside respects that for a relevant person, consultation is voluntary. Where the relevant person seeks to engage, Woodside engages with the relevant person with the aim of seeking genuine and meaningful two-way dialogue
- provides opportunities for relevant persons to provide feedback throughout the life of the EP through its ongoing consultation process (refer to Section 5.7 and Section 7.9.2.1).

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

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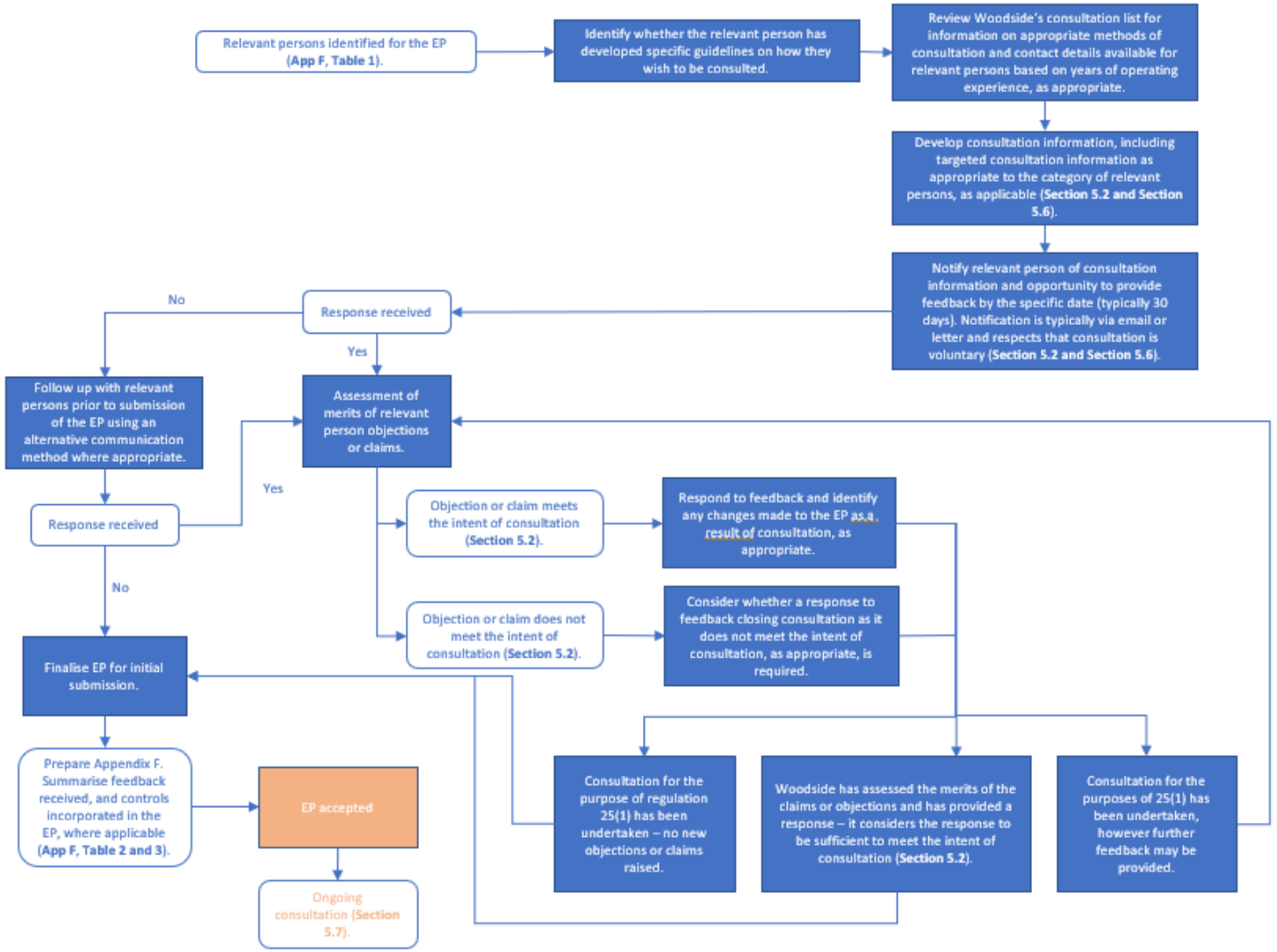

Figure 5-2: Overview of Woodside's consultation approach

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

Federal Court:

- Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193
- Munkara v Santos NA Barossa Pty Ltd (No 3) [2024] FCA 9

NOPSEMA:

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

Department of 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, Fisheries and Forestry:

- 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 25(1)(a), (b) and (c)

The relevant inquiry for determining relevant persons within the description of Regulations 25(1)(a) and (b) is whether the activities to be carried out under the EP may be relevant to one of the

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government departments or agencies in those regulations. The government departments and agencies relevant to the EP are listed in Appendix F, Table 1. In accordance with Regulation 25(1)(b) of the Environment Regulations, Woodside consults with the department of the relevant State Minister.

5.3.2 Identification of Relevant Persons under Regulation 25(1)(a), (b) and (c)

Woodside's methodology for identifying relevant persons under Regulations 25(1)(a), (b) and (c) of the Environment Regulations 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 2024), which describes where the Department is a relevant agency under the Environment Regulations, as well as experience and knowledge that Woodside has gained from years of operating 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 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.
- The list of those government departments and agencies assessed as relevant is set out in Appendix F, Table 1.
- Feedback received, if any, is assessed in accordance with the intended outcome of consultation and summarised at Appendix F, Table 2 and Table 3 as appropriate to the relevance assessment.

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

5.3.3 Regulation 25(1)(d)

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

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

Functions	Refers to a power or duty to do something.
Interests	Conforms to the accepted concept of 'interest' in other areas of public administrative law and includes any interest possessed by an individual whether or not the interest amounts to a legal right or is a proprietary or financial interest or relates to reputation.
Activities	Broader than the definition of 'activity' in Regulation 5 of the Environment Regulations and is likely be directed to what the relevant person is already doing.

Woodside's methodology for determining 'relevant persons' for the purpose of Regulation 25(1)(d) of the Environment Regulations includes a consideration of:

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

5.3.4 Identification of relevant persons under Regulation 25(1)(d))

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

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

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

- As a general proposition, Woodside assesses whether a person or organisation is a relevant person having regard to:
  - whether a person or organisation has functions interests or activities that overlap with the PAA and EMBA
  - whether a person or organisation's functions, interests or activities may be affected by Woodside's proposed planned or unplanned activities to be carried out under the EP.
- This assessment will include applying judgement, knowledge and 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

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relevant persons who may be affected by the activities proposed to be carried out under the EP. The broad categories are identified in Table 5-1 below and identification methodology applied as set out in Table 5-2.

- The list of those persons or organisations assessed as relevant and persons or organisations Woodside separately chose to contact is set out in Appendix F, Table 1.
- Feedback received, if any, is assessed in accordance with the intended outcome of consultation and applying the categories of relevant persons methodology outlined in Table 5-2, as appropriate.
- Feedback from relevant persons is summarised at Appendix F, Table 2. Feedback from persons assessed as not relevant but whom Woodside chose to contact or self-identified and Woodside assessed as not relevant are summarised at Appendix F, Table 3.

Table 5-1: Categories of relevant persons

Category	Explanation
Commercial fisheries (Commonwealth and State) and peak representative bodies	Commonwealth or State Commercial Fishery with a fishery management plan recognised under the Commonwealth Fisheries Management Act 1991 (Cth) and 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.
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 (individuals and/or groups/entity)	Traditional Custodians are First Nations Australians with cultural rights and interests, or cultural functions or who perform cultural activities over particular lands and waters. Where a First Nations person, group or entity self-identifies and asserts cultural rights, functions, interests or activities they will be considered under the definition of Traditional Custodian for the purpose of this EP (as appropriate).
Nominated Representative Corporations	Nominated representative corporations are Traditional Custodians' nominated representative institutions such as Prescribed Body Corporates (PBC). PBCs are established under the Native Title Act 1993 (Cth) by Traditional Custodians to represent their entire Traditional Custodian group (defined broadly by reference to descents from an ancestor set who were known to be the Traditional Custodians at the time of European colonisation) and their interests including, among other things, management and protection of cultural values.
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.

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Local government and recognised local community reference/liaison groups or organisations	Local government body formed under the *Local Government Act 1995* (WA) and elected Parliamentary representatives which are responsible for representing the local community. Recognised local community reference or liaison group or organisation in relation to oil and gas matters.
Other non-government groups, organisations or individuals	Non-government organisation with public website material targeting the proposed activity. Individual who demonstrates the proposed activity could potentially impact their functions, interests or activities.
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.

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

Category	Relevant person identification methodology
Commercial fisheries (Commonwealth and State) and peak representative bodies	Woodside assesses relevance for commercial fisheries (Commonwealth and State) and their representative bodies using the following 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 4.10). Woodside acknowledges WAFIC's consultation guidance[6] (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 F). 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 PAA and EMBA (see Section 4.10). Assessment of relevance: • State commercial fisheries that have been assessed as having a potential for interaction within the PAA or EMBA (see Section 4.10) are assessed as relevant to the proposed activity. Woodside acknowledges WAFIC's consultation guidance (see above) and applies this by: – directly consulting fishery licence holders that are assessed as having a potential for interaction in the PAA; and – consulting fisheries that are assessed as having a potential for interaction in the EMBA only in the event of an unplanned emergency scenario. • Commonwealth commercial fisheries that have been assessed as having a potential for interaction within the PAA or EMBA (see Section 4.10) 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.

[6] Consultation Approach for Unplanned Events - WAFIC

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	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: • 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 (individuals and/or groups/entity) and Nominated Representative Corporations	Consistent with its understanding of the matters discussed in Appendix F, to identify Traditional Custodian groups or individuals, Woodside: • Uses existing systems of recognition to identify First Nations groups who overlap or are coastally adjacent to the EMBA (for example, recognition provided under native title or cultural heritage legislation, or marine park management plans, or identification by other First Nations groups or entities); • Notifies and invites consultation with First Nations people through their nominated representative corporation (for example PBCs); or, in the case of native title, and where appropriate, the Native Title Representative Body • Requests the nominated representative body to forward the notifications and invitations to consult to their members (members are individual communal rights holders); • Requests advice as to other First Nations groups or individuals that should be consulted; • Advertises widely so as to invite self-identification and consultation by First Nations groups and/or individuals. Further detail to Woodsides methodology is as follows. • Woodside uses the databases of the National Native Title Tribunal: • to understand whether there are any Native Title Claims (historical or current) or determinations overlapping or coastally adjacent to the EMBA; • to understand whether there are any relevant Indigenous Land Use Agreements (ILUA), registered with the National Native Title Tribunal that overlap or are adjacent to the EMBA that may identify Traditional Custodians or representative bodies to contact regarding potential cultural values. • Where there is a positive determination of native title, contacting the PBC or, where their representative is a Native Title Representative Body contacting the Native Title Representative Body.

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	• Where appropriate, contacting the relevant Native Title Representative Body to request a list of any First Nations groups asserting Traditional Custodianship over an area of coastline adjacent to the EMBA. • 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. • First Nations groups or individuals identified by a Traditional Custodian, nominated representative corporation, Native Title Representative Body. • Request to the PBC to distribute Woodside consultation materials through its membership. Woodside is unable to contact this membership through any other means. • Woodside has a number of public notification and information sharing processes by which individual Traditional Custodians can become aware of the proposed activity, its risks and impacts, and self identify. • Individuals that consider their functions, interests or activities may be affected by a proposed activity are provided an opportunity to self-identify for each EP. Woodside does not presume that self-identification for an activity, covered by another EP, automatically means that an individual/s functions, interest and activities may be affected by other activities where EMBAs overlap. This decision is for the individual to make. The public notification, information sharing, and consultation processes Woodside puts in place enables Traditional Custodians to become aware of proposed activities, assess any risks and impacts to their values, and enable individuals to self-identify. Assessment of relevance: • Traditional Custodian groups, entities or individuals and Nominated Representative Corporations who are identified through the above methodology and overlap or are coastally adjacent to the EMBA are assessed as relevant.
Native Title Representative Bodies	Woodside assesses relevance for Native Title Representative Bodies using the following steps in its methodology: • 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. • 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). 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

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	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. 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 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.

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	• Local environmental conservation groups who regularly conduct conservation activities or have demonstrated conservation functions, interests or activities within the EMBA are assessed as relevant. This assessment is both activity and location based.

5.3.5 Regulation 25(1)(e)

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

5.3.6 Identification of relevant persons under Regulation 25(1)(e)

Woodside adopts a case-by-case approach for each EP to assess relevance under Regulation 25(1)(e) of the Environment Regulations.

5.3.7 Persons or organisations Woodside chooses to contact

In addition to undertaking consultation with relevant persons under Regulation 25(1) of the Environment Regulations 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 25(1) of the Environment Regulations but that Woodside has chosen to seek additional guidance from, for example, to inform the correct contact person that Woodside should consult, or engage with
- that are 'not relevant' pursuant to Regulation 25(1) of the Environment Regulations but have been contacted as a result of consultation requirements changing or updated guidance from the Regulator
- where it is unclear what their functions, interests or activities are, or whether their functions, interests or activities may be affected. In this circumstance, engagement is used to inform relevance under Woodside's methodology. Woodside follows the same methodology for assessing a person or organisations relevance as it does during its initial assessment (as described in Figure 5-1 and Section 5.3). The result of Woodside's assessment of relevance during the development of the EP is outlined at Appendix F, Table 1.

5.3.8 Assessment of Relevant Persons for the Proposed Activity

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

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

5.4 Consultation Material and Timing

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

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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. Woodside's methodology for providing relevant persons with sufficient information as well as a reasonable period of time to provide feedback is set out in this section.

5.4.1 Sufficient Information

Woodside produces a Consultation Information Sheet for each EP. This is provided to relevant persons and organisations and is also available on Woodside's website for interested parties to access and to provide feedback on. The Consultation Information Sheet typically includes a description of the proposed petroleum activity, the Operational Area or PAA depending on the EP, where the activity will take place, the timing and duration of the activity, a location map of the Operational Area or PAA 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, 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.

Woodside places advertisements in selected local, state and national newspapers. This typically includes the name of the EP Woodside is seeking feedback on, an overview of the activity, the consultation feedback date 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 5.3 to determine relevance and evidenced in Appendix F, Table 1 as appropriate.

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

- Consultation Information Sheet available on Woodside's website
- Summary Consultation Information Sheet, presentations or summaries specific to a particular relevant person group
- 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.

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

Woodside communicates with relevant persons in different ways. Woodside recognises that as part of genuine two-way dialogue, these forms of communication may evolve, including for example due to changes to organisation representation, as relationships are further established, or 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	Typically 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 or requested by the specific group, such as email, phone calls, meetings and community forums. Other forms of communication are used on request.
Native Title Representative Bodies	There are many forms of communication that Woodside uses on a case-by-case basis and as appropriate to or requested by the specific group, such as email, phone calls, meetings and community forums. Other forms of communication are used on request.
Historical heritage groups or organisations	NOPSEMA's guideline (*GL1887 – Consultation with Commonwealth agencies with responsibilities in the marine area – January 2023*) for engagement with government departments or agencies is used as a reference for Woodside's approach for communicating with historical heritage groups or organisations. Other

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	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.

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

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

When engaging in consultation, Woodside notifies relevant persons that, in accordance with Regulation 25(4) of the Environment Regulations, 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 Reasonable period for consultation

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

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

Woodside considers its methodology allows relevant persons a reasonable period for consultation (Regulation 25(3) of the Environment Regulations). A reasonable period for all relevant persons, including Traditional Custodian relevant persons, to participate in consultation for this EP has been provided.

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

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

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

"*it must be taken to be the regulatory intention that the consultation requirement cannot be one that is incapable of being complied with within a reasonable time...*"[7]

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

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

- advertising in selected local, state and national newspapers to give persons or organisations the opportunity to understand the activity and identify whether their functions, interests or activities may be affected
- providing consultation materials directly to identified relevant persons as well as persons who are not relevant but Woodside chose to contact, and providing a target date for feedback. Woodside acknowledges that feedback may be received from relevant persons following the target date
- acknowledging that the way in which Woodside provides consultation information may vary depending on the relevant person or organisation and, may depend on the degree to which a relevant person or organisation is affected. Different consultation processes may be required for relevant persons and organisations depending on the information requirements
- following up with relevant persons prior to EP submission. Where possible, Woodside will endeavour to use an alternative method of communication to contact the relevant person
- engaging in two-way dialogue with relevant persons or organisations where feedback is received.

Appendix F, Table 2 and Table 3 sets out a history of consultation and demonstrates that a reasonable period of consultation has been afforded for each relevant person.

Woodside considers that the "reasonable period" of consultation for this EP has closed.

As detailed in Section 7.6.1.2, 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 as per Woodside's ongoing consultation approach as described in Section 7.9.2.1.

5.4.3 Discharge of Regulation 25

The Full Federal Court made clear in the Tipakalippa Appeal that consultation should be approached in a "*reasonable*", "*pragmatic*" and "*not so literal*" way, so that consultation obligations were capable of being met by titleholders (Section 5.5.1)[8]. Consultation is a "real world activity" and must be capable of reasonable discharge[9]. The Full Federal Court referred to Native Title cases as an illustration that reasonable limits should be applied to consultation efforts to ensure the process is workable[10].

When the titleholder demonstrates that it has provided sufficient information and a reasonable period for consultation, the Regulation 25 of the Environment Regulations consultation requirements are

[7] *Santos NA Barossa Pty Ltd v Tipakalippa [2022] FCAFC 193 at paragraph [136].*
[8] *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 [89], [98], [103]-[104] and [109].
[9] *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [89].
[10] *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [96] and [103].

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met[11]. Meeting these obligations requires evaluative judgment to determine reasonable satisfaction of the consultation obligation, and as such, the regulator uses its discretion to determine if these criteria are met. The nature of the person being consulted, and their function, interest and activity that may be affected, will inform the manner of consultation and the reasonable period to be afforded[12].

The titleholder is not required to obtain consent from a consultee to engage in the activity or confirmation from a consultee that consultation is complete. A titleholder is required to provide an opportunity to consult.

The Federal Court has commented that a "reasonable opportunity" for consultation must be afforded to relevant persons[13]. A reasonable opportunity may not be every opportunity requested and is limited to reasonable opportunities to consult.

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

Woodside has discharged its duty under Regulation 25 of the Environment Regulations. Woodside considers that consultation under Regulation 25 is complete.

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

5.5 Context of Consultation Approach with First Nations

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

5.5.1 Approach to Methodology – Woodside's Interpretation of Tipakalippa

Woodside has implemented a consultation methodology consistent with Regulation 25 of the Environment Regulations and guidance provided in the Tipakalippa Appeal (Section 5.2). Woodside's consultation methodology allows for a sufficiently broad capture of Traditional Custodian relevant persons, provides for informed consultation, follows cultural protocols and allows a reasonable opportunity for consultation with Traditional Custodians whose functions, interests or activities may be affected by the activity described in this EP (Section 5.5.2.1 to 5.5.2.4).

Woodside notes the Full Federal Court discussed several *Native Title Act 1993* (Cth) (NTA) cases in response to a submission made in that case that a requirement under Regulation 25 of the Environment Regulations to consult "each and every" relevant person would be "unworkable". The reference to native title cases dealt with how decision-making processes under the NTA requiring "all" members of a group to be contacted for communal approval are interpreted by courts in a

[11] Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 29.
[12] Explanatory Statement, Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023, page 30 and *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [153].
[13] Cooper v National Offshore Petroleum Safety and Environmental Management Authority (No 2) [2023] FCA 1158 at paragraph [11]; *Santos NA Barossa Pty Ltd v Tipakalippa* [2022] FCAFC 193 at [153].

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"reasonable", "pragmatic" and "not so literal" way[14], and how obligations to consult "each and every" person under Regulation 25 of the Environment Regulations should be interpreted in a similarly pragmatic way so that consultation is workable. The reference to NTA authorities was made by analogy:

"*It can be seen that the terms of [the native title legislation] are somewhat absolute – "all". However, [the native title legislation] has consistently been construed in a way that is not so literal … The cases concerning [the native title legislation] … have reiterated … that [the native title legislation] does not require that "all" of the members of the relevant claim group be involved in the decision. The key question will be whether a reasonable opportunity to participate in the decision-making process has been afforded by the notice for a relevant meeting*."[15]

"*We consider the authorities in relation to processes under the NTA to be* ***illustrative*** *of how a seemingly rigid statutory obligation to consult persons holding a communal interest may operate in a workable manner*"[16] (emphasis added).

"*there is no definition of what constitutes "consultation for the purpose of [Regulation 25]... A titleholder will need to "demonstrate" to NOPSEMA that what it did constituted consultation appropriate and adapted to the nature of the interests of the relevant persons*"[17] (emphasis added).

The Judgment in the Tipakalippa Appeal makes it clear that a Titleholder will have some decisional choice in identifying which natural person(s) are to be approached, how the information will be given to allow the "relevant person" to assess the possible consequence of the proposed activities on their functions, interests or activities, and how the requisite consultation is undertaken.[18] Woodside takes this to mean that consultation is not fixed to a rigid process, and indeed, will need to be adapted so that it is informed by the relevant person or group. Woodside has met its Regulation 25 of the Environment Regulations requirements through its consultation methodology (Section 5.2)

Consistent with the Tipakalippa Appeal, Woodside considers NTA-style "full group" meetings are not the only way for there to be compliance with Regulation 25 of the Environment Regulations in relation to Traditional Custodian relevant persons. Nominated representative corporations (such as Prescribed Bodies Corporates (PBCs) established under the NTA) have a designated role of representing the views of their member Traditional Custodians. They have established methods for engaging with their own members. Woodside will not undermine the purpose and authority of nominated representative corporations by requiring full group meetings where the nominated representative corporations have not requested engagement of members via full group meetings. We do not consider it appropriate for titleholders to direct or challenge the nominated representative corporations on how to engage with their members.

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

5.5.2 Consultation Method

Woodside's First Nations team has experience in engaging and working with First Nations organisations and individuals, including having worked within the Commonwealth native title and cultural heritage systems and state and territory cultural heritage and land rights systems, for several decades. The team understands the complexities of making information accessible to groups and individuals and engaging in accordance with First Nations groups' established channels of communication and methods of consultation. The First Nations team exercises its professional

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

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judgement and is deeply respectful of long-standing relationships (where in place) when considering consultation with First Nations groups. The First Nations team's approach is also informed by the established systems of recognition for First Nations groups and their nominated representative corporations within particular jurisdictions.

For example, the methodology for engaging with First Nations groups in the Northern Territory (not relevant for this EP) tends to centre around engagement through Aboriginal land councils (under the Aboriginal Land Rights (Northern Territory) Act 1976 (Cth)) as well as community meetings that target clan groups where they do not have PBCs or other nominated representative corporations to represent them. By contrast, recognition for First Nations groups and their nominated representative corporations in Western Australia falls under the Native Title Act 1993 (Cth) because the vast majority of the Western Australian coastline is settled under the native title regime. This means that the methodology and process for consultation in Western Australia places greater emphasis on, but is not limited to Native Title Representative Bodies and PBCs. Native title determinations provide certainty about the appropriate Traditional Custodian groups that have the cultural authority to speak for country adjacent to the EMBA, and also help Woodside to identify Traditional Custodian persons and groups asserting Traditional Custodianship. The Judgment in the Tipakalippa Appeal endorses methods of consultation with groups of relevant persons that are appropriate and adapted to the characteristics of groups[19]. Woodside's consultation methodology is adapted and appropriate to the recognised systems of communal interests in Western Australia.

In Western Australia (relevant for this EP), Woodside has sought to follow the established, effective and respectful means of communication used by Native Title Representative Bodies and nominated representative corporations (including PBCs) with their respective First Nations communities. Woodside follows these processes for the appropriate broad capture of individuals' awareness of our activities, to self-identify (Section 5.5.2.2), and to provide feedback to inform the management of environmental impacts and risks.

Using these tools, Woodside communicates information about EPs by:

- advertising in relevant newspapers. This encourages self-identification, by advertising proposed activities widely through newspapers that have national and intra-state circulation, i.e., Koori Mail, National Indigenous Times, The West Australian;
- creating carefully considered Consultation Summary Sheets with information developed by an Indigenous member of the First Nations Team to remove jargon and provide relevant information for people to have informed understandings about the activities;
- direct contact through nominated representative corporations;
- utilising social media (i.e. Facebook/Instagram), texts and emails. These mediums are the preferred communication methods used by Traditional Custodians throughout Western Australia and on that basis used by Native Title Representative Bodies and other government agencies and industry, to engage with Traditional Custodians or call meetings. First Nations woman, Professor Bronwyn Castle through 10 years of research found "Social media is an intrinsic part of daily life. The use of Facebook is around 20 per cent higher [among First Nations people] than the national average across all geographical locations" (Social media mob: being Indigenous online, Professor Bronwyn Carlson (2018));
- For ongoing consultation post Regulation 25 consultation, Woodside introduced a Program of Ongoing Engagement with Traditional Custodians which sets out Woodside's commitment to ongoing engagement and support to care for and manage country, including Sea Country. The program was developed in response to Traditional Custodian feedback;

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

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- Woodside has members of its First Nations team who are based in Karratha and Roebourne and who serve as on-Country points of contact for First Nations organisations and individuals. These team members have broad local knowledge and established, on-the-ground relationships within communities. This helps contribute to positive outcomes including encouraging First Nations attendance and involvement at Woodside's information sessions and Community roadshows. Team members on the ground engage in a great deal of preparatory work including by distributing information and providing notice to the community to support First Nations attendance at information sessions and Community roadshows;
- From the commencement of engagement with Traditional Custodians, Woodside seeks direction on how they prefer to be consulted and has consulted accordingly. Consultation processes that are informed by Traditional Custodians and co-designed on a case-by-case basis and includes their direction as to cultural protocols, structure of consultation and whom to appropriately consult with (such as elders).
- Holding meetings on country at a place and time agreed with the Traditional Custodians and offering and providing financial assistance for meeting expenses (as appropriate); and
- Providing information specifically designed to be easily understood, to reach all relevant people, and give a reasonable period of time for those people to make an informed assessment of the possible consequences of the proposed activity on them.

The First Nations teams' approach to consultation is also consistent with the Federal Court's decision in the Munkara Case. The Munkara Case notes that the word "culture" (and hence the word "cultural") has a communal aspect to it. In order to establish cultural features, it is necessary that the beliefs and values are held by the *relevant* people *as a people*. In order for values, features or beliefs that are expressed by an individual to be "cultural" they cannot simply be an individual's belief - the belief must have a communal aspect to, and demonstrate that the "individual beliefs are broadly representative of the beliefs of other members of the group"[20]. The phrase "cultural features", when applied to "people" as constituent parts of an ecosystem, is not directed to idiosyncratic views or beliefs of an individual[21]. When the First Nations team is told that a particular value is cultural by a Traditional Owner, that information is taken back to the relevant cultural authority to test its broad acceptance. In the case of gender sensitive information, that information would be restricted to the specific gender within the community.

5.5.2.1 Identification of Relevant Persons

In order to undertake consultation, Woodside has developed a methodology for identifying relevant persons, in accordance with Regulation 25(1) of the Environment Regulations (Section 5.2 and 5.3).

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

Woodside asks nominated representative corporations (such as PBCs) and Native Title Representative Bodies to identify individuals that should be consulted, and enables individuals to self-identify in response to national and local advertising, social media and community engagement opportunities. Where there is a nominated representative corporation for an area, unless directed by the nominated representative corporation, Woodside does not directly approach individuals for

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

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consultation, because this has the potential to undermine the role of the nominated representative corporations. Approaching individuals directly is a practice that is no longer considered acceptable because of divisions it has been shown to cause in communities. In addition to asking for the identification of individuals, Woodside also asks nominated representative corporations to distribute consultation information to whomever the nominated representative corporations deem appropriate including members of the nominated representative corporations who are communal rights holders.

Having said this, as set out in further detail in Section 5.5.2.2 below, individuals are also given the opportunity to self-identify, consult and provide their own feedback on the proposed activity. When approached in this way, Woodside will engage individuals as relevant persons and will also (subject to any confidentiality or cultural restrictions) advise the nominated representative body of the consultation where it relates to cultural values. These methods of consultation are consistent with requirements for notification under the *Native Title Act 1993* (Cth), such as under the future act provisions (section 29), which requires notification of the Native Title Representative Body, the PBC (or nominated representative) and notification through newspapers. The notification process has been selected as a respectful, practical and pragmatic analogue for consultation with First Nations peoples, rather than requiring members to be notified via a formal authorisation process which aims to seek, from members, authorisation of agreements and native title/compensation claims under the *Native Title Act 1993* (Cth).

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

5.5.2.2 Opportunity to Self-identify and identifying other individuals

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

- Woodside applies the principles of self-determination when consulting with Traditional Custodians by consulting through the Traditional Owners' authorised representative entities.
- Recognising the function of nominated representative corporations (such as PBCs) and Native Title Representative Bodies to represent communal interests and manage cultural values, Woodside requests that the information provided to representative entities is provided to their members but Woodside recognises the process is voluntary and Woodside cannot compel them to do so nor seek to audit the representative entities for compliance with any request.
- Representative entities cannot provide membership details to Woodside due to individual confidentiality requirements.
- Woodside requests advice as to who else Woodside should be consulting but recognises the process is voluntary and cannot compel nominated representative corporations to provide this information.

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- Modern Indigenous engagement practises rely on the building and maintaining of respectful relationships. Most nominated representative corporations to date have requested the building of that relationship, where one is not already in place.
- While Woodside has, in some cases, approached individual directors and elders outside of this process due to requirements imposed in EP consultation, this approach is considered inappropriate by modern Indigenous engagement standards, fundamentally undermining the authority of the authorised representative entity and can be detrimental to the relationship.

For this proposed activity, Woodside requested nominated representative corporations (including PBCs) and Native Title Representative Bodies to identify any potential individual relevant persons for consultation, and to distribute consultation materials to their member base. However, Woodside recognises the process is voluntary and it cannot compel representative corporations to do so nor seek to audit the representative corporations for compliance with any request. Woodside has not been directed to engage individual Traditional Custodians by nominated representative corporations for this proposed activity. Woodside has nevertheless provided a reasonable opportunity for individual Traditional Custodians to engage in consultation through appropriate and adapted consultation methods.

5.5.2.2.1 Sufficient Information

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

Woodside produces a Consultation Information Sheet for each EP which is provided to relevant persons and organisations to provide the opportunity for feedback on the activity (Section 5.4.1). In response to Traditional Custodians' feedback, Woodside has tailored effective consultation methods for its activities, specifically designed for Traditional Custodians, so that information is provided in a form that is readily accessible and appropriate. The targeted Consultation Summary Sheet (as described in Section 5.5.2) developed and reviewed by Indigenous representatives so that content is appropriate to the intended recipients, is then provided to relevant Traditional Custodian groups. Phone calls are made to provide context to the consultation.

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

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

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

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5.5.2.3 Reasonable Period for Consultation

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

5.5.2.4 Discharge of Regulation 25

Woodside's consideration and approach to discharging Regulation 25 of the Environment Regulations for relevant persons is discussed in section 5.4.3. In addition to this, Woodside has considered the application of Regulation 25 specifically to First Nations based on the Tipakalippa Appeal.

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

5.6 Providing Feedback and Assessment of Merit of Objections or Claims

There are a number of ways in which feedback can be provided. Feedback can be provided through the Woodside feedback email or via the Woodside feedback toll free phone line as outlined in the Consultation Information Sheet and the Woodside website. Where appropriate, consultation may also be supported by phone calls or meetings. An EP feedback form is also available on Woodside's website enabling stakeholders to provide feedback on proposed activities, or to request additional information.

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

Woodside accepts feedback and engages in consultation in order to achieve the aims set out in Section 5.2. Woodside recognises that there are persons and organisations that take a view that Woodside's operations and/or growth projects should be stopped or at least delayed as far as possible. Whilst Woodside assesses the merits of objections or claims received, it acknowledges NOPSEMA's guidance in its brochure entitled Consultation on offshore petroleum EPs 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 EP and approval process, for example, statements of fundamental objection to offshore petroleum activities or information containing personal threats or profanities. Under Regulation 34(g) of the Environment Regulations, there is no requirement for a relevant person to agree or confirm that they have been adequately consulted.

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

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

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In accordance with Regulation 26(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 25 of the Environment Regulations, must be contained in the sensitive information part of the plan and not anywhere else in the plan.

5.7 Ongoing Consultation

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

As per Woodside's ongoing consultation approach (refer to Section 7.9.2.1), 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.

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

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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 (EPOs), Environmental Performance Standards (EPS) and Measurement Criteria (MC) for the PAP, using the methodology described in Section 2 of this EP.

6.2 Impact and Risk Analysis and Evaluation

As required by Regulations 21(5) and 21(6) of the Environment Regulations, the following analysis and evaluation demonstrates that the identified impacts and risks associated with the PAP 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 PAA.

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) that 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[22] such as emissions and physical presence. In all cases, the worst-case risk was assumed.

The ENVID (performed in accordance with the methods described in Section 2) identified 18 sources of environmental impacts and risks. A summary of the ENVID is provided in Table 6-1.

The activity-specific ENVID workshop was conducted on 15 December 2022. Attendees included: Superintendent (Well Delivery), Environmental Advisers, Environmental Scientists, Environmental Engineers, Lead Drilling Engineer, Subsea Engineers, Start Up Lead, Hydrocarbon Spill Adviser, Chevron representatives and Environmental Consultants.

The impact and risk analysis and evaluation for the PAP indicates that all current environmental risks and impacts associated with the individual activities are reduced to ALARP and are of an acceptable level, as discussed further in Sections 6.7 and 6.8.

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

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Table 6-1: Environmental impact analysis summary of planned and unplanned activities

Aspect	EP Section	Risk Rating				Acceptability of Impact/Risk
		Impact/Consequence	Potential Impact/Consequence Level	Likelihood	Current Risk Rating	
Planned Activities (Routine and Non-routine)						
Physical Presence: Interaction with other marine users and values	6.7.1	E	Social and Cultural - Slight, short-term impact (<1 year) to a community or area/item of cultural significance.	-	-	Broadly acceptable
Physical Presence: Seabed disturbance from drilling operations, subsea infrastructure, MODU anchoring and ROV operations	6.7.2	E	Environment – Slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly acceptable
Routine Acoustic Emissions: Generation of noise from MODU, project vessels and positioning equipment	6.7.3	F	Environment – No lasting effect (less than one month); localised impact not significant to environmental receptors.	-	-	Broadly acceptable
Routine and Non Routine Discharges: MODU and Project Vessels	6.7.4	F	Environment – No lasting effect (less than one month); localised impact not significant to environmental receptors.	-	-	Broadly acceptable
Routine and Non-Routine Discharges: Chemical and Hydrocarbon Discharges for Pre-commissioning and Intervention Activities	6.7.5	E	Environment – Slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly acceptable
Routine and Non Routine Discharge: Drill Cuttings, Drilling Fluids and Well Removal Fluids	6.7.6	E	Environment – Slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly acceptable
Routine and Non Routine Discharges: Cement, Cementing Fluids, Subsea Well Fluids, Produced Water, Unused Bulk Product and Subsea Chemicals	6.7.7	E	Environment – Slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	-	-	Broadly acceptable

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Aspect	EP Section	Risk Rating				Acceptability of Impact/Risk
		Impact/Consequence	Potential Impact/Consequence Level	Likelihood	Current Risk Rating	
Routine Atmospheric Emissions and Greenhouse Gas Emissions	6.7.8	F	Environment – No lasting effect (less than one month); localised impact not significant to environmental receptors.	-	-	Broadly acceptable
Routine Light Emissions: External lighting on MODU and project vessels	6.7.9	F	Environment – No lasting effect (less than one month); localised impact not significant to environmental receptors.	-	-	Broadly acceptable
Unplanned Activities (Accidents, Incidents, Emergency Situations)						
Unplanned Hydrocarbon release: Loss of well integrity	6.8.2	B	Environment – Major, long term impact (ten to 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 (five – 20 years) to reputation and brand. Venture and/or asset operations restricted.	1	M	Broadly acceptable
Unplanned Hydrocarbon Release: Vessel collision	6.8.3	D	Environment – Minor, short-term impact (one to two years) on species, habitat (but not affecting ecosystems), physical or biological attributes.	1	M	Broadly acceptable
Unplanned Hydrocarbon Release: Bunkering and flare drop out	6.8.4	E	Environment – Slight, short term local impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly acceptable
Unplanned Discharges: Project fluids	6.8.5	E	Environment – Slight, short term local impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly acceptable
Unplanned Discharges: Deck and subsea spills	6.8.6	F	Environment – No lasting effect (less than one month); localised impact not significant to environmental receptors.	2	L	Broadly acceptable

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Aspect	EP Section	Risk Rating				Acceptability of Impact/Risk
		Impact/Consequence	Potential Impact/Consequence Level	Likelihood	Current Risk Rating	
Unplanned Discharges: Hazardous and non-hazardous solid wastes/equipment	6.8.7	F	Environment – No lasting effect (less than one month); localised impact not significant to environmental receptors (e.g., water quality).	2	L	Broadly acceptable
Physical Presence (Unplanned): Collision with marine fauna	6.8.8	E	Environment – Slight, short term local impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly acceptable
Physical Presence (Unplanned): Interaction with Live Infrastructure	6.8.9	E	Environment – Slight, short term local impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly acceptable
Physical Presence (Unplanned): Seabed disturbance from dropped objects and loss of station keeping leading to anchor drag	6.8.10	E	Environment – Slight, short term local impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.	1	L	Broadly acceptable
Physical presence: Accidental introduction and establishment of invasive marine species	6.8.11	E	Environment – Slight, short term local impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes. Reputation and Brand – Minor, short-term impact (one to two years) to reputation and brand. Close scrutiny of asset level operations or future proposals.	0	L	Broadly acceptable

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6.3 Environmental Performance Outcomes, Standards and Measurement Criteria

Regulation 21(7) of the Environment Regulations requires that an EP includes EPOs, EPSs and MC that address legislative and other controls to manage the environmental risks and impacts of the activity to ALARP and acceptable levels.

EPOs, EPSs and MC for the PAP have been identified to allow Woodside's environmental performance to be measured and through the implementation of this EP, to determine whether the EPOs and EPSs 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 legislation, codes and standards, good industry practices and professional judgement outlined in Section 2.9 part of the acceptability and ALARP justification process.

The EPOs, EPSs and MC are presented throughout this section and in Appendix H. A breach of these EPOs or EPSs constitutes a 'Recordable Incident' under the Environment Regulations (refer to Section 7.9.4.2).

6.4 Presentation

The environmental impact and risk analysis and evaluation (ALARP and acceptability), EPOs, standards and MC are presented in the following tabular form throughout this section. Italicised 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.

<table>
<tr><th colspan="14">Context
Description of the context for the impact/risk. Regulation 21(1), 21(2) and 21(3)</th></tr>
<tr><td colspan="2">Description of the Activity – Regulation 21(1)</td><td colspan="5">Description of the Environment – Regulations 21(2)(3)</td><td colspan="7">Consultation – Regulation 25</td></tr>
<tr><th colspan="14">Impact and Risk Evaluation Summary
Summary of ENVID outcomes</th></tr>
<tr><td rowspan="2">Source of Risk
Regulation 21(1)</td><td colspan="6">Environmental Value Potentially Impacted
Regulations 21(2)(3)</td><td colspan="7">Evaluation
Section 2.6</td></tr>
<tr><td>Marine Sediment</td><td>Water Quality</td><td>Air Quality (incl Odour)</td><td>Ecosystems/ Habitat</td><td>Species</td><td>Socio-economic</td><td>Decision Type</td><td>Consequence/Impact</td><td>Likelihood</td><td>Risk Rating</td><td>ALARP Tools</td><td>Acceptability</td><td>Outcome</td></tr>
<tr><td>Summary of source of risk/ impact</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><th colspan="14">Description of Source of Risk or Impact</th></tr>
<tr><td colspan="14">Description of the identified risk/impact including sources or threats that may lead to the impact/risk or identified event. Regulation 21(1).</td></tr>
<tr><th colspan="14">Impact or Consequence Assessment</th></tr>
<tr><td colspan="14">Environmental Value/s Potentially Impacted</td></tr>
<tr><td colspan="14">Discussion and assessment of the potential impacts to the identified environment value/s. Regulation 21(5) and 21(6).
Description of potential impacts to environmental values aligned to Woodside Risk Matrix consequence descriptors.</td></tr>
</table>

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)23***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
ALARP/Hierarchy of Control Tools Used – Section 2				
Summary of control considered to ensure the impacts and risks are continuously reduced to ALARP. Regulation 21(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 vs 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 No. provided.
ALARP Statement Made on the basis of the environmental risk/impact assessment outcomes, use of the relevant tools appropriate to the decision type (Section 2.6) and a proportionality assessment. Regulation 34(b).				

Demonstration of Acceptability
Acceptability Statement Made on the basis of applying the process described in Section 2.6 and Section 2.7 taking into account internal and external expectations, risk/impact to environmental thresholds and use of environment decision principles. Regulation 34 (c)

EPOs, EPSs and MC			
Environmental Performance Outcomes	***Controls***	***Environmental Performance Standards***	***Measurement Criteria***
EPO No. S: Specific performance that addresses the legislative and other controls that manage the activity, and against which performance by Woodside in protecting the environment will be measured. M: Performance against the outcome will be measured through implementation of the controls via the MC. 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 will be relevant to the source of risk/impact and the potentially impacted environmental value24 T: The outcome will state the timeframe during which the outcome will apply or by which it will be achieved.	C No. Identified control adopted to ensure that the impacts and risks are continuously reduced to ALARP. Regulation 21(5) (c).	PS No. Statement of the performance required of a control measure. Regulation 21(7)(a).	MC No. Measurement criteria for determining whether the outcomes and standards have been met. Regulation 21(7)(c).

[23] Qualitative measure

[24] Where impact/consequence descriptors are capitalised and presented within EPOs in Section 6; performance level corresponds with those aligned with the Woodside Risk Matrix (refer Section 2.6.3).

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6.5 Cumulative Impacts

Woodside has assessed the cumulative impacts of the PAP in relation to other relevant development activities which could potentially result in overlapping temporal and spatial extents. In particular, IMR work at the nearby JUL-A production manifold may occur while the PAP is underway. Similarly, the PAP may occur concurrently to work completed during the potential decommissioning phase of the Julimar South-1 appraisal well. Additionally, where relevant the cumulative impacts of activities associated with undertaking multiple concurrent or parallel activities associated with this PAP have been assessed for cumulative impacts as relevant. Cumulative impacts are addressed where relevant in Sections 6.7, and 6.8.

Given that unplanned activities are not intended to occur during the life of the infrastructure, no reasonable estimate of the frequency, intensity or duration of such activities can be made. If these activities are undertaken, they will be discrete events and any impacts will be localised. As such, Woodside has reasonably assessed unplanned events are not credible, with no consideration of cumulative impacts of repeated unplanned events from the PAP or compounding impacts from other petroleum facilities within the region.

6.6 Potential Environment Risks Not Included Within the Scope of this EP

The ENVID identified environmental risks that were assessed as not being applicable within or outside the PAA as a result of the PAP and, therefore, were determined to not form part of this EP. These are described in the next sections for information only.

6.6.1 Shallow/Near-shore Activities

The PAP is located in water depths greater than 80 m and at a distance of about 54 km to the nearest landfall (Montebello Islands). Consequently, risks associated with shallow/ near-shore activities such as heavy lift activities, vessel anchoring, and risks of grounding were assessed as not credible.

6.6.2 Underwater Noise Emissions from Flaring, Helicopters and ROV

It is not credible that airborne noise from helicopter transfers and flaring 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 in 130 – 300 m water depth 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 6.7.3.

6.6.3 Loss of Containment from Abandoned Wellheads

Several existing wellheads occur in the PAA 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 or anchor drag, no loss of containment would occur. Therefore, the scenario of loss of containment from existing wellheads on abandoned wells is not considered credible and is not assessed further.

6.6.4 Loss of Containment during Well Intervention

During the JDP3 drilling campaign the necessity to perform well intervention activities may arise. Well intervention loss of containment scenarios considered are for all of the Woodside assets under the Julimar Brunello Operations EP as well as the JDP3 wells. Given the nature of the well intervention activities it is not considered credible for a full well blow out to occur given the presence of further controls as well as the capability of the well shut-in systems to sever wireline tools whilst performing down hole activities. Current expectations are that volumes for the loss of containment due to drilling will be by far the most impactful scenario. Comparatively the well kill / containment of

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well release is expected to take no more than 21 days, which considers the worst-case vessel response times and includes times for the ROV's to interact with the well head.

6.6.5 Indirect Impacts

For the PAP, the potential 'indirect' environmental impacts and risks evaluated are those associated with mobilisation/demobilisation of the MODU and project vessels to the PAA, such as those considered in the environmental impact assessment in Section 6.7.1, Section 6.7.4, Section 6.7.8 and Section 6.7.9.

Due to the nature and scale of these potential indirect environmental impacts and risks (such as fuel usage, interaction with other marine users and usual vessel discharges), and the regulatory frameworks and applicable maritime regulations in place to manage them, Woodside considers the potential impacts and risks from mobilisation and demobilisation of the MODU and project vessels to be inherently ALARP. Therefore, Woodside considers that standard vessel and MODU operations are appropriate to manage the potential impacts and risks from mobilisation and demobilisation of the MODU and project vessels to a level that is acceptable.

JDP3 well fluids will be processed on the Chevron operated Wheatstone Platform (WA-3-IL); all activity, environmental impacts and risks associated with the processing of JDP3 well fluids are excluded from the scope of this EP and are described in the Wheatstone Project Start-Up and Operations EP (NOPSEMA ID: A853704).

Chevron operates the subsea infrastructure commencing with well unloading. Normal operational discharges from the Wheatstone Platform arising from production of hydrocarbons from the PAP commingled with other production wells are included in the scope of the Wheatstone Project Start-Up and Operations EP.

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6.7 Planned Activities (Routine and Non-Routine)

6.7.1 Physical Presence: Interaction with Other Marine Users

Context		
Relevant Activities Project Vessels - Section 3.6 Project-Vessel based activities – Section 3.9 Drilling Activities – Section 3.10 Subsea Installation Activities – Section 3.11 Well Abandonment – Section 3.12.8 Wellhead Assembly Left In-situ – Section 3.12.9	***Existing Environment*** Socio-economic Environment – Section 4.10	**Consultation** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Interaction with other marine users – proximity of MODU and project vessels interfering with or displacing third party vessels (commercial fishing, oil and gas operators and commercial shipping)						X	A	E	-	-	LCS GP PJ	Broadly Acceptable	EPO 1, 2
Presence of subsea infrastructure interfering with or displacing third party vessels (commercial fishing)						X							

Description of Source of Impact

MODU and Vessel Operations

Drilling, subsea installation and contingency activities

Woodside proposes to drill up to five new production wells and may also intervene or workover any of the existing eight JULA or Brunello Manifold production wells within the PAA, in addition to the new JDP3 wells, if required. The MODU will be present for up to approximately 60 days per new production well, including mobilisation and demobilisation activities. When underway, activities will be 24 hours per day, seven days per week. SIMOPS activities may occur.

An IMR vessel may be used to install Xmas trees if the MODU is unavailable or not deemed suitable. Installation of the Xmas trees by IMR vessel will be up to 3 days per Xmas tree per well (1 day for installation, 2 days for weather standby if required), with no consecutive days occurring as the IMR vessel will be required return to port following each installation.

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The PIV, IMR and support vessels will be used to install and pre-commission and cold-commission the flowlines, manifolds, and other subsea infrastructure following the completion of drilling new wells. This is expected to take approximately 60 days. Flowlines, manifolds, Xmas trees and other subsea infrastructure will remain in place and be operated under a revised Julimar Operations EP.

The MODU and relevant vessels will have a 500 m safety exclusion zones within the PAA for the duration of the PAP.

Other vessels are also required during the PAP, including an AHT and support vessels (Table 3-3). A DP Light Well Intervention Vessel may be required for contingent activities in the event of down-hole equipment failure or an underperforming well. Some vessels will need to transit in and out of the PAA to port for emergency and routine operations.

The PAP is not planned to be executed in a single campaign or in a consecutive sequence. Therefore the presence of the MODU, subsea installation vessels and other support vessels may occur at any time in the three year approval period for the EP. The presence of project vessels could present a minor navigational hazard to shipping and commercial fishing activities in the PAA. Tourism and recreation activities, including recreational fishing, are not expected in the PAA due to distance offshore and water depths (120 – 300 m).

Activities located outside Woodside's titles

The PAA extends beyond Woodside's titles into WA-5-R, owned by Chevron, and vacant acreage to the north-west. This is to accommodate MODU moorings and other temporary activities associated with the PAP such as vessel movements. Temporary activities outside Woodside's titles will be done in accordance with arrangements made with Chevron and NOPTA as required (detailed in Section 3.3.2).

Activities located in close proximity to infrastructure not owned by Woodside

The Wheatstone trunkline, which is operated by Chevron, traverses a portion of the PAA. Works within this area associated with the PAP could restrict Chevron's ability to access that portion of the pipeline

Physical presence of subsea infrastructure

The wellheads, subsea Xmas trees and other subsea infrastructure for the Julimar and Penfolds fields will be located within the PAA and will remain for the duration of field life. Wellheads and Xmas trees take up a small area of the seabed (~120 m2) and will rise several meters above the seabed. Subsea infrastructure may take up to approximately 7,300 m2 of the seabed. For technical reasons, the lower section of the wells may be abandoned, prior to sidetracking, or in the event that a re-spud is required (Section 3.12.8). This is considered a contingent activity and if a well is abandoned due to re-spud, every reasonable attempt to remove the wellhead will be made. However, the wellhead assembly may be left in situ if routine removal techniques are unsuccessful (Section 3.12.9). If a wellhead is left in situ, it could potentially interfere with third party activities (particularly fishing activities).

Impact Assessment

Potential impacts to environmental values

Interaction with other marine users due to the physical presence of in the PAP may result in the following impact:

- localised changes to the functions, interests or activities of other users
- the duration of change will be for the period of the PAP.

Commercial Fisheries

The PAA overlaps four Commonwealth and 14 State managed fisheries (Section 4.10). However, only one Commonwealth and six State-managed fisheries are considered to have limited potential for interaction with project activities in the PAA (Table 4-23). Commercial Tour Operators are active in the PAA wider EMBA, and fishing effort is highest around Ningaloo and Murion Islands, Barrow Island and the Montebello Islands. Whilst there may be interactions with commercial operators in the wider EMBA, there are no commercial tour operators active within the PAA.

The PAA is located within 60 nm CAES blocks 19150 and 20150, and 10 NM CAES blocks 201150, 200150, 200151 and 195151. The Mackerel Managed Fishery reported less than 3 vessels active in the overlapping 10 NM CAES blocks 201150 and 200151 in 2018-19 and 2020-21 seasons respectively. The Pilbara Line Fishery has remained consistently active in both 60 NM CAES blocks that overlap the PAA between 2017 to 2022, however FishCube data for the Pilbara Line Fishery is not reported at the 10 NM scale therefore it is uncertain if the effort reported in the 60 NM CAES blocks overlaps with the PAA. FishCube data indicates the effort is concentrated east of the PAA, around the Southern Pilbara Islands.

Given the overlap of the PAA with the fishing block and the annual fishing effort, interactions with the Pilbara Line Fishery and Mackerel Managed Fishery may occur. During project activities, vessels will be temporarily present in the PAA restricting the use of the area by fishers, and any other commercial fisheries that have been identified as having potential, though are unlikely, to use the PAA. Use will particularly be restricted within the 500 m safety exclusion zone (temporary) that will be established around the MODU and relevant vessels when undertaking drilling, installation or contingent well intervention activities, which represents a relatively small area when compared to the extent of the individual fishery boundaries that overlap. The MODU will only be present for up to 60 days per well, IMR vessel up to 3 days/Xmas tree installation and the PIV/IMR vessel for 60 days total during subsea installation activities. Should well intervention be required on any of the production wells, intervention vessel(s) will be present for approximately 30 days per well.

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Potential impacts to commercial fisheries include damage to fishing equipment and physical displacement from fishing grounds.

The presence of vessels (and MODU) in the PAA will present a surface hazard to fishing vessels and potentially result in a temporary exclusion from the 500 m safety exclusion zones required around the MODU and relevant vessels.

Given the distance offshore, the PAA is not an area of high commercial fishing activity. Furthermore, the 500 m temporary exclusion zones comprise a relatively small area when compared to the extent of the individual fishery boundaries that overlap. As such, any displacement of commercial fisheries due to activities in the PAA are not expected to impact commercial fishing activities or the economic viability of the fisheries.

Continued presence of JDP3 infrastructure

The continued presence of subsea infrastructure, over the field life could present a hazard to bottom trawl fisheries due to the risk of equipment entanglement and subsequent equipment damage/loss. However, Section 4.10.1 and consultation conducted for the PAP (Section 5) indicated that trawl fisheries have not been active in the PAA in the past 5 years. therefore, trawl fisheries are not anticipated to be at risk of interference and impacts to fisheries from the ongoing presence of JDP3 infrastructure are not considered credible.

The magnitude of potential impacts to commercial fisheries from activities associated with the PAP are assessed as having no lasting effect. The historically lower fishing effort in the region as a result of relatively high density of oil and gas infrastructure in the vicinity of the Julimar Brunello Development and the temporary nature of the activity, reduce the likelihood of displacement of commercial fishers.

Tourism and Recreation

Tourism and recreation within the PAA are expected to be limited by the distance offshore and water depths. Consultation did not identify any key recreational fishing activity within the PAA. Given the location, and the short-term nature of activities, impacts to tourism and recreational activities are not expected.

Shipping

Shipping activity in the PAA is low, with no shipping fairways located within the PAA. Vessel traffic data shows that the majority of vessel movements occur to the south-east of the PAA. Given the short-term nature of the activities and the low level of shipping activity within the PAA, impacts to shipping are unlikely.

Industry

During the time the PAP is occurring activities by other oil and gas operators, particularly Chevron, may be restricted in the areas where the PAA overlaps non-Woodside titles. However, the PAP will occur in accordance with arrangements made with Chevron and NOPTA and they will be temporary in nature (approximately 60 days). There is not expected to be ongoing displacement associated with the PAP once project vessels have de-mobilised from the PAA.

The Chevron operated Wheatstone trunkline also traverses a portion of the PAA. During works associated with the PAP in this area Chevron may be temporarily restricted from accessing that portion of the trunkline. However, the duration of works is short and will be temporary.

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. Defence stakeholders were notified and provided feedback, including requests for standard pre-activity notifications.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that physical presence of the MODU, project vessels and subsea infrastructure will not result in a potential slight, short-term (< 1 year) impact greater than localised, temporary displacement of shipping and commercial/recreational fishing interests (i.e. Socio - Economic Impact – E).

Demonstration of ALARP

Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[25]***	***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	Benefits outweigh cost/sacrifice. Control is also Standard Practice	Yes C 1.1

[25] Qualitative measure

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		adhere to requirements.		
Establishment of a 500 m safety exclusion zone around MODU and relevant vessels and communicated to marine users.	F: Yes. CS: Minimal cost. Standard practice.	Establishment of a 500 m safety exclusion zone around MODU and relevant vessels reduces the likelihood of interaction with other marine users.	Benefits outweigh cost/sacrifice. Control is also Standard Practice	Yes C 1.2
Mooring systems (chains/wires and anchors) will be removed.	F: Yes CS: Additional cost. Standard Practice.	In accordance with OPGGS Act Section 572.	Benefits outweigh cost/sacrifice.	Yes C 1.3
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 1.4
Good Practice				
Australian Hydrographic Office (AHO) will be notified of activities and movements no less than four working weeks prior to commencement of the PAP.	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 1.5
Notify relevant government departments, fishing industry 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 PAP 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 AMSA Joint Rescue Coordination Centre (JRCC) of activities and movements 24 to 48 hours before operations commence.	F: Yes. CS: Minimal cost. Standard practice.	Communication of the PAP 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 relevant persons for activities within the PAP that commence more than a year after EP acceptance.	F: Yes. CS: Minimal cost. Standard practice.	Communication of the PAP 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 1.8
Notify Defence of activities no less than five weeks before the scheduled activity commencement date	F: Yes CS: Minimal cost. Standard Practice	Communicating the PAP to other marine users ensures they are informed and aware, thereby reducing the likelihood of interfering with other marine users.	Benefits outweigh cost/sacrifice.	Yes C 1.9
SIMOPS Plan in place when MODU working in vicinity of other facilities, vessels or live	F: Yes CS: Minimal cost.	The SIMOPS plan will include protocols for entering titles not owned by Woodside,	Benefits outweigh cost/sacrifice	Yes C 1.10

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infrastructure i.e. during Xmas tree installation. SIMOPS Plan will contain information on: • Minimum separation distances • Communications • MODU / vessels / activities involved in SIMOPS • Exclusion zone entry and exit processes • ROV operations • Helicopter operations • Key roles, responsibilities and emergency contacts • PTW arrangements • Incident reporting and investigation Management of Change		allowing other operators, particularly Chevron, to plan for the PAP's presence.		
Professional Judgement – Eliminate				
Establish and maintain a publicly available map which provides updated information on activities being conducted as part of the PAP	F: Yes. CS: Minimal cost.	Interactive map provides additional/ alternative method for marine users to obtain information on the timing of activities thereby reducing the likelihood of interaction with other marine users.	Benefits outweigh cost/ sacrifice.	Yes C 2.1
Limit the PAP to avoid peak shipping and commercial fishing activities.	F: No. Shipping occurs year-round and cannot be avoided. SIMOPS with 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	Reduce the potential for snagging of trawl nets if a wellhead is left in situ following abandonment during drilling. However, given there is no currently active trawling fisheries	Disproportionate. Significant additional costs.	No

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	result in loss of trawl gear. CS: Significant additional cost.	occurring in the PAA, the benefit is low.		

ALARP Statement

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the impacts and risks of the physical presence of the MODU/PIV, project vessels and subsea infrastructure on other users, such as commercial fisheries and shipping. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that, given the adopted controls, physical presence of the PAP on other users is unlikely to result in potential impact greater than localised impacts to commercial fishing and shipping. Further opportunities to reduce the impacts and risks 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 AHS provided during consultation. The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of physical presence of the PAP to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 1 Undertake the PAP 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 the navigation safety requirements including the *Navigation Act 2012* and any subsequent Marine Orders.	PS 1.1 MODU and project vessels compliant with Navigation Act and Marine Order 21 (Safety of navigation and emergency procedures) 2012	MC 1.1.1 Marine assurance inspection records demonstrate compliance with standard maritime safety procedures
	C 1.2 Establishment of a 500 m safety exclusion zone around MODU and relevant vessels and communicated to marine users.	PS 1.2 No entry of unauthorised vessels within the 500 m safety exclusion zone.	MC 1.2.1 Daily operations reports and incident records demonstrate breaches by unauthorised vessels within the safety exclusion 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 Mooring systems (chains/wires and anchors) will be removed	PS 1.3 Mooring systems (chains/wires and anchors) will be removed.	MC 1.3.1 Records demonstrate mooring systems (chains/wires and anchors) were removed

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	C 1.4 Reasonable attempts at removal of wellhead(s) will be made in the event of a respud.	PS 1.4 Removal of wellheads attempted during the PAP in the event of a respud.	MC 1.4.1 Records demonstrate reasonable attempts at wellhead removal were made.
	C 1.5 Australian Hydrographic Office (AHO) will be notified of activities and movements no less than four working weeks prior to commencement of the PAP.	PS 1.5 Notification to AHO of activities and movements to allow generation of navigation warnings (MSIN and NTM) (including AUSCOAST warnings where relevant)).	MC 1.5.1 Consultation records demonstrate that AHO has been notified before commencing an activity to allow generation of navigation warnings (MSIN and NTM (including AUSCOAST warnings where relevant)).
	C 1.6 Notify relevant government departments, fishing industry representative bodies and licence holders of activities prior to commencement and upon completion of activities.	PS 1.6 Notification to AFMA, CFA, DAFF – Fisheries, DCCEEW, DPIRD, WAFIC, Tuna Australia and fishery licence holders (Northwest Slope and Trawl Fishery, Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Trap Fishery and Pilbara Line Fishery) at least 10 days before activity commences, and following completion of activities.	MC 1.6.1 Consultation records demonstrate that AFMA, CFA, DAFF – Fisheries, DCCEEW, DPIRD, WAFIC, Tuna Australia and relevant fishery licence holders (North West Slope and Trawl Fishery, Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Trap Fishery and Pilbara Line Fishery) have been notified prior to commencement and following completion of activities.
	C 1.7 Notify AMSA Joint Rescue Coordination Centre (JRCC) of activities and movements 24 to 48 hours before operations commence.	PS 1.7 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 (MMSI)), 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 1.7.1 Consultation records demonstrate that AMSA JRCC has been notified prior to commencement of the activity within required timeframes.
	C 1.8 Notify relevant persons for activities within the PAP that commence more than a year after EP acceptance.	PS 1.8 Notification to relevant persons if activities within the PAP commence more than a year after EP acceptance.	MC 1.8.1 Consultation records demonstrate relevant persons notified if activities within the PAP commenced more than a year after EP acceptance.

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	C 1.9 Notify Defence of activities no less than five weeks before the scheduled activity commencement date.	PS 1.9 Notification to Defence five weeks prior to the scheduled commencement date.	MC 1.9.1 Consultation records demonstrate that Defence has been notified prior to commencement of the PAP within the required timeframes.
	C 1.10 SIMOPS Plan in place when MODU working in vicinity of other facilities, vessels or live infrastructure i.e. during Xmas tree installation. SIMOPS Plan will contain information on: • Minimum separation distances • Communications • MODU / vessels / activities involved in SIMOPS • Exclusion zone entry and exit processes • ROV operations • Helicopter operations • Key roles, responsibilities and emergency contacts • PTW arrangements • Incident reporting and investigation • Management of Change	PS 1.10 MODU and applicable vessels compliant with SIMOPS Plan	MC 1.10.1 Up-to-date and approved SIMOPS Plan in place
EPO 2 Prevent adverse interactions with other marine users during the PAP or from continued presence of well infrastructure.	C 1.4 Reasonable attempts at removal of wellhead(s) will be made in the event of a respud.	PS 1.4 Removal of wellheads attempted during the PAP in the event of a respud.	MC 1.4.1 Records demonstrate reasonable attempts at wellhead removal were made.
	C 2.1 Establish and maintain a publicly available interactive map which provides updated information on activities being conducted as part of the PAP.	PS 2.1 Activity interactive map established and maintained throughout activities.	MC 2.1.1 Records demonstrate interactive map was available publicly throughout the activities.

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6.7.2 Physical Presence: Seabed Disturbance from Drilling Operations, Subsea Infrastructure, MODU Anchoring and ROV Operations

Context		
Relevant Activities	***Existing Environment***	***Consultation***
Project Vessels - Section 3.6 Project-Vessel based activities – Section 3.9 Drilling Activities – Section 3.10 Subsea Installation Activities – Section 3.11 Well Abandonment – Section 3.12.8 Wellhead Assembly Left In-situ – Section 3.12.9	Physical environment – Section 4.4 Habitats and Biological Communities – Section 4.5 Protected species – Section 4.6	Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Disturbance to seabed from drilling operations	X	X		X		X	A	E	-	-	LCS GP PJ	Broadly Acceptable	EPO 3, 4, 22
Disturbance to seabed from subsea installation of infrastructure (flowlines, umbilicals, flying leads, etc.) and span rectification (concrete mattresses etc.)	X	X		X		X							
Disturbance to seabed from ROV operation (including localised sediment relocation from sediment mobilisation techniques and marine growth removal)	X	X		X		X							
Disturbance to seabed from mooring installation	X	X		X		X							
Disturbance to seabed from wellhead remaining in situ (if required)	X	X		X		X							
Placement and retrieval of seabed transponders and temporary installation aids	X	X		X		X							

Description of Source of Impact

Drilling and MODU Operations

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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 each well location due to the installation of the BOP and conductor.

The generation and discharge of cuttings and drilling fluids are not considered in this section; refer to Section 6.7.6 for an assessment of drill cuttings and drilling fluids and Section 6.7.7 for an assessment of cement and cementing fluids.

Subsea Installation Activities

Subsea installation of the infrastructure components described in Table 6-2 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 (including placement of materials/equipment on the seabed), supporting structures (including wellheads, flowlines, umbilicals, umbilical termination assemblies, flying leads, manifold, concrete mattresses) and installation aids (clump weights, concrete mattresses, sandbags, bulkabags and rigging) 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.

Commencement of the flowline installation generally requires tension to be maintained in the flowline as it transitions from the installation vessel to the seabed. Therefore, commencement of the flowline Installation may start with landing the end of flowline termination head either on the manifold or on the seabed attached to an initiation anchor (suction pile, drag anchor or clump weight/dead anchor). This will cause small, localised and temporary impacts to water quality in the vicinity of flowline landout. Installation of the proposed manifold (JULB) is proposed for after MODU drilling operations have finished and prior to the start of flowline installation.

Once the termination end is fully landed, the flexible flowline is to be continuously laid using vertical lay system and at the same time, the ROV monitors the touch-down point on the seabed as well as the flexible lay back radius. In the event, the flexible flowline needs to make a turn, a temporary small bulkabag filled with individual sandbags 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.

Span rectification

Optimum flowline and umbilical routes will be selected by considering seabed bathymetry, preinstallation surveys and installation risk management, including dropped object risks and buckling/walking impacts. This reduces the potential for spanning and therefore the need for span rectification, while avoiding potential hard substrate habitats where practicable.

Where span rectification is required concrete mattresses or grout bags may be positioned at the identified free span location by the use of the vessel crane and ROV. The dimensions for each concrete mattress are expected to be 6 m x 3 m x 3 m. Post-lay span rectification may involve placing grout bags (multiple ~25 kg) or concrete mattresses on the seabed, with the extent of any impact limited to the footprint of the installed flowline.

Stabilisation

Stabilisation is a post lay activity to ensure light items, such as Flying Leads, remain at their installed positions, i.e., not being shifted due to strong seabed current, by installing sand bags on top at a predetermined spacing. Sand bags generally come in a standard size with 20 kg to 40 kg weight. Concrete mattresses at regular spacings may also be used for stabilisation of some sections of the flexible jumpers, flowlines or umbilicals, subject to detailed design.

Table 6-2: Proposed JDP3 footprint

Infrastructure	Number of items	Length (m)	Width (m)	Area (m^2)
JULB two slot manifold c/w mud mat	1	13	12	156
Xmas trees	5	4	6	120
Potential cooling skid ~50m from J85 development well	1	12	12	144
2.5 km 15" (0.381 m) external diameter flexible flowline (ILT to JULB). - 10" internal.	1	2500	0.381	952.5
2 km 15" (0.381 m) external diameter flexible flowline (JULA to J85). - 8" or 10" internal.	1	2000	0.381	762
4.4 km 15" (0.381 m) external diameter flexible flowline (JULB to PEN). - 8" internal.	1	4400	0.381	1676.4
300 m of 15" (0.381 m) external diameter flexible jumper connecting new wells to JULA (2x wells total for this) - 8" internal.	2	300	0.381	228.6

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Flying leads corridors (in bundles typically of 4 leads).	1	1200	2	2400
UTAs complete with mud mats	6	6	3	108
Concrete mattresses and/or grout bags	40	6	3	720
Total Area (m^2)	**7267.5**			

Mooring Installation and Anchor Hold Testing

The proposed wells may be drilled using a moored, DP or hybrid MODU. Seabed disturbance may result from the MODU anchor mooring system, including placement of anchors and chain/wire on the seabed, potential dragging during tensioning, and recovery of anchors. Mooring may require a 12-point pre-laid mooring system, depending on the time of year; however, for drilling activities outside of cyclone season, a standard eight-point mooring system is more likely. Suction piling may be required for installing the anchors. There are five proposed production well locations for the PAP, equating to a maximum of 60 anchor installations.

The area of seabed affected by mooring installation depends upon water depth, currents, size of the vessels and anchors, and length of anchor chain (NERA, 2018). If utilised, seabed disturbance from mooring installation and anchor hold testing may result in localised, small scale seabed disturbance relating to the benthic habitats described in Section 4.5.

The planned anchoring activities are considered to be within the parameters defined in the Anchoring of Vessels and Floating Facilities EP Reference Case specified in NERA (2018) for all anchoring activities performed by vessels and floating facilities (excluding FPSOs and Floating LNG vessels) during the PAP, including:

- installation of moorings, buoys, equipment or other infrastructure for a period of up to two years
- wet storage on seabed of anchor chains, etc. during activities up to two years
- activities with total areas of seabed disturbance less than 13,000 m2
- locations of water depth greater than 70 m. This boundary is set to exclude areas of sensitive primary producer habitats (e.g. corals, seagrass) that occur in shallower waters.

ROV Operations

The use of a ROV during drilling and subsea installation activities as described in Section 3.11 may result in temporary seabed disturbance and suspension of sediment 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 (4.25 m²).

Additionally, the ROV may be used to relocate small amounts of sediment material (Section 3.12.10), for example to create a stable, level surface or to reduce the potential for scouring from subsea equipment (e.g. BOP). This will cause localised and temporary impacts to water quality from increased turbidity and may cause localised and temporary impacts to benthic habitats.

Marine Growth Removal

Excess marine growth and calcareous deposits may need to be removed following return to well after a period of suspended drilling. Removing marine growth and calcareous deposits is undertaken via a high-pressure water and/or brushes or acid, by ROV.

Underwater Transponders

An array of long base line (LBL) transponders may be installed on the seabed as required to support drilling and subsea installation activities. Transponders may be moored to the seabed either by a clump weight or mounted on a seabed frame. The standard clump weights used, made of cement or steel, will likely weigh about 80 kilogram (kg). A typical seabed frame is 1.5 m × 1.5 m × 1.5 m in dimension and weighs about 40 kg. On completion of the positioning operation, the array transponders moored by clump weight will be recovered by means of an acoustic release and the clump weights removed from the seabed. The transponders mounted on seabed frames will be removed by ROV.

Contingency Activities – Wet Parking

In the event that mud mats are required to be deployed to allow infrastructure to be temporarily wet parked (Section 3.12), an additional temporary seabed disturbance of 3.5 m by 3.5 m per mud mat near the location of the well would occur. Mud mats would be recovered following recovery of infrastructure.

Contingency Activities

Woodside may need to intervene or workover wells within the PAA. 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 a JDP3 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. If a wellhead is left in-situ, there would be localised seabed disturbance at the wellhead location.

Impact Assessment

Potential impacts to environmental values

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Water and Sediment Quality

Seabed disturbance may include localised and temporary decline in water quality due to increased suspended sediment concentrations, turbidity and increased sediment deposition caused by drilling and subsea installation activities and ROV operations near the seabed.

Epifauna and Infauna

The seabed of the PAA is characterised by sparse marine life dominated by mobile organisms (ERM, 2013). The benthic biota are predominately deposit feeders such as epifauna (living on the seabed): shrimp (crustaceans) and sea cucumbers (echinoderms), and infauna (living within the surface sediments) small, burrowing worms (polychaetes) and crustaceans (ERM, 2013) (Section 4.5).

Marine life such as deep water benthic communities epifauna and infauna (living on and in the sediment dominated habitat), may be impacted from the placement of project infrastructure (i.e. wellheads and flowlines), or placement of temporary supporting infrastructure (anchors, ROV) and equipment (e.g. mud mats) on the seabed. Potential impacts include burial or smothering of benthic biota from localised sediment deposition, particularly to sessile epifauna such as sea pens and infauna (polychaetes), and sediment coating resulting from elevated turbidity/ total suspended solids (TSS) potentially causing clogging or damage to the physiological functioning of certain biota (sea pens, polychaetes) reliant on external respiratory and feeding structures. Secondary impacts may include alterations to epifauna and infauna community changes (Newell et al., 1998).

If utilised, mooring installation activities are likely to result in localised physical modification to a small area of the seabed and disturbance to soft sediment. An anchor must travel a certain horizontal distance before penetrating and embedding into the seabed. The drag length of the anchors may be up to a linear distance of 100 m from the drop location (NERA, 2018). The disturbance footprint extends beyond this distance with the anchor chain. The maximum disturbance radius of each anchor drop will therefore not exceed the drag length, plus the additional length of the anchor chain that comes into contact with the sea floor (4 km). Following recovery of the anchors, impacts from the disturbance (estimated at up to 0.013 km2 per well) are expected to be localised and short-term, with the underlying conditions present to support re-colonisation and recovery after the activity has been completed (Ingole et al. 2005). As such the anchor disturbance to the seabed is determined to be slight.

Seabed disturbance will be limited to the wellheads (100 m radial distance each) and subsea infrastructure (7,294.02 m2), and potential anchoring physical footprint (estimated at up to 0.013 km2 per well); a small proportion of the benthic habitat and associated communities of the PAA will be affected. No threatened or migratory species, or ecological communities (as defined under the EPBC Act), were identified in the benthic communities during studies completed in the PAA (ERM, 2013). The epifauna and infauna benthic communities known to exist in the PAA are likely to be well represented elsewhere in the region, with impacts restricted to a highly localised proportion of benthic communities. Any impact to epifauna and infauna is likely to be highly localised, and temporary with no significant impact to environmental receptors.

ROV activities near the seafloor and small amounts of sediment relocation 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 slight and short-term, and is therefore, not expected to have a significant impact on environment receptors.

The use of water jetting to remove marine growth on wellheads and subsea infrastructure will result in temporary suspension of organic matter and localised increase in turbidity. Water jetting will be limited to what is necessary to clean infrastructure prior to intervention or other modification.

The contingent cutting and removal of a wellhead, including the laydown of mud mats, may affect a relatively small footprint of the seabed and lead to localised, temporary suspension of sediments. The mooring footprint associated with such contingent activities would result in localised disturbance to the benthic habitat and soft sediments. No significant impacts to benthic fauna are expected should wellhead removal be required while anchor disturbance associated with mooring activities would be slight.

In the unlikely event that the wellhead cannot be removed following abandonment, over time the cement surrounding the wellhead will likely become buried in sediment as a result of prevailing ocean currents. The steel wellhead structure will also corrode over time and marine fouling is expected to accumulate, whereby a marine life structure may remain above the seafloor. If the wellhead remains in-situ, it is expected to have a localised impact not significant to environment receptors. No further impacts to benthic habitats are likely.

KEFs

Two KEFs overlap the PAA; the Ancient Coastline at 125 m depth contour KEF overlaps the PAA and the Continental Slope Demersal Fish Communities KEF overlaps the Well and Subsea Installation Operational Areas only. Seabed disturbance may lead to a highly localised change in habitat and water quality, which will be short-term in nature. During anchoring, drilling and subsea installation activities, there is potential for sediment to be suspended into the water column, which can affect benthic communities through a decrease in water quality or light penetration near the seabed. Given the hydrodynamics in open ocean areas, the area of decreased water quality is expected to be localised and temporary, as sediments would settle out of the water column relatively quickly. Localised physical disturbance of Ancient Coastline at 125m depth contour KEF could occur from mooring installation and the temporary laydown of equipment at the J85 development well or during contingent well intervention activities at the BRUA wells.

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If selected, moored or hybrid MODU moorings may extend into the KEF and have the potential to result in localised physical damage or disturbance to the seabed.

The maximum physical footprint is conservatively expected to disturb up to 0.072 km2 of seafloor (excluding potential anchoring during contingent well intervention activities). The Ancient Coastline at 125 m KEF covers an area of ~16,189.8 km2 (DCCEEW, n.d.(a)) and the Continental Slope Demersal Fish Communities KEF covers 33,182.04 km2 (DCCEEW, n.d.(b)).

Considering the short duration, and often contingent nature of the activities (contingent well intervention, selection of moored or DP MODU) and minor overlap of the PAA of the KEFs (Table 4-16 and Figure 4-10), potential impacts to the ecological values of the KEFs as a result of the PAA are not expected. Any impact to the benthic habitat of either KEF would be limited to minor and temporary disturbance and are not expected to impact the ecological values as described in Section 4.7.

The magnitude of potential impacts to epifauna and infauna from seabed disturbance during activities associated with the PAP is slight.

Cumulative Impacts

Given the current petroleum activities and existing infrastructure within the PAA, there is the potential for cumulative disturbance to the seabed and benthic communities. Cumulative seabed disturbance associated with the PAP is expected to be restricted to an accumulation of disturbance areas from the JDP3 wells and subsea infrastructure installation sites. While these areas have previously been disturbed by the preceding Julimar Brunello Development 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 soft sediments.

As benthic habitats within the PAA 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 PAA, including those of the Continental Slope Demersal Fish Communities KEF and Ancient Coastline at 125 m depth contour KEF and commercial fishers.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, seabed disturbance from the PAP 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)*[26]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
Reasonable attempt(s) at removal of wellhead(s) 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 1.4
Mooring systems (chains/wires and anchors) will be removed	F: Yes CS: Additional cost. Standard Practice.	In accordance with OPGGS Act Section 572	Benefits outweigh cost/sacrifice.	Yes C 1.3
Good Practice				
Subsea infrastructure will be positioned within planned footprint to reduce seabed disturbance.	F: Yes. CS: Standard practice.	Ensures risks appropriately addressed for seabed disturbance and use of positioning technology to position infrastructure on the seabed with accuracy will reduce seabed disturbance.	Benefits outweigh cost/sacrifice.	Yes C 4.1
Project-specific Basis of Well Design, which	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of anchoring occurring in areas of high	Benefits outweigh cost/sacrifice.	Yes C 4.2

[26] Qualitative measure

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includes an assessment of seabed sensitivity.		sensitivity. Assessment of seabed topography reduces the likelihood of anchor drag leading to seabed disturbance.		
Project-specific Mooring Design Analysis.	F: Yes. CS: Additional costs associated with upgraded MODU mooring design.	The mooring design analysis determines the number and spread of anchors required based on sediment type and seabed topography, reducing the likelihood of anchor drag leading to seabed disturbance.	Benefits outweigh cost/sacrifice.	Yes C 4.3
Review of existing survey data by a suitably qualified maritime archaeologist to inform areas of seabed to avoid or where not possible, minimise physical impacts to cultural heritage areas or prospective areas.	F: Yes. CS: Minimal costs associated with review of data and avoidance or minimisation options.	Review of data by suitably qualified maritime archaeologist will inform potential exclusion or avoidance areas for seabed disturbance. Implementing this process will protect and minimise any physical impacts to underwater cultural heritage. Additionally, this process is not inconsistent with the draft guidelines for working in the near and offshore environment to protect Underwater Cultural Heritage (DCCEEW, 2023).	Benefits outweigh cost/ sacrifice.	Yes Adopted, See Section 4.9.4.2
Unexpected finds of potential Underwater Cultural Heritage[27] sites/ features including First Nations UCH are managed in accordance with an Unexpected Finds Procedure set out in Section 7.4	F: Yes. CS: Cost of implementation.	Allows management of new finds in accordance with legislative requirements (including Underwater Cultural Heritage Guidance for Offshore Developments and the DRAFT Guidelines to Protect Underwater Cultural Heritage under the UCH Act), expert advice and community expectations.	Benefits outweigh cost/sacrifice.	Yes C 22.1
Relevant vessel and MODU crew will be advised in an induction of the potential to encounter UCH, and of their requirement to follow the	F: Yes CS: Minimal	Ensures workforce as suitably aware of legal and process requirements for managing cultural	Benefits outweigh cost/ sacrifice.	Yes C 22.2

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

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Unexpected Finds Procedure (C 21.1)		features and heritage values.		
Report any potential UCH finds to relevant stakeholders and authorities in accordance with the Unexpected Finds Procedure, Underwater Cultural Heritage Act 2018 and the ATSIHP Act	F: Yes CS: Minimal	Meets legislative requirements and community expectations.	Benefits outweigh cost/sacrifice.	Yes C 22.3
Environmental monitoring of the seabed prior to, and following the PAP to assess any impacts to seabed.	F: Yes. CS: Significant. Monitoring of the seabed, would have significant additional costs to obtain and analyse data with the spatial resolution to accurately assess changes to the seabed habitat.	Environmental monitoring would not result in any additional information of the seabed above the WLSADS and mooring design analysis. Therefore, no additional reductions in likelihood or consequence would occur.	Control grossly disproportionate. Monitoring will not reduce the 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.	No
Professional Judgement – Eliminate				
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 PAA, no particularly sensitive benthic habitats are expected to occur. Pre-lay surveys are routinely undertaken for engineering purposes.	Benefits outweigh cost/sacrifice.	Yes C 4.4
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	Not assessed, control not feasible.	Not assessed, control not feasible.	No

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	close to the seabed is avoided unless necessary. CS: Not assessed, control not feasible.			
Do not complete anchor hold testing for the MODU	F: No. Anchor hold testing is a requirement for a moored MODU, and it is not technically feasible for the MODU to use DP in the water depth of the well locations (149 – 207 m). Woodside has a demonstrated capacity to manage the environmental risks and impacts from mooring to a level that is ALARP and acceptable. CS: Not assessed, control not feasible.	Not assessed, control not feasible.	Not assessed, control not feasible.	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, Woodside considers the adopted controls appropriate to manage the impacts of benthic habitat disturbance from MODU station holding, drilling and subsea installation activities and ROV operations. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that, given the adopted controls, disturbance to benthic habitats is unlikely to result in a potential impact greater than a slight and temporary effect on habitat (but not affecting ecosystems function). Further opportunities to reduce the impacts and risks have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet the requirements of Woodside's relevant systems and procedures.

The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of seabed disturbance to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 3 Routine removal of the wellhead will be attempted during the PAP	C 1.4 Refer Section 6.7.1	PS 1.4 Refer Section 6.7.1	MC 1.4.1 Refer Section 6.7.1
EPO 4	C 1.3 Refer Section 6.7.1	PS 1.3 Refer Section 6.7.1	MC 1.3.1 Refer Section 6.7.1

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
No impact to benthic habitats greater than a consequence level of E28 inside the PAA during the PAP	C 4.1 Subsea infrastructure will be positioned within planned footprint to reduce seabed disturbance.	PS 4.1 All infrastructure will be placed within the design footprint within the PAA.	MC 4.1.1 As built survey reports verify location installation of equipment within the design footprint within the PAA.
		PS 4.1.2 Transponder equipment, including clump weights/ frames, will be removed at the end of the PAP.	MC 4.1.2 As left survey reports confirm temporary equipment is removed.
	C 4.2 Project specific Basis of Well Design, which includes an assessment of seabed sensitivity.	PS 4.2 MODU well site locations consider seabed sensitivities.	MC 4.2.1 Approved Basis of Well Design includes the assessment of seabed sensitivities.
	C 4.3 Project specific Mooring Design Analysis.	P 4.3 Seabed disturbance from MODU mooring limited to that required to ensure adequate MODU station holding capacity.	MC 4.3.1 Records demonstrate Mooring Design Analysis approved and implemented during anchor deployment.
	C 4.4 Pre-lay survey undertaken prior to installation of flowlines.	PS 4.4 Pre-lay survey will be undertaken prior to the installation of flowlines.	MC 4.4.1 Records demonstrate a pre-lay survey was undertaken prior to installation of flowlines.
EPO 22 No adverse impact to Underwater Cultural Heritage29 without a permit30.	C 22.1 Unexpected finds of potential Underwater Cultural Heritage31 sites/ features, including First Nations UCH are managed in accordance with the Unexpected Finds Procedure set out in Section 7.4.	PS 22.1 In the event that an Underwater Cultural Heritage site or feature is identified, implement the Unexpected Finds Procedure set out in Section 7.4	MC 22.1.1 No non-compliance with the Unexpected Finds Procedure.
	C 22.2 Relevant vessel and MODU crew will be advised in an induction of the potential to encounter UCH, and of their requirement to follow the Unexpected Finds Procedure (C 22.1).	PS 22.2 Relevant vessel and MODU crew are made aware of the requirements through the Unexpected Finds Procedure (C 22.1) through an induction.	MC 22.2.1 Induction records demonstrate vessel crew are made aware of potential to encounter UCH.
	C 22.3 Report any potential UCH finds to relevant stakeholders and authorities in accordance with	PS 22.3 Report any finds of potential UCH in accordance with the	MC 22.3.1 Records of potential UCH finds reported to relevant

[28] Defined as “slight and temporary effect on habitat (but not affecting ecosystems function)” as in Section 2.6.3.Table 2-3

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

[30] Permit for Entry into a Protected Zone or to impact Underwater Cultural Heritage would be acquired through the UCH Act.

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

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
	the Unexpected Finds Procedure, Underwater Cultural Heritage Act 2018 and the ATSIHP Act.	Unexpected Finds Procedure (Section 7.4) including to: WA Museum as requested during EP consultation. Australasian Underwater Cultural Heritage Database.	authorities and stakeholders.

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6.7.3 Routine Acoustic Emissions: Generation of Noise from MODU, Project Vessels and Positioning Equipment

Context		
Relevant Activities Project Vessels - Section 3.6 Drilling Activities – Section 3.10 Subsea Installation Activities - Section 3.11 Contingent Activities – Section 3.12	***Existing Environment*** Regional Context – Section 4.2 Protected Species – Section 4.6 Socio-economic Environment – Section 4.10	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Generation of acoustic signals from project vessels (MODU, PIV, IMR, AHVs and support vessels) during normal operations					X		A	F	-	-	LCS GP	Broadly Acceptable	EPO 5, 6
Generation of acoustic signals from DP systems on project vessels					X				-	-			
Generation of noise from suction piling, cutting of well infrastructure and contingency activities					X				-	-			

Description of Source of Impact

Vessel noise

A range of project vessels may be utilised to complete activities associated with the PAP (moored/DP MODU; Section 3.7.1), PIV (Section 3.7.2) AHV, IMR vessel and other general support vessels (Section 3.7.3).

The project vessels will generate noise both in the air and underwater, due to the operation of thrusters, engines, propeller movement, etc. Vessels, including the MODU (optional), AHV and general support vessels will use Dynamic Positioning (DP) where propellers and thrusters are used to hold position, rather than anchoring. These noise sources will contribute to and have the potential to 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 1µPa (rms SPL) under windy conditions (McCauley, 2005).

MODU Drilling Operations (moored)

During drilling operations, the MODU will produce low-intensity continuous sound. Sound produced from an active MODU is predominantly below 2 kHz, with peak frequencies below 500 Hz.

A range of broadband values, 59 to 185 dB re 1 µPa at 1 m (SPL), have been quoted for various MODUs (Simmonds et al., 2004). McPherson et al. (2021) recorded the source level spectrum of the Ocean Onyx, which is currently

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considered for this drilling campaign. The Ocean Onyx was measured to have a broadband (10 Hz to 31 kHz) source level of 175.4 dB re 1 µPa m whilst anchored and drilling. This source level is considered representative of the drilling activity for this EP and was used as one of the source inputs to inform sound transmission loss modelling commissioned by Woodside and conducted by JASCO (Stroot et al., 2022) to inform the underwater noise impact assessment at the Julimar South-1 well location. The measured source level for the Ocean Onyx is consistent with or slightly higher than levels recorded for other moored MODUs during drilling operations. For example, 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). Austin et al. (2018) recorded broadband source levels from MODU operations (excluding DP thrusters) to be 170.7 dB re 1 µPa.

The MODU is expected to be on location for approximately 60 days per well, with ~30 days allowed for well intervention activities (if required).

Project Vessels and MODU Operation on DP

Vessels used for the PAP are detailed in Section3.7, and include a number of DP capable vessels. The sound levels and frequencies generated by vessels varies with the size of the vessel, speed, engine type and the activity being undertaken. 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 (Ross, 1987, 1993).

Indicative DP MODU underwater noise measurements were taken for the West Aquarius MODU by JASCO on the Scotian Shelf in Canada (Wecker et al., 2022). 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.

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 (Gotz et al., 2009). In comparison, underwater sound levels generated by large ships can produce levels exceeding 190 dB re 1 µPa (Gotz 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 support and IMR vessels used for this PAP.

Indicative vessel noise for an offshore supply vessel (OSV) was modelled at the Julimar South-1 well location as outlined below. The well is considered representative of all wells in the PAP given the water depth (166 m) and similar physical characteristics (see Section 4.4).

Sound source levels for the OSV / IMR vessels were taken by JASCO from the Fugro Etive (Stroot et al., 2022). For the MODU resupply scenarios modelled, total broadband source levels for the Fugro Etive's thrusters (combined single source) are 187.6 dB re 1 µPa2m2. For the OSV on standby scenario while slowly transiting, the total broadband source level was 177.8 dB re 1 µPa2m2.

Sound Transmission Loss Modelling

Woodside commissioned JASCO (Stroot et al., 2022) to undertake sound transmission loss modelling at the Julimar South-1 well location for several scenarios, including anchored MODU drilling (water depth – 166.6 m) as well as a nominated OSV standby location (water depth – 150.2 m).

For DP vessel activities, prior modelling conducted by JASCO for Woodside drilling operations at the XNA02 well (Wecker, et al., 2022) including a MODU under DP was identified as a suitable analogue given similar water depths and location of the Pluto/Xena and Julimar fields.

These scenarios included several permutations of support vessels and the MODU undertaking drilling activities, used to inform the worst-case credible noise propagation scenarios (including concurrent activities).

Source levels representative of drilling and subsea installation scenarios

Source levels for relevant vessels that were used to inform the sound transmission loss modelling (Stroot et al., 2022; Wecker et al., 2022) are presented in Table 6-3.

The source sound levels were applied to the modelling scenarios for drilling and subsea installation activities.

Table 6-3: Vessel source levels used in the acoustic modelling for the PAP activities

Vessel	Sound Level (dB re 1 µPa².m².s)	Reference
Moored MODU	175.4	(Stroot et al., 2022)
MODU under DP	187.7	(Wecker et al., 2022)
OSV stationary under DP (resupply scenario)[1]	187.6	(Stroot et al., 2022)
OSV slow transit1	177.8	(Stroot et al., 2022)

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Note: 1 Representative of OSV, PIV and IMR vessel

Sound Transmission Loss Modelling Scenarios

The acoustic modelling scenarios used in this assessment are presented in Table 6-4 and Table 6-5.

Table 6-4: Summary of modelled scenarios for drilling activities at the JULA-P[32] well location (source: Stroot et al., 2022)

Scenario Number	Description
1	Anchored MODU Drilling (24h)
2	Anchored MODU Drilling (24h) + OSV on standby (24h)
3	Anchored MODU Drilling + OSV resupply, under DP (2h)
4	Anchored MODU Drilling (24h) + OSV resupply, under DP (8h)
5	Anchored MODU Drilling (24h) + OSV resupply, under DP (8h) + OSV on standby (24h)

Table 6-5: Summary of modelled scenarios at the Xena (XNA02) field as an analogue for DP operations (source: Wecker et al., 2022).

Scenario Number	Description
6	MODU under DP, drilling at XNA02 (24 hr)
7	MODU under DP, drilling at XNA02 (24 hr) + support vessel resupply, under DP (2 hr)
8	MODU under DP, drilling at XNA02 (24 hr) + support vessel resupply, under DP (8 hr)
9	MODU under DP, drilling at XNA02 (24 hr) + support vessel on standby (24 hr)
10	MODU under DP, drilling at XNA02 (24 hr) + support vessel resupply, under DP (8 hr) + support vessel resupply on standby (24 hr)

The acoustic modelling studies assessed distances from operations where underwater sound levels were predicted to drop below thresholds corresponding to behavioural response and 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.

The modelling methodologies 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, Lp), and as accumulated sound exposure levels (SEL, LE) 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 SEL24h 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 SEL24h 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 SEL24h 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.

Contingency Activities (Respud, Sidetrack, Intervention, Well Removal)

Contingency activities include a well respud or sidetrack and well intervention, which will involve the use of a MODU and vessels, plus drilling operations. Any acoustic emissions generated will be the same as those expected from the planned activities described above.

In the event a wellhead is removed under this EP scope, additional noise from the cutting of the surface casing and conductors is likely to be generated. Underwater noise associated with cutting (diamond wire) of subsea infrastructure is generally indistinguishable above background noise levels at lower frequencies, primarily detected at noise frequencies above 5 kHz (Pangerc et al., 2016). Quijano and McPherson (2021) estimated the source level of a diamond wire saw cutter at 169 dB re 1 µPa at 1 m. The casings and conductors will be cut below the mudline to enable wellhead recovery using either abrasive water jet cutting method, or mechanical cutting method.

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

[32] The Julimar South - 1 well was previously named JULA-P and is referred to as such in the Stroot et al. (2022) modelling report.

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of the wells for the duration of the activity. During xmas tree installation activities ultra-short baseline transponders (USBL) may be installed on the seabed or mounted to the wellhead as required by the subsea installation activities. Transmissions from USBL transponders are similar to LBL transponders.

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). 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 a DP MODU is on location.

Rig Anchor Release system

Should a hybrid MODU be utilised, Rig Anchor Release (RAR) moorings may be installed to allow the DP capable rig rapidly disengage from a mooring system. An RAR device will couple each of the moorings to the MODU (8 – 12 devices depending on mooring spread).

RAR devices typically emit pulses (impulsive noise) of low frequency, in the range of 9-11 kHz. Transmissions are expected to be limited to short pulses with a duration of minutes, during weekly testing. When activated to release moorings, they are expected to emit pulses of ~two minutes duration for each RAR.

Suction Piling

Suction piling may be required as a contingent activity for mooring installation. Unlike driven piles, suction piles greatly reduce noise generation, which is expected to be similar to continuous operational noise of a MODU when not actively drilling due to the noise only being generated from high rate pumps on the ROV conducting the suction piling. ROVs may also be used for other operations during the PAP (e.g. localised sediment removal around infrastructure and cleaning of infrastructure) resulting in lower levels of noise emissions, which are also temporary in nature.

Cumulative noise sources

Cumulative acoustic impacts have the potential to occur from IMR activities in the field, such as on the JULA production manifold, which may result in slightly elevated acoustic levels. Typical IMR activities consist of one project (IMR type) vessel that may be on location for approximately two days and are not expected to significantly increase impacts to marine fauna. Decommissioning of the Julimar South-1 appraisal well may take place in concurrence to the PAP, consisting of one decommissioning vessel (IMR type), potentially adding to the cumulative noise footprint for approximately two days. The IMR and decommissioning activities mentioned above are not expected to occur concurrently, though both may overlap the drilling and/or installation aspects of this PAP.

Impact Assessment

Potential impacts to environmental values

Receptors

The PAA is located in water depths of approximately 120 - 300 m (refer to Section 3.3). The fauna associated with this area will be predominantly pelagic species of fish and cetaceans, with migratory species such as cetaceans, marine turtles and whale sharks potentially occurring in the area seasonally (Section 4.6). Anthropogenic noise interference is a key threat to a number of migratory and threatened cetaceans, marine turtles and whale sharks identified as potentially occurring within the PAA, including the pygmy blue whale. Relevant actions included in recovery plans for these species are outlined in Section 6.

A pygmy blue whale migration BIA overlaps with the PAA (Section 4.6.3). Individual whales may transit the PAA during April to July and October to January during their seasonal migrations.. A humpback whale migration BIA is ~20 km east of the PAA (Section 4.6.3) and it is possible migrating individuals may transit through the PAA between May to November.

A flatback turtle internesting buffer BIA, and Habitat Critical overlap with the PAA. Green, loggerhead and hawksbill turtle interesting buffer BIAs at the Montebello Islands are 20 km, 33 km and 25 km east of the PAA respectively. Given the water depths and distance from shore, the PAA does not represent suitable foraging or internesting habitat. Satellite tracking of flatback turtle nesting populations (Barrow Island and mainland sites) indicates this species travels to the east of Barrow Island between nesting events, within WA mainland coastal waters less than 70 m deep (Chevron Australia Pty Ltd, 2015).

A whale shark foraging BIA overlaps with the PAA (with peak numbers expected March to July).

Two KEFs overlap the PAA: The Continental Slope Demersal Fish Communities KEF and the Ancient Coastline at 125 m depth contour (Figure 4-10). 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. The Ancient Coastline KEF is valued as a unique seafloor feature, with ecological properties of regional significance (DEWHA, 2008).

One marine protected area is located within the area where noise is expected to be above impact thresholds for behavioural impact and TTS impact to low-frequency cetaceans, this is the Montebello AMP. No other marine protected areas are expected to overlap areas where impact thresholds would be exceeded.

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Acoustic emissions from the PAP have the potential to impact the values of the Montebello AMP, which have been assessed further below.

Potential Impact of Noise

Elevated underwater noise can affect marine fauna, including cetaceans, marine turtles, fish, sharks and rays, in three main ways (Richardson et al., 1995; Simmonds et al., 2004):

- by causing direct physical effects on hearing or other organs. Hearing loss may be temporary (temporary threshold shift [TTS]; referred to as auditory fatigue), or permanent threshold shift (PTS; injury);
- by masking or interfering with other biologically important sounds (including vocal communication, echolocation, signals and sounds produced by predators or prey); and
- through disturbance leading to behavioural changes or displacement from important areas (e.g. BIAs). The occurrence and intensity of disturbance is highly variable and depends on a range of factors relating to the animal and situation.

Sound Propagation

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

Species Sensitivity and Thresholds

Marine mammals and especially cetaceans rely on sound for important life functions including individual recognition, socialising, detecting predators and prey, navigation and reproduction (Weilgart, 2007; Erbe et al., 2015; Erbe et al., 2018). 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; Rolland et al., 2012).

The thresholds that could result in a behavioural response, TTS and PTS for cetaceans as a result of continuous and impulsive noise sources are presented in Table 6-6. 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.

Table 6-6: Thresholds for PTS, TTS and behavioural response onset for low-frequency (LF),high-frequency (HF) and very high frequency (VHF) cetaceans for continuous and impulsive noise.

Hearing group	Impulsive			Continuous		
	PTS onset thresholds: SEL24h (dB re 1 µPa².s)	***TTS onset thresholds: SEL24h (dB re 1 µPa².s)***	***Behavioural response (dB re 1 µPa)***	***PTS onset thresholds: SEL24h (dB re 1 µPa².s)***	***TTS onset thresholds: SEL24h (dB re 1 µPa².s)***	***Behavioural response (dB re 1 µPa)***
LF cetaceans	183	168	160	199	179	120
HF cetaceans	185	170	160	198	178	120
VHF cetaceans	173	153	160	173	153	120

Source: NMFS (2014, 2018; Southall, 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 PAA is located within the eastern perimeter of the pygmy blue whale migration BIA, with the nearest foraging BIA (Ningaloo possible foraging area) approximately 217 km to the south of the PAA. 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 PAP must not:

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- Result in injury[33] (TTS or PTS) to any pygmy blue whale in BIAs; or
- Displace a pygmy blue whale from a foraging BIA.

Predicted Underwater Noise Impacts to Cetaceans

Results - Modelling of a Moored MODU.

A sound transmission loss modelling study was conducted by JASCO for several scenarios at the analogous Julimar South-1 well location (water depth – 166.6 m) as well as a nominated OSV standby location (water depth – 150.2 m), as outlined in Table 6-4 above (Stroot et al., 2022). The modelling study indicated that exceedances of the PTS and TTS thresholds for low frequency (LF) cetaceans may occur out to a maximum of 0.07 km and 0.92 km respectively (Table 6-7). For HF and VHF cetaceans, the maximum distances at which sound levels dropped below PTS and TTS thresholds were 0.21 km and 2.76 respectively.

During normal operations (the moored MODU drilling with an OSV on standby – Scenario 2), the minimum distance to the TTS threshold is 0.23 km, 0.09 km and 2.57 km for LF, HF and VHF cetaceans respectively. The PTS threshold was only exceeded for VHF for Scenario 2, at a maximum distance of 0.15 km (Table 6-7).

As described above, the PTS and TTS thresholds are based on a cumulative metric that that reflects the dosimetric impact of noise levels over a 24 hour period based on the assumption that an animal is consistently exposed to such noise levels at a fixed position. It is not expected that individual LF and HF cetaceans that may pass through the PAA during the drilling program would experience PTS or TTS, given individuals would need to remain within 70 m (PTS) and <1km (TTS) of the drilling activity for a period of 24 hours. Similarly, it is highly unlikely that any VHF cetaceans would experience PTS or TTS.

The behavioural response threshold may be exceeded at a maximum of 8.85 km from the PAA (3.57 km during normal operations).

Table 6-7: Thresholds for PTS, TTS and behavioural response onset thresholds for cetaceans and marine turtles based on Southall et al. (2019) and Finneran et al. (2017)[1].

Hearing group	Frequency-weighted SEL24h threshold (LE,24h; dB re 1 µPa²·s)	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
		Rmax (km)	Rmax (km)	Rmax (km)	Rmax (km)	Rmax (km)
PTS						
Low-Frequency (LF) cetaceans	199	–	–	0.05	0.07	0.07
High-frequency (HF) cetaceans	198	–	–	0.04	0.05	0.02
Very High-frequency (VHF) cetaceans	173	0.15	0.15	0.19	0.21	0.19
Marine Turtles	220	-	-	0.03	0.01	-
TTS						
Low-Frequency (LF) cetaceans	179	0.23	0.23	0.42	0.84	0.92
High-frequency (HF) cetaceans	178	0.09	0.09	0.12	0.15	0.13
Very High-frequency (VHF) cetaceans	153	1.42	2.57	1.50	1.73	2.76
Marine Turtles	200	-	-	0.05	0.05	0.07
Behavioural response						
Cetaceans	120	1.07	3.57	8.25*		8.85

[33] For the purpose of interpreting and applying Action Area A.2 of the Blue Whale CMP, injury is both permanent and temporary hearing impairment (Permanent Threshold Shift and Temporary Threshold Shift) and any other form of physical harm arising from anthropogenic sources of underwater noise (DAWE, 2021).

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**Scenario 4 has been omitted from Table 6-7 because Scenario 4 differs to Scenario 3 only by the time duration, and the SPL sound footprints represent the instantaneous sound field, independent on accumulation time. A dash indicates the level was not reached within the limits of the modelled resolution (20 m).*

1. Scenario descriptions are given in Table 6-4.

Source: Stroot et al (2022)

Results - Modelling of a DP MODU

The analogous sound transmission loss modelling study by JASCO for a MODU on DP (Wecker et al., 2022) indicated that the PTS and TTS thresholds for low frequency (LF) cetaceans may be exceeded out to a maximum of 0.13 km and 2.66 km respectively across the scenarios modelled (Table 6-8). For HF and VHF cetaceans, the maximum distances at which sound levels dropped below PTS and TTS thresholds were 0.15 km (PTS) and 2.63 km respectively. During normal operations (MODU on DP with a support vessel on standby - Scenario 9), the maximum distance at which the TTS threshold is exceeded is 2.17 km, 0.09 km and 2.44 km for LF, HF and VHF cetaceans respectively. For PTS, the maximum distance at which the threshold is exceeded is 0.08 km, 0.02 km and 0.11 km for LF, HF and VHF cetaceans respectively.

As described above, the radii that represent potential for PTS and TTS onset are based on a 24 hour period of exposure and therefore represent an unlikely worst-case scenario since, more realistically, cetaceans would not stay in the same location or at the same range for 24-hours. It is not expected that individual LF, HF and VHF cetaceans that may pass through the PAA during DP vessel operations, would experience PTS, given individuals would need to remain within 150 m of the drilling activity for a period of 24 hours. TTS onset is also considered highly unlikely given the known movement behaviour of cetaceans including key migrating LF whale species such as the pygmy blue whale and humpback whale transiting through the PAA. The PAA is not known to represent significant foraging/aggregation habitat for cetaceans and individuals are not expected to linger within the PAA for extended periods.

The behavioural response threshold may be exceeded at a maximum of 20.7 km from PAA (17.2 km during normal operations).

Table 6-8: Thresholds for PTS, TTS and behavioural response onset thresholds for cetaceans and marine turtles based on Southall et al. (2019) and Finneran et al. (2017)[1].

Hearing group	Frequency-weighted SEL24h threshold (LE,24h; dB re 1 µPa²·s)	Scenario 6	Scenario 7	Scenario 8	Scenario 9	Scenario 10
		Rmax (km)	Rmax (km)	Rmax (km)	Rmax (km)	Rmax (km)
PTS						
Low-Frequency (LF) cetaceans	199	0.08	0.11	0.13	0.08	0.13
High-frequency (HF) cetaceans	198	0.02	0.07	0.09	0.02	0.09
Very High-frequency (VHF) cetaceans	173	0.11	0.13	0.15	0.11	0.15
Marine Turtles	220	0.02	0.07	0.09	0.02	0.09
TTS						
Low-Frequency (LF) cetaceans	179	1.87	2.12	2.57	2.17	2.66
High-frequency (HF) cetaceans	178	0.09	0.11	0.13	0.09	0.13
Very High-frequency (VHF) cetaceans	153	2.31	2.35	2.51	2.44	2.63
Marine Turtles	200	0.1	0.11	0.14	0.10	0.14
Behavioural response						
Cetaceans	120	17.1	20.5	17.2	20.7	

Source: Wecker et al. (2022)

1. Scenario descriptions are given in Table 6-5.

Impact Assessment

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

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to underwater noise generated by a vessel (Dunlop et al., 2015), and pygmy blue whales may exhibit similar responses.

Opportunistic foraging by pygmy blue whales is not predicted to occur in the PAA based on current and available data. 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 on 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 PAA is located. Hence, it cannot be reasonably predicted that pygmy blue whale foraging is probable in the PAA. Furthermore, all of the 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 cetaceans are predicted to occur based on modelling presented above.

Humpback whales occur in the region, with a migration BIA located 20 km south of the PAA. 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 extent of the migration BIA (RPS Environment and Planning, 2010).

The PAA is surrounded by open water, with no restrictions (e.g., shallow waters, embayments) to an animal's ability to avoid the activities. Behavioural responses by cetaceans (such as pygmy blue whales and humpback 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. Furthermore, MODU activities are scheduled to last approximately 60 days per well (noting that up to five new wells may be drilled; wells may be developed as a single campaign or a second shorter campaign may be required), with ~30 days allowed for intervention activities.

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 marine fauna. Therefore, potential impacts from transponder noise are likely to be restricted to temporary and localised avoidance behaviour of individuals transiting through the PAA, and therefore are considered localised with no lasting effect.

Potential impacts from predicted noise levels from the MODU, project vessels and transponders are not considered to be ecologically significant at a population level.

Marine Turtles

Species Sensitivity and Thresholds

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 (Bartol and Musick, 2003). Lenhardt (1994) observed marine turtles avoiding low-frequency sound.

Acute noise, or temporary exposure to loud noise, may result in the avoidance of important habitats and in some situations physical damage to marine turtles. McCauley et al. (2000) observed the behavioural response of caged sea turtles—green (Chelonia mydas) and loggerhead (Caretta caretta)—to an approaching seismic airgun. For received levels above 166 dB re 1 µPa, the turtles increased their swimming activity and above 175 dB re 1 µPa (SPL) they began to behave erratically, which was interpreted as an agitated state. No numerical thresholds have been developed for behavioural impacts of continuous sources (e.g. vessel noise) on marine turtles. A Popper et al. (2014) review assessed thresholds for marine turtles and found qualitative results that the risk of behavioural disturbance was high for near field exposure, moderate for intermediate exposure and low for far field exposure (Popper et al., 2014).

Sound exposure thresholds and criteria for continuous sound sources (e.g. vessel noise) and impulsive sources (e.g. transponders) applicable to marine turtles are summarised in Table 6-9.

Table 6-9: Thresholds for PTS, TTS and behavioural response onset in marine turtles for continuous and impulsive noise

Hearing group	Impulsive			Continuous		
	PTS onset thresholds: SEL24h (dB re 1 µPa².s)	***TTS onset thresholds: SEL24h (dB re 1 µPa².s)***	***Behavioural response (dB re 1 µPa)***	***PTS onset thresholds: SEL24h (dB re 1 µPa².s)***	***TTS onset thresholds: SEL24h (dB re 1 µPa².s)***	***Behavioural response (dB re 1 µPa)***
Marine turtles	204	189	166*	220	200	(N) High

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			175+			(I) Moderate (F) Low#

*Source: PTS and TTS thresholds (Finneran et al., 2017), * behavioural response threshold (impulsive) (NSF 2011), + behavioural disturbance threshold (impulsive) (McCauley et al. 2000), # behavioural response threshold (continuous) (Popper et al. 2014),*

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).

Impact Assessment

The Recovery Plan for Marine Turtles (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 6-9, it is reasonable to expect that marine turtles may demonstrate avoidance or attraction behaviour to the noise generated by the PAP. Sound transmission loss modelling indicated that the potential for PTS and TTS onset would be limited to within tens of meters of drilling activity, and up to 140 m (TTS) during DP vessel activities (Table 6-7 and Table 6-8). However, marine turtles within the PAA are expected to be transient, and unlikely to remain within 140 m of the vessels for 24-hours, and therefore PTS and TTS thresholds are not expected to be reached. Behavioural impacts to marine turtles from continuous noise sources generated by the PAP are expected to be short-term and localised.

Given the water depths and distance from shore, the PAA does not represent suitable foraging or internesting habitat. The PAA overlaps a flatback turtle internesting Habitat Critical, which is also designated a BIA. However, it is noted that the defined BIA and Habitat Criticals 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. For example, 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). There is no available data to indicate flatback turtles swim out into deep offshore waters during the internesting period. Hence it is considered highly unlikely that the PAA is utilised by internesting flatback turtles.

Marine turtle presence in general 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, intermittent and localised, if they occur and are not considered to be ecologically significant at a population level.

Fish, Sharks and Rays

Species Sensitivity and Thresholds

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; these are presented in Table 6-10 and are considered appropriate to assess continuous acoustic discharges to fish from the PAP.

Table 6-10: Impact thresholds to fish, sharks and rays for continuous noise

Receptor	Mortality and potential mortal injury	PTS	TTS	Masking	Behaviour
Fish: no swim bladder	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
Fish: swim bladder not involved in hearing	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Moderate (I) Low (F) Low	(N) High (I) High (F) Moderate	(N) Moderate (I) Moderate (F) Low
Fish: swim bladder involving hearing	(N) Low (I) Low (F) Low	170 dB rms SPL for 48-hours	158 dB rms SPL for 12-hours	(N) High (I) High (F) High	(N) High (I) Moderate (F) Low
Fish eggs and fish larvae	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) Low (I) Low (F) Low	(N) High (I) Moderate (F) Low	(N) Moderate (I) Moderate (F) Low

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Note: The sound units provided in the table above include relative risk (high, medium and low) is given for fish (all types) 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).

Impact Assessment

Given the thresholds outlined in Table 6-10, it is reasonable to expect that fish, sharks and rays may demonstrate avoidance or attraction behaviour to the noise generated by the PAP. However, potential impacts from predicted noise levels from the project vessels (including MODU and support vessels) are not considered to be ecologically significant at a population level.

A number of demersal and pelagic fish species will be present within the PAA which overlaps the Continental Slope Demersal Fish Communities KEF and Ancient Coastline at 125 m depth contour KEF, as described in Section 4.7. However, given species richness has been shown to correlate with habitat complexity (Gratwicke and Speight, 2005), it is unlikely that the soft sand/silt sediments that comprise the largest proportion of the PAA 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 PAA overlaps a foraging BIA for whale sharks (Section 4.6.1), however it 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 given the wide bounds of the route and its open nature, this should not result in altered movement patterns outside of the norm.

Given the thresholds outlined in Table 6-10, it is reasonable to expect that fish, sharks and rays may demonstrate avoidance or attraction behaviour to the noise generated by the PAP. However, potential impacts from predicted noise levels from the project vessels (including MODU and support vessels) are not considered to be ecologically significant at a population level.

Marine Protected Areas

Sound modelling showed that acoustic emissions from the PAP could be above impact thresholds as far as 20.7 km from the source (Scenario 9). Within 20.7 km of the noise source there is one marine protected area, the Montebello AMP. The values of the Montebello AMP are listed in the North-west Marine Parks Management Plan and those that are relevant to impacts from acoustic emissions are:

- Natural Values
  - Humpback whale migration BIA
  - Internesting, foraging, mating and nesting for marine turtle (flatback and green turtles)
  - Whale shark foraging BIA
  - Diverse fish communities
- Cultural Values
  - None specifically relevant to acoustic emissions, beyond cultural values associated with the species listed under “Natural Values”
- Heritage Values
  - None specifically relevant to acoustic emissions
- Social and Economic Values
  - None specifically relevant to acoustic emissions

Each of the relevant natural values of the Montebello AMP have been assessed in the sections above. Noise modelling shows that the only impact thresholds that are expected to be reached 1 km from the noise source (where the Montebello AMP is located), and which are relevant to the values of the Montebello AMP are:

- Behavioural responses to low frequency cetaceans i.e. humpback whales
- TTS to low frequency cetaceans i.e.. humpback whales

For the reasons outlined above, it is expected that there will be localised impacts with no lasting effects on cetaceans from the PAP and therefore the PAP is not inconsistent with the values of the Montebello AMP.

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Contingent Cutting of Wellhead

Twachtman et al. (2004) concluded that mechanical cutting and abrasive water jetting, as well as diamond wire cutting methods, are generally considered harmless to marine life and the environment. Similarly, Pangerc et al. (2016) found that the sound radiated from the diamond wire cutting of the conductor was not easily discernible above the background noise at the closest recorder located at 100 m from the source. The sound that could be associated with the diamond wire cutting was primarily detectable above the background noise at the higher acoustic frequencies (above around 5 kHz) (Pangerc et. al., 2016) above the hearing range of low frequency cetaceans. Background noise was attributed to surface vessel activity such as dynamic positioning. Any noise propagating at seabed from either abrasive water jet cutting or mechanical cutting of the wellhead casing and conductors is likely to attenuate to levels at, or close to background ambient levels within <100 m of the source, with ambient levels being significantly elevated by the concurrent presence of a DP vessel immediately above the wellhead location. As such, noise from the cutting of the casing and conductors will not add to cumulative noise levels.

Cumulative Impacts

As identified above, the PAP for this EP may result in concurrent vessel activities, with a maximum of three vessels and the MODU for a short duration in the Well Operational Area. This scenario may occur if xmas tree installation is undertaken by an IMR vessel opposed to the MODU, which is expected to take approximately two to three days per well.

Additionally, the PAP may be undertaken concurrently with separate activity programs such as IMR activities on the JULA production manifold and the decommissioning of the Julimar South-1 appraisal well under the Julimar Operations and Julimar South-1 Appraisal Drilling EPs, respectively.

If concurrent scenarios eventuate, there is the potential for cumulative impacts from underwater noise emissions associated with vessel thrusters while vessels are operating in proximity of each other. It is not expected that the vessels servicing separate activities would be alongside each other thereby limiting the potential for cumulative impacts resulting in injury to sensitive fauna. However, the combined sound fields may result in a marginal increase in the maximum range to the behavioural response threshold for LF cetaceans described above (i.e. >20 km).

The PAA is surrounded by open water, with no restrictions (e.g. shallow waters, embayments) to an animal's ability to avoid the activities. Consequently, if concurrent activities coincide with seasonal migrations, any pygmy blue whales or humpback whales transiting through the area, may deviate slightly from their migration route, but can continue on their migration pathway though biologically significant impacts are not anticipated. Cumulative modelling outlined above predicted PTS onset within a maximum of 130 m and TTS onset within a maximum of 2.66 km for a combination of two vessels and the MODU (on DP and drilling) during a resupply scenario (i.e. in close proximity). Further, PTS and TTS criteria exceedances are based upon exposure for 24-hours by a stationary receptor. Any overlap of this PAP with IMR activities and Julimar South-1 wellhead decommissioning is expected to be in the order of days. If it eventuates that concurrent Xmas tree installation by an IMR vessel occurs, the temporal overlap would be similarly brief. Therefore, potential cumulative impacts resulting in injury to mobile sensitive fauna is not expected to occur.

For these reasons there is also not expected to be cumulative impacts on marine protected areas, particularly on the values of the Montebello AMP.

Summary of Potential Impacts to environmental values(s)

It is considered that noise generated by the MODU and project vessels will result in localised impacts with no lasting effects (i.e. Environment Impact – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[34]	*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[35]: Project vessels will not travel greater than	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	Controls based on legislative requirements – must be adopted.	Yes C 5.1

[34] Qualitative measure

[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.

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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.		interaction above significant thresholds		
Good Practice				
Implement adaptive management procedure prior to: • resupply vessel moving alongside the MODU and PIV within the PAA, during daylight hours. • MODU departing well location (excludes kedging).	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.	Implementation of adaptive management where pygmy blue whales (or large unidentified whales) are observed means a new noise source (vessel) is not introduced while pygmy blue whales are sighted. Restricting the introduction of new noise sources when pygmy blue whale presence is detected could lower likelihood of disturbance to pygmy blue whales so as to not be inconsistent with the Blue Whale Conservation Management Plan.	Benefits outweigh cost/ sacrifice.	Yes C 6.1
Collect data on opportunistic sightings of pygmy blue whales to gauge presence and behaviour.	F: Yes CS: Time / Cost associated with person used for observations and in data collection.	Collecting data on pygmy blue whale presence and behaviour may assist in increasing understanding of their activity in the PAA to inform future activities and support environmental knowledge.	Benefits outweigh cost/sacrifice.	Yes C 6.2

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Implement speed limitations when safe[36] to do so for MODU and PIV within the PAA.	F: Yes, within the limits of navigational safety. CS: Time / Cost associated with slower transit speed.	Given the PAA overlaps the pygmy blue whale migration BIA and introduction of vessel noise may present behavioural disturbance risk to migrating pygmy blue whales, reducing vessel speed can result in reduced underwater noise emissions and overall reduction in potential behavioural disturbance. Additionally, reducing speed to 6 knots is consistent with the EPBC Regs 2000 – Part 8 Division 8.1, interacting with cetaceans, under which project vessels are not to travel greater than 6 knots within 300 m of a cetacean. Application of this speed restriction for the MODU and PIV within the PAA is considered to be a precautionary approach to reducing vessel noise and potential disturbance to cetaceans.	Benefit outweighs cost/sacrifice.	Yes C 6.3
Stop or deviate from course[37] if pygmy blue whale (or large unidentified whale) observed during entry of a hybrid/DP MODU and PIV to the PAA.	F: Yes. If a whale is observed during mobilisation into the PAA, the MODU (if under own propulsion) and PIV could deviate course away from the whale and delay mobilisation. CS: Time/ cost associated with deviating and delay to mobilisation into the PAA.	Deviating course may reduce potential behavioural disturbance associated with vessel noise.	Benefit outweighs cost/sacrifice.	Yes C 6.4
Stop or deviate from course if pygmy blue whale (or large unidentified whale) observed during entry of a moored MODU into the PAA.	F: No. Stopping or deviating the MODU in an unplanned manner if a pygmy blue whale or large unidentified whale is observed may reduce potential behavioural disturbance associated with vessel noise. However, the action would significantly	Not considered – introduces unacceptable safety risk.	Not considered – introduces unacceptable safety risk.	No

[36] Vessel speeds are at the ultimate discretion of the vessel master, noting speed limitations may be exceeded from time to time to maintain safe navigation.
[37] Unless deemed navigationally unsafe by the vessel master.

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	increase the safety risk profile of the mobilisation activity through reactive interruption of planned course by vessels towing MODU into field. CS: Introduces unacceptable safety risk.			
Use of additional detection controls (e.g., drones for aerial observations, Passive Acoustic Monitoring for use at night, thermal imaging for use at night) to Identify cetacean presence.	F: Yes CS: Time / cost associated with additional personnel and technology onboard vessels. Due to PAA distance offshore actual observation times are limited by fuel availability - larger fuel capacity associated with larger aircraft increases cost of the exercise	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). Additional detection methods would not result in a reduction in the potential consequence level.	Disproportionate. The cost/ sacrifice outweighs the benefit gained. Adequate observations are able to be made from the MODU bridge due to the height and surveillance by trained crew. It is not expected that additional technologies would add significantly more value than this to warrant deployment.	No
The use of dedicated Marine Fauna Observers (MFOs) on project vessels for the duration of the PAP 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 as MFOs will monitor for pygmy blue whale presence prior to resupply/support vessel moves alongside the MODU and PIV, additional MFOs would not further reduce the likelihood of an individual being within close proximity of the acoustic source during introduction of sounds related to DP or during operations.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No
Implement adaptive management procedure prior to: • Hybrid MODU energising (turning on) DP system within the PAA.	F: No, a DP assist, or thruster assist rig is held into position by a mooring spread and may be supplemented by a thruster assisted mooring system. the DP system will be energised and available for emergency use but not planned for use in regular operations. The system operates such	Not considered – control not feasible.	Not considered – control not feasible.	No

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	that thrusters engage automatically in response to metocean conditions using feedback (signals) from the mooring system. Therefore, it is not feasible to predict when this will occur and hence, pre-emptively apply adaptive management procedures. CS: N/A			
Professional Judgement – Eliminate				
Remove support vessel on standby at the PAP location.	F: No. Activity support vessel required as per MODU Safety Case, particularly for maintaining the 500 m safety exclusion zone around the MODU and relevant vessels. CS: Introduces unacceptable safety risk.	Not considered – control not feasible.	Not considered – control not feasible.	No
Eliminate generation of noise from the MODU, installation vessel, support vessels or 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 PAP. Loss of project.	Not considered – control not feasible.	Not considered – control not feasible.	No
Use professional MFOs in lieu of trained crew to observe for pygmy blue whales.	F: Yes CS: The cost of implementing dedicated MFOs during vessel activities would be tens of thousands of dollars and expose additional personnel to the health and safety risks of working at sea. The cost is grossly disproportionate to the environmental benefit.	The environmental benefit of having dedicated professional MFOs is a potential increase in the likelihood of detecting pygmy blue whales at the species level, which then permits actions to maintain separation as per the adaptive management procedure. Trained crew will watch for marine fauna during the petroleum activity. Trained crew will implement adaptive management measures if a pygmy blue whale or large unidentified whale is observed. Therefore whilst there is an increased likelihood	Disproportionate. The cost/ sacrifice outweighs the benefit gained.	No

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		for professional MFO's to detect pygmy blue whales from other large whale species, the ability to identify marine fauna in comparison with trained crew is negligible.		
Professional Judgement – Substitute				
Management of vessel noise by varying the timing of the PAP to avoid migration periods.	F: Yes. Migration periods for cetaceans that may occur in the PAA (pygmy blue and humpback whales) are well known. CS: Significant cost and schedule impacts if activities avoid specific timeframes	Avoiding migration periods would reduce the likelihood of impacts to cetaceans. However, given that the predicted impacts from noise sources associated with the PAP are considered to be localised with no lasting effect, the overall benefit is minimal.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No
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, Woodside considers the adopted controls appropriate to manage the impacts and risks of noise emissions. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that the generation of noise from the MODU, project vessels and positioning equipment is unlikely to result in an impact greater than no lasting effect. Relevant recovery plans and conservation advice have been considered during the impact assessment. The Conservation Management Plan for the Blue Whale (Commonwealth of Australia 2015a) Interim Recovery Objective is that 'Anthropogenic threats are demonstrably minimised' with the following Action Area A.2.3: "Anthropogenic noise in biologically important areas will be managed such that any blue whale continues to utilise the area without injury, and is not displaced from a foraging area". The associated Guidance on Key Terms within the Blue Whale Conservation Management Plan (DAWE, 2021) provides further clarification that 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). While drilling activities occur inside the PBW migration BIA, the impact assessment determined it is not expected that individual PBW that may pass through the PAA during the drilling program would experience PTS or TTS, given individuals would need to remain within 0.13km (PTS) and 2.66km (TTS) of the drilling activity for a period of 24 hours (Stroot et al., 2022; Wecker et al., 2022), an unlikely occurrence given the known movement behaviour of pygmy blue whales. In addition, with the adoption of adaptive management controls (C 6.1), the activity will be managed to prevent unacceptable impacts of underwater anthropogenic noise on pygmy blue whales such that they will not be prevented from displaying biologically important behaviours and is therefore not inconsistent with the Interim Recovery Objective (Section 6.9).

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 acoustic emissions to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*

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EPO 5 No impact to marine fauna from noise emissions greater than F[38].	C 5.1 EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans, including the following measures[39]: Project vessels will not deliberately approach greater than 6 knots within 300 m of a cetacean or turtle (caution zone) and not deliberately approach closer than 100 m from a whale. Project vessels will not deliberately 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 deliberately approach 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 5.1 Compliance with EPBC Regulations 2000 – Part 8 Division 8.1 (Regulation 8.05 and 8.06) Interacting with cetaceans	MC 5.1.1 Records demonstrate no breaches with EPBC Regulations 2000 – Part 8 Division 8.1 Interacting with cetaceans. MC 5.1.2 Induction materials include relevant marine fauna caution and no approach zone requirements.
EPO 6 Undertake the PAP in a manner that does not cause acoustic injuries or prevent biologically important behaviours to pygmy blue whales.	C 6.1 Implement adaptive management procedure prior to: • Resupply vessel moves alongside MODU and/or PIV during daylight hours. • MODU departing well location (excludes kedging).	PS 6.1 Implement adaptive management procedure during daylight hours. Adaptive management procedure to include: • Trained crew as marine fauna observers monitor for pygmy blue whales or large unidentified whales for 30 minutes prior to: – resupply vessel moves alongside the MODU and/or PIV within the PAA. – MODU departing well location (excludes kedging). Proceed with move only when no pygmy blue whales or large unidentified whales have been sighted, to the limits of visibility, over the 30-minute monitoring period.	MC 6.1.1 Records demonstrate crew acting as marine fauna observers receive suitable training in detecting marine fauna, including cetaceans, whale sharks and turtles. MC 6.1.2 Records demonstrate trained crew on watch prior to resupply vessel moves alongside the MODU and/or PIV or MODU departs well location in the PAA. MC 6.1.3 Records demonstrate when pygmy blue whale, or large unidentified whale are present, resupply activities moves have not commenced and/or MODU did not depart well location.

[38] Defined as ' Environment – no lasting effect less than one month); localised impact not significant to environmental receptors' as in Table 2-3/ Section 2.6.3**.**

[39] 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.

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	C 6.2 Collect data on opportunistic sightings of Pygmy Blue Whales to gauge presence and behaviour.	PS 6.2 Process developed for collecting PBW sighting data PBW sighting data sent to relevant organisations as required (i.e. Australian Marine Mammal Centre (AMMC)).	MC 6.2.1 Records demonstrate process developed and communicated to crew for collection of Pygmy Blue Whale sighting data.
	C 6.3 Implement speed limitations when safe[40] to do so for MODU and PIV within the PAA.	PS 6.3 Vessel speed limitations (6 knots) adhered to by MODU and PIV while in the PAA, within the limits of navigational safety.	MC 6.3.1 Records show MODU and PIV travelled at or below 6 knots within the PAA, within the limits of navigational safety.
	C 6.4 MODU (if DP or hybrid and under own propulsion) / PIV stop or deviate from course[41] if pygmy blue whale (or large unidentified whale) observed during entry to the PAA.	PS 6.4 MODU (if DP or hybrid and under own propulsion) / PIV stops or deviates from course if pygmy blue whale (or large unidentified whale) observed during entry to the PAA.	MC 6.4.1 Records show hybrid/DP MODU and/or PIV stopped or deviated if pygmy blue whale (or large unidentified whale) observed during entry to the PAA.

[40] Vessel speeds are at the ultimate discretion of the vessel master and speed restrictions may need to be exceeded from time to time to maintain safe navigation.
[41] Unless deemed navigationally unsafe by the vessel master.

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6.7.4 Routine and Non-Routine Discharges: MODU and Project Vessels

Context		
Relevant Activities Project Vessels - Section 3.7	***Existing Environment*** Regional Context – Section 4.2 Protected Species – Section 4.6	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Routine discharge of sewage, grey water and putrescible wastes to marine environment from MODU, and project vessels		X			X		A	F	-	-	LCS	Broadly Acceptable	EPO 7
Routine discharge of deck and bilge water to marine environment from MODU, installation vessel and support vessels		X			X				-	-			
Routine discharge of brine or cooling water to the marine environment from MODU, installation vessel and support vessels.		X			X				-	-			

Description of Source of Impact

Vessel and MODU Operations

Sewage, grey water and putrescible wastes

The MODU, installation vessel and support 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 m3 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 the installation vessels, AHV and support vessels will have considerably less persons on board.

Deck and bilge water

The MODU/PIV and support 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/PIV. Bilge water can contain water, oil, detergents, solvents, chemicals, particles, biocides and other liquids, solids or chemicals.

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- Variable water discharge from MODU/PIV/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 desalination 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, 2014).

Models developed by the US EPA (Frick et al., 2001) for temporary brine discharges from vessels assuming no ocean current (i.e. 0 m/s) found 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 m³/d.

Environmental risks relating to the unplanned disposal/discharges are addressed in Section 6.8.5.

Impact Assessment

Potential impacts to environmental values

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 its Torosa-4 Appraisal Drilling campaign which demonstrated that a 10 m³ 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 m, 100 m and 200 m downstream of the platform and at five different water depths confirmed that discharges were rapidly diluted; 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, 2011). Mixing and dispersion would be further facilitated in deep offshore waters, consistent with the location of the PAA, 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 PAP will result in no lasting change to water quality.

Activities associated with the PAP will occur over a period of three years (2024-2027), however actual project activities will occur as separate campaigns over the entire PAP (refer Section 3.5 for timing). Vessels will also be moving (i.e. not in a single location for an extended period of time). Rather, these routine discharges are expected to be intermittent in nature for the duration of the PAP. Therefore, impacts to water quality from discharge of sewage, grey water and putrescible wastes within the PAA are expected to be localised with no lasting effect.

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 to ambient water quality; however, these

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discharges are expected to rapidly dilute in the water column (Shell, 2010). 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 small quantities involved, the expected localised mixing zone and high level of dilution into the open water marine environment of the PAA. The PAA involved is located more than 12 nm from land, which exceeds the exclusion zones required by Marine Order 96 (Marine pollution prevention – sewage) 2018 and Marine Order 95 (Marine pollution prevention – garbage) 2013.

Based on the detailed evaluation, the magnitude of potential impact of a change in water quality is no lasting effects.

Brine and cooling water

The key physicochemical stressors that are associated with reject brine and cooling water discharge include salinity, pH, temperature and chemical toxicity.

The potential impacts on water quality due to cooling water discharge include chlorine toxicity and increased water temperatures. Woodside undertook modelling of continuous wastewater discharges (including cooling water) for its Torosa South-1 drilling program in the Scott Reef complex (Woodside, 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, 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.

Reject brine water is typically 20 to 50% higher in salinity to the surrounding water and, based on models developed by the US EPA (Frick et al., 2001), discharges of brine water will sink through the water column where it will be rapidly mixed with receiving waters and dispersed by ocean currents, with salinity rapidly returning to background concentrations in the near field.

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).

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.

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 no lasting effect.

Seabirds and Migratory Shorebirds, Fish, Marine Reptiles and Marine Mammals

It is possible that 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 PAA. However, given the localised extent of cumulative impacts from multiple vessel discharges and limited exposure within the PAA, significant impacts to marine fauna are not expected. In particular, whilst a flatback turtle internesting buffer BIA and an internesting Habitat Critical overlap the PAA, no impacts to flatback turtles are expected, given the water depths of the PAA (120 - 300 m), and distance to nesting beaches (> 50 km).

Plankton

Research suggests that zooplankton composition and distribution are not affected in areas associated with sewage dumping grounds (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 (Azis et al., 2003).

Planktonic productivity in the NWMR is low. 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 PAA. The PAA is located more than 12 nm from land, which exceeds the exclusion zones required by Marine Order 96 (Marine pollution prevention – sewage) 2018 and Marine Order 95 (Marine pollution prevention – garbage) 2013.

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/PIV 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

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water environment, the potential for cumulative impacts to water quality would be restricted to within approximately 100 m of the discharge location. Hence, cumulative impacts will have a no lasting effect (i.e. Environment Impact – F).

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that routine or non-routine discharges described will not result in a potential impact greater than localised contamination not significant to environmental receptors, with no lasting effect (i.e. Environment Impact – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[42]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
Marine Order 95 – marine pollution prevention—garbage (as appropriate to vessel class) which requires putrescible waste and food scraps to pass through a macerator so 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 7.1
Marine Order 96 – marine 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 • a sewage treatment plant approved by AMSA or an issuing body • 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	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 7.2

[42] Qualitative measure

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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 project vessel is proceeding (> 4 knots), to avoid discharges in environmentally sensitive areas.				
Where there is potential for loss of primary containment of oil and chemicals on the project vessels, deck drainage must be collected via a deck drainage water management system.	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 7.3
Marine Order 91 – marine pollution prevention—oil (as relevant to vessel class) requirements, which includes mandatory measures for processing 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 Parts per Million (ppm) prior to discharge. • IMO approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating if OIW concentration exceeds 15 ppm. • A deck drainage system shall be capable of controlling the content of discharges for areas of high risk of	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 7.4

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fuel/oil/grease or hazardous chemical contamination. • There shall be a waste oil storage tank available, to restrict oil discharges. • If 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 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 and treatment/disposal onshore of sewage, greywater, putrescible and bilge wastes.	F: Not feasible. Would present additional safety and hygiene hazards resulting from the storage, loading and transport of the waste material. Distance of activity offshore also makes implementing 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 risk assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the impacts and risks of planned routine and non-routine discharges from MODU/vessels. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				
Demonstration of Acceptability				
Acceptability Statement The impact assessment has determined that, given the adopted controls, routine and non-routine discharges from the MODU and project vessels are unlikely to result in an impact significance level greater than no lasting effect. BIAs				

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within the PAA include the flatback turtle internesting, whale shark foraging, pygmy blue whale migration and distribution, and wedge-tailed shearwater breeding and foraging areas. The adopted controls are considered consistent with industry legislation, codes and standards, and professional judgement and meet the requirements of Australian Marine Orders. 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 greater than a consequence level of E[43] from discharge of sewage, greywater, putrescible wastes, bilge and deck drainage to the marine environment during the PAP.	C 7.1 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 7.1 MODU and project vessels compliant with Marine Order 95 – Pollution prevention – Garbage.	MC 7.1.1 Environmental and MARPOL inspection records demonstrate MODU and project vessels are compliant with Marine Order 95 – Pollution prevention (as appropriate to vessel class).
	C 7.2 Marine Order 96 - pollution prevention – sewage (as appropriate to vessel class) which include the following requirements: • a valid International Sewage Pollution Prevention (ISPP) 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	PS 7.2 MODU and project vessels compliant with Marine Order 96 – Pollution prevention – Sewage (as appropriate to vessel class).	MC 7.2.1 Environmental and MARPOL inspection records demonstrate MODU and project vessels are compliant with Marine Order 96 – Pollution prevention – Sewage (as appropriate to vessel class).

[43] Defined as ' slight, short term impact (< 1 year); localised impact not significant to environmental receptors' as in Table 2-4Table 2-3 / Section 2.6.3.

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	proceeding (more than 4 knots), to avoid discharges in environmentally sensitive areas.		
	C 7.3 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 7.3 Contaminated drainage contained, treated and/or separated prior to discharge.	MC 7.3.1 Environmental inspection records demonstrate MODU has a functioning bilge/oily water management system.
	C 7.4 Marine Order 91 – oil (as relevant to vessel class) requirements, which include mandatory measures for the processing of oily water prior to discharge: • Machinery space bilge/oily water shall have International Maritime Organisation (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 capably 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 less than 15 ppm without dilution or be treated by an IMO approved oil/water separator, they will be	PS 7.4 Discharge of machinery space bilge/oily water will meet oil content standard of <15 ppm without dilution.	MC 7.4.1 Environmental and MARPOL inspection records demonstrate discharge specification met for MODU and project vessels.

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	contained on-board and disposed of onshore. • Valid International Oil Pollution Prevention Certificate.		

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6.7.5 Routine and Non-Routine Discharges: Chemical and Hydrocarbon Discharges for Pre-commissioning and Intervention Activities

Context		
Relevant Activities Drilling Activities – Section 3.10 Subsea Installation Activities - Section 3.11 Contingent Activities – Section 3.12	***Existing Environment*** Regional Context – Section 4.2 Protected Species – Section 4.6	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Discharge of flowline and subsea installation fluids to the marine environment		X			X		A	E	-	-	GP PJ	Broadly Acceptable	EPO 8
Discharge of subsea fluids during well intervention activities		X			X		A	F					

Description of Source of Impact

The following activities may result in the discharges of small quantities of flowline and subsea installation preservation and pre-commissioning fluids:

- connection of umbilicals, flying leads, flexible flowlines and jumpers to new and existing subsea infrastructure
- leak testing to check system integrity
- small leaks from subsea infrastructure during leak testing
- preservation fluid from xmas trees
- barrier testing and tie-in to JDP2 ILT, JULA manifold and JULB manifold.

Umbilical and Flowline Fluids

All flexible jumpers, flowlines and manifolds will be installed filled with a mixture of up to 90 wt% MEG and chemically treated potable water. The JULB manifold will likely be filled with pure MEG. All production flexible flowlines will not require further flooding post installation but pressure test top-up fluid will be required for each pressure test and for any repeat tests that are needed in the event of test failure.

Installation and tie-in of the umbilicals, flying leads and flowlines may result in small quantities of fluids (hydrocarbons, hydraulic fluid and MEG/treated potable water) within the umbilicals, flying leads and flowlines being released to the environment. These volumes are expected to be small (1 m^3) as umbilical and the flowlines are uncapped for a short duration during tie-in. Water jetting and/ or acid injection (~330 L acid per connection) may be used to clean the connections on the infrastructure prior to tie-in.

Leak test/system pressure testing will be performed to test the integrity of the subsea connections, flowlines and jumpers, which may result in ~ 20 m^3 of MEG/treated potable water and ~11 L of corrosion inhibitor being released to the environment at the locality of the subsea infrastructure per test. A contingency secondary leak test may release an additional ~2 m^3 (MEG/treated water) and ~7 L corrosion inhibitor discharged.

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Xmas Tree

The Xmas tree will be installed with a preservation mixture in the production and annulus bore. There will be a small discharge of preservation fluid associated with testing and connecting the subsea system (estimated 100 to 150 L per well).

Hydrocarbons

Testing of isolations may be undertaken to verify that suitable isolations are available for safe flowline tie-in to the JULA manifold and the JDP2 ILT. The testing at JULA manifold and JDP2 ILT may release residual gas and condensate (up to 200 L each test) 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.

Well Intervention

During intervention activities, local control of the xmas tree may be required. Valve actuation of the trees may be required, which will result in small releases of up to 20 L of subsea control fluids to the environment, conservatively equating to a cumulative volume of 1000 L over the expected intervention activity timeframe.

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, outlined in Section 7.2. This procedure is used to demonstrate that the potential impacts of the chemicals selected are acceptable and ALARP (subject to technical and economic constraints).

Impact Assessment

Potential impacts to environmental values

Subsea Installation Fluids

Subsea leak testing and tie in of the umbilicals, flying leads, flexible flowlines and jumpers may result in discharge of relatively small amounts of MEG, chemically treated potable water or hydraulic fluid. 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
- the relatively small volumes/rates of discharges
- the rapid dilution of the release
- the low sensitivity of the receiving environment.

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 having a slight, short-term impact.

Hydrocarbons

Gas and condensate 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. 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 Section 6.8.2.

The soluble fraction of the condensate is approximately 6.3% by mass, hence a relatively small volume (approximately 92 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 6.8.2, and include:

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- 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 impact to the planktonic community in the upper part of the water column will have no lasting effect.
- 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, the impact to pelagic fishes will have no lasting effect.

Cumulative Impacts

Given that only localised, short term and negligible impacts are predicted to water quality and marine biota, cumulative impacts affecting marine biota from the discharge of subsea installation fluids including MEG and hydrocarbons are considered unlikely.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that the routine discharge of flowline fluids and subsea installation fluids described will not result in an impact greater than localised, slight and short-term impacts to infauna and benthic communities, marine sediment, water quality and pelagic marine fauna (but not affecting ecosystems function) (i.e. Environment Impact – E).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[44]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
No additional controls identified				
Good Practice				
Precommissioning and intervention 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 safe execution of activities and therefore no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes C 8.1
For project activity fluids, periodic chemical reviews are performed.	F: Yes. CS: Minimal cost. Standard practice.	Regular reviews will ensure chemicals selected for precommissioning and intervention fluids remain ALARP.	Benefits outweigh cost/sacrifice.	Yes C 8.2
ROV inspection during leak test	F: Yes. CS: Minimal cost. Standard practice.	A procedure for leak testing work that includes inspection (including by ROV) during testing to identify leakage and	Benefits outweigh cost/sacrifice.	Yes C 8.3

[44] Qualitative measure

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		trigger activity to stop will reduce likelihood of impacts.		
Test JULA manifold and JDP2 ILT isolation valves prior to flowline tie-in	F: Yes. CS: Minimal cost. Standard practice.	Testing of the isolation valves will provide a valve pass rate to be used to assess isolation requirements and determine the isolations required to confirm to the relevant internal Woodside standards.	Benefits outweigh cost/sacrifice.	Yes C 8.4
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 (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	F: Yes. CS: Minimal cost. Standard practice.	Pass rate (≤ 0.05kg/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 (≤ 0.05kg/s pass rate), slight environmental impact associated with hydrocarbon release is disproportionate to requirement to shut in 5 wells over 3 days to achieve double isolation. Benefit for additional conditions for single isolation outweigh cost. Benefit outweighs cost.	Yes C 8.5
Professional Judgement – Eliminate				
Reduce volume or not use preservation and precommissioning chemicals including MEG.	F: No. Preservation and precommissioning fluids are required to verify the structural integrity of the subsea infrastructure and avoidance of hydrate formation. The volumes	Not considered – control not feasible.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No

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	selected are required to achieve verification. CS: Potential loss of production due to loss of integrity, possibly leading to a larger environmental incident.			
Do not conduct leak testing activities	F: No. Leak testing activities are required to control the potential for corrosion of the flowlines and to determine if any unacceptable restrictions and/or obstructions exist in the line. CS: Potential loss of production due to loss of integrity, possibly leading to a larger environmental incident.	This would eliminate any potential impacts from the leak testing activities but increases the likelihood of loss of integrity during operation and potentially greater environmental impacts.	Disproportionate. The cost/sacrifice outweighs the benefit gained	No
Professional Judgement – Substitute				
No additional controls identified				
Professional Judgement – Engineered Solution				
Poppetted hydraulic and chemical control lines in control connections (to minimise release of control/preservation fluids).	F: Yes CS: Minimal cost. Standard Practice	Poppetted connections minimise discharge to marine environment in pressurised hydraulic lines.	Benefits outweigh cost/sacrifice.	Yes C 8.6

ALARP Statement

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the impacts and risks of planned routine and non-routine discharges from MODU/vessels. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that, given the adopted controls, routine and non-routine discharges from the MODU and project vessels are unlikely to result in an impact significance level greater than slight. BIAs within the PAA include the flatback turtle internesting, whale shark foraging, pygmy blue whale migration and distribution, and wedge-tailed shearwater breeding and foraging areas. The adopted controls are considered consistent with industry legislation, codes and standards, and professional judgement and meet the requirements of Australian Marine Orders.

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***

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EPO 8 No impact to water quality greater than a consequence level of E[45] from discharge of chemical and hydrocarbons from precommissioning and intervention activities to the marine environment during the PAP.	C 8.1 Precommissioning and intervention fluids will have an environmental assessment completed prior to use.	PS 8.1 All chemicals intended or likely to be discharged into the marine environment reduced to ALARP using the chemical assessment process.	MC 8.1.1 Chemical assessment register demonstrates the chemical selection, assessment and approval process for selected chemicals is followed.
	C 8.2 For project activity fluids, periodic chemical reviews are performed.	PS 8.2 Acceptability of previously approved chemicals are re-evaluated to ensure ALARP and alternatives are considered.	MC 8.2.1 Records confirm periodic reviews have taken place, and any actions/changes are being tracked to closure.
	C 8.3 ROV inspection during leak test	PS 8.3 ROV inspection during leak test to identify leakage and trigger activity to stop.	MC 8.3.1 Records demonstrate: • ROV inspection conducted during leak test. • instances when activity is required to stop due to identified leak(s) are documented. • If leak(s) are identified, the estimated volume of fluid discharged to the environment is documented.
	C 8.4 Test JULA manifold and JDP2 ILT isolation valves prior to flowline tie-in	PS 8.4 Valve testing undertaken prior to flowline tie-in..	MC 8.4.1 Records demonstrate testing of isolation valves is completed.
	C 8.5 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 (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	PS 8.5 Subsea Isolations implemented conform with the relevant internal Woodside standards and any single isolation will have a proven barrier (pass rate of ≤ 0.05 kg/s).	MC 8.5.1 Records demonstrate isolations are implemented and compliant with the relevant internal Woodside standards. MC 8.5.2 Where a single isolation was used records demonstrate that during testing of valves the pass rate was ≤ 0.05 kg/s and the estimated pass rate is documented.

[45] Defined as ' slight, short term impact (< 1 year); localised impact not significant to environmental receptors' as in Table 2-4 / Section 2.6.3.

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	• 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		
	C 8.6 Poppetted hydraulic and chemical control lines in control connections (to minimise release of control/preservation fluids).	PS 8.6 Poppetted hydraulic and chemical control lines in control connections to minimise discharge to marine environment in pressurised hydraulic lines.	MC 8.6.1 Records demonstrate poppetted hydraulic and chemical control lines used in control connections.

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6.7.6 Routine and Non-Routine Discharges: Drill Cuttings, Drilling Fluids and Well Removal Fluids

Context		
Relevant Activities Drilling Activities – Section 3.10 Contingent Activities – Section 3.12	***Existing Environment*** Regional Context – Section 4.2 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Routine discharge of WBM drill cuttings to the seabed and the marine environment	X	X		X			A	E	-	-	GP PJ	Broadly Acceptable	EPO 9
Routine discharge of drilling muds (WBM) to the seabed and the marine environment	X	X		X									
Routine discharge of treated NWBM drill cuttings to the marine environment	X	X		X									
Non-routine discharge of wash water from mud pits and vessel tank wash fluids	X	X		X									
Routine discharge of well clean-out fluids	X	X		X									
Non-routine discharge of well annular fluids	X	X		X									
Non-routine discharge of WBM and cement cuttings to the marine environment during drilling out of a cement plug	X	X		X									
Non-routine discharge of grit and flocculant during removal of well infrastructure	X	X		X									

Description of Source of Impact

Drilling Operations

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The PAP will involve the drilling of up to five wells (four in the Julimar field and one in the Penfolds prospect) and contingency intervention of eight existing JULA and BRUA wells. Each well will be drilled over a period of approximately 60 days (including mobilisation, demobilisation and contingency). Drilling activities generate drill cuttings, require cementing of the casing, and require the use of a range of fluids. Throughout the drilling program several different fluids are to be run through the closed circulation system including, but not limited to, drilling fluids (water-based muds and non water-based muds), sea water, and kill-weight brine.

Routine drilling discharges will include:

- drill cuttings
- drilling fluids direct to seabed (WBMs only), retained on cuttings and bulk discharge of mud pits (WBMs only)
- Non-routine drilling discharges may include:
- drill cuttings and fluids generated due to respud or side tracking
- well abandonment and use of fluids (subsea control, completions and well annular fluids).

Drilling activities are described in Section 3.10.1. The well will be drilled as a series of sections, as detailed in Table 6-11. The top hole section of the well will be drilled without a riser in place (i.e. riserless drilling). Drill cuttings and unrecoverable WBMs are discharged at the seabed for the top-hole sections, which are drilled riserless (i.e. no closed loop with the MODU). This results in a localised area of sediment deposition (known as a cuttings pile) around and in proximity to the well site influenced by prevailing seabed currents.

Upon drilling of the top hole section, a casing 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. This enables cuttings and drilling fluids to be circulated back to the MODU, where the cuttings are separated from the drilling fluids by the solids control equipment (SCE) and typically re-used in the closed loop system between the well bore and the MODU. The cuttings (with adhered residual fluids) are, in typical circumstances, discharged below the water line, with their fate and dispersion determined by cuttings particle size and the density of the unrecoverable fluids. In contrast the fluids are recirculated into the fluid system where there are 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 and may be discharged at the end of specific well sections, where there is a requirement to change the drilling fluid system or the drilling fluid cannot be re-used (due to deterioration/contamination). Bulk discharge of this type is only permitted for WBMs.

Base oil may be used for inflow testing prior to abandonment of the well, 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. Well abandonment activities are conducted in accordance with Woodside's internal standards.

Drill Cuttings and Fluids

As described above, the primary discharges used as the basis of the impact assessment for this PAP are as follows:

Drill cuttings: drilling generates drill cuttings due to the breakup of solid material from within the borehole. The resultant drill cuttings are basically rock particles of various shapes, with sizes typically ranging from very fine to very coarse.

Drilling fluids: serve many purposes including maintaining borehole stability and hydrostatic pressure, reducing friction and cleaning/ cooling of the drill bit, in addition to acting as a medium to carry cuttings from the well bore and return them to the surface at seabed or on the MODU. There are two main types of drilling fluids as follows:

WBMs consists mainly of fresh water or seawater with the addition of chemical and mineral additives to aid in its function. Drilling additives typically used may include chlorides (e.g. sodium, potassium), bentonite (clay), cellulose polymers, guar gum, barite or calcium carbonate. These additives are either completely inert in the marine environment, naturally occurring benign materials, or readily biodegradable organic polymers with a very fast rate of biodegradation in the marine environment. Bentonite and guar gum are listed as 'E' category fluids under the OCNS and is included on the Oslo Paris (OSPAR) Commission PLONOR (chemicals that 'pose little or no risk to the environment') list (OSPAR Commission, 2021). WBMs can be discharged to sea as fluids retained on cuttings and as bulk discharge from mud pits.

NWBMs refers to drill fluids that are hydrocarbon rather than water based fluid. NWBM may contain a range of synthetic hydrocarbons, such as paraffins and olefins; however, such additives are designed to be low in toxicity and biodegradable, as well as not being readily bioavailable or likely to bioaccumulate, particularly in deeper water areas. No bulk discharge of NWBMs will occur offshore, only NWBMs retained on cuttings can be discharged from the MODU. If a NWBM system is required to drill a well section, the cuttings from the NWBM drilling fluid system will pass through the SCE (centrifuge and dryers) to reduce the average residual oil on cuttings (OOC). An OOC discharge limit of 6.9% wt/wt or less on wet cuttings will be averaged over well sections drilled with NWBM for the well. It is noted that microbial biodegradation can result in oxygen reduction within sediments, however Nedwed et al. (2006) found that

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depth is an important factor for residual concentrations of NWBF once they reach the seabed, suggesting that loss of base fluid during settling acted to significantly reduce chemical effects from discharges. It is also noted that NWBM cuttings tend to clump and settle to the seabed rapidly adding to the cuttings pile in proximity to the well site.

For the purposes of this impact assessment, the indicative dimensions, discharge locations and approximate drill cuttings and drilling fluid volumes provided in Table 6-11 represent the worst case for a single well section.

Table 6-11: Indicative drill cuttings and fluid volumes for a single well section

Well Section	Discharge Point	Drilling Fluid Type	Approx. Interval Length (m)	Approx. Cuttings Volume Discharged (m^3)	Approx. Fluid Volume (m^3)
42" Conductor Hole	Seabed	Seawater (SW) / pre-hydrated bentonite sweeps (PHB)	84	91	183
26" Surface Hole	Seabed	SW / PHB / WBM / PAD	650	270	859
17-1/2" Hole	Surface (-1 m MSL)	WBM	2070	389	1073
12-1/4" Hole	Surface (-1 m MSL)	WBM	2200	202	1012
8 ½" x 9 7/8" Open Hole	Surface (-1 m MSL)	WBM	150	9	2357
Total per well				**960**	**5484**

*** Includes drilling 60 m with PAD*

MSL – metres below sea below.

Not all fluid will be discharged after each section – options for reuse during batch drilling will be explored.

Subsea – Displacement, Completion and Well-bore Cleanout Fluids

Reservoir drilling and completion fluids are usually brines (i.e. a mixture of seawater or formation water) with additives that can include:

- chlorides (often sodium, potassium or calcium)
- bromides
- hydrate inhibitor (mono-ethylene glycol (MEG))
- biocide
- oxygen scavenger.
- formates (potassium)

They are designed to have the proper density and flow characteristics to be compatible with the reservoir formation. Completion fluids are used to run well completions, and during wellbore clean up and flowback during drilling.

Wellbore and casing clean-up are required at various stages of the drilling operations to ensure the contents of the well are free of contaminants before the next stage of drilling. A chemical wellbore cleanout fluid train may be used to remove residual fluids from the wellbore. The wellbore cleanout fluid is usually brine (similar to completion fluid) that can include several chemicals, such as biocide and surfactant. During the clean-up process, fluids are circulated back to the MODU.

Cleanout fluids and completion brine will be captured and stored on the MODU and discharged if oil concentration is less than 1% by volume or returned to shore if discharge requirements cannot be met. Discharge volume would be ~400 m^3.

Contingent Drilling Activities

Respud

It is unlikely that a well would be required to respud. If required, the most likely scenario is that the decision to respud is made during drilling of the top hole section of a well; 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

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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 6-11 to re-drill the same sections of the respudded well.

Permanent Plugging Program and Removal of Well Infrastructure

If required as a contingency activity, the base case for permanently plugging the wells includes the use of WBM and wet cement and will produce well annulus fluids (residual hydrocarbons and residual produced formation water). These fluids/cuttings will be generated during the well bore clean-out, drilling of existing cement barriers, installation of permanent abandonment barriers, circulation of the annulus and washing out of the mud pit.

Potential additional activities that may be required as part of the PAP includes milling, which will produce metal swarf, drilled cement and formation rock. All of the downhole plugging for permanent abandonment activities are conducted through the marine riser. This is a closed system, meaning there are no planned discharges directly to sea during these activities. Planned discharges of the above fluids are only planned to occur after they have been received on the MODU.

The following describes the source of impact with respect to discharge of clean-up fluids, well kill fluids, grit and flocculent only. Refer to Section 6.7.7 for cement, cementing fluids and subsea control fluids. For the purposes of this impact assessment, the indicative dimensions, discharge locations and approximate volumes are provided in Table 6-12.

Table 6-12: Estimated discharges of solids and volumes of drilling fluids used for the PAA.

Description	Discharge Point	Discharge	Approximate Solids Discharged (m^3)	Approximate Fluid Discharged (m^3)	Potential Additional Solids (m^3)	Potential Additional Fluid Discharge (m^3)
Drill out cement plug	Below sea level	WBM and cement cuttings	2	1	0	0
Kill well	Below sea level	Well kill fluid	0	0	0	Discharged if oil concentration is less than 1% by volume or returned to shore if discharge requirements cannot be met.
End of well discharge	Below sea level	WBM, brine, mud pit and vessel tank wash fluids	0	600	0	0
Milling (potential activity using WBM)	Below sea level	WBM, swarf, cement and formation rock	0	0	2 (swarf) 3 (cement) 3.5 (formation rock)	1600
Milling (potential activity using NWBM)	Below sea level	NWBM, swarf, cement and formation rock	0	0	2 (swarf) 3 (cement) 3.5 (formation rock)	5
Mechanical cutting	Within the well, below the mudline	Metal and cement cuttings from well infrastructure and lubrication	0	0	Negligible volumes may be released to surface sediments if cut is made at or close to the mudline	

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		for the cutting tool.			
ABWJ cutting	Within the well, below the mudline	Flocculant and grit	4 tonnes (planned to be released within the well, above the top permanent plug with small volumes entering sediments at cutting depth).	250 L (planned to be released within the well, above the top permanent plug with small volumes entering sediments at cutting depth).	Small volumes may be released to surface sediments if cut is made at or close to the mudline

Drilled Cement

Indicative volumes of drilled cement for the well are outlined in Table 6-12. The shallow cement plug will preferentially be drilled out with WBM. The drilling fluids will pass through shakers to remove the cement cuttings from the drilling fluid before discharging the cement cuttings. Impacts of cement and cementing fluids are outlined further in Section 6.7.7.

Well Annular Fluids

Well annular fluids refer to the fluids that remain in the wellbore, or annular spaces between the casing. They may consist of weighted drilling fluid and cement-contaminated mud, seawater, barite, cement polymer, and may include small amounts of hydrocarbon. 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.

The small volumes and non-instantaneous nature of the release of the well annular fluids is expected to result in rapid dilution to a no-effect concentration within metres of the release location.

Well Bore Clean-out and Well Kill Fluids

During permanent plugging activities, wells will generally be displaced from well kill brine to viscosified brine, or cleaned, which may include residual annulus fluid. A chemical clean-out pill or fluids train will be circulated between the two fluids. This will result in a discharge of fluids in accordance with Woodside's internal guidelines to ensure the potential impacts of the chemicals selected are acceptable.

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 less than 1% by volume, or returned to shore if discharge requirements cannot be met. If well kill fluid fails to be bullhead pumped into the well, reservoir fluids may need to be bled off at the MODU through well control equipment (dedicated bleed off/well test spread). In this event, well control equipment will be used to separate the well kill fluids from the hydrocarbons and direct the hydrocarbons to be flared, vented or incinerated, depending on a number of factors including the volume, weather conditions, and safety requirements as documented on relevant procedures for this activity. The well kill fluids will be captured and stored on the MODU and discharged overboard if oil concentration is less than 1% by volume or returned to shore if discharge requirements cannot be met.

Milling

During permanent plugging activities, there is a potential additional activity where the well casing needs to be milled out (up to 100 m). This will produce milled swarf (2 m^3), drilled cement cuttings (~3 m^3) and formation rock (~3.5 m^3) and will preferentially be completed using WBM. There may be instances where NWBM is required for operational purposes to manage well stability to safe levels. The solids from the WBM or NWBM drilling fluid system (including the swarf, drilled cement cuttings and formation rock) will also pass through the shakers, to separate these solids before discharging them. Given the small volumes of solids and only limited drilling into formation rock, no oil on cuttings (OOC) discharge limits have been applied, as would be the case for a drilling activity. The estimated volume of solids discharged with residual NWBM on them is expected to be about 5 m^3 (per 100 m milled interval).

Removal (Cutting) of Well Infrastructure

The planned cutting depth for removal of the wellhead is approximately 3-5 m below the mudline. Discharges from cutting of well infrastructure using either an abrasive water jet cutting method of a mechanical cutting tool are therefore expected to be confined predominately within the well and settle on the top of the permanent plug. During final cut through the conductor pipe, small amounts of flocculant and grit will be released below the mudline to sediments immediately surrounding the well.

Should cutting at a shallower depth be required, these discharges may be released to the seabed surface. For the mechanical cutting tool, discharges will be limited to small quantities of metal and cement cuttings from the infrastructure itself as well as small quantities of lubricant. For the abrasive water jet cutting method, discharges

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include a small amount of grit and flocculant. Depending on the cutting depth, pressure from the jet cutting could push some of the material up to the seabed surface causing localised smothering of benthic communities as well as create localised and temporary increases in turbidity around the well.

Impact Assessment

Potential impacts to environmental values

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. Due to water depth in the PAA (120 – 300 m), this will determine the exposure pathway, and hence potential impacts and receptors:

- 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 section) 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 15 days) during the drilling each 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 (WBM) 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 2005, 2010). There is a large body of knowledge indicating a discharge of cuttings with adhered fluids diluting rapidly, finding 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 size 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 PAA are expected to be within this range (refer Master Existing Environment), and WBMs (bulk discharge) will contribute the largest input to elevated TSS/turbidity during drilling discharges, the dispersion extent as determined by Neff (2005) is considered representative for the JDP3 drilling program.

Using the widely-accepted dilution factor of 10,000 (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, 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 predicted to impact productivity of the water column.

The combination of low toxicity and rapid dilution of unrecoverable NWBMs discharged in association with drill cuttings are of little risk of direct toxicity to water-column biota (Neff et al., 2000).

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.

As outlined above, using the widely-accepted dilution factor of 10,000 (Neff, 2005), cuttings (and adhered fluids) are expected to reach 100 mg/L TSS within 100 m of the MODU over a period of ~16 minutes. Minimal impact to plankton (phytoplankton, zooplankton and meroplankton (larvae of invertebrates and fish) is 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).

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Impacts to zooplankton from turbidity are associated with variations in predator prey dynamics, which favours planktonic feeders over visual feeders (Gophen, 2015), while impacts to phytoplankton occur due to decreases in available light, therefore reducing productivity (Dokulil, 1994).

Jenkins and McKinnon (2006) reported that levels of suspended sediments greater than 500 mg/L are likely to produce a measurable impact upon larvae of most fish species, and that levels of 100 mg/L will affect the larvae of some species if exposed for periods greater than 96 hours. Jenkins and McKinnon (2006) also indicated that levels of 100 mg/L may affect the larvae of several marine invertebrate species, and that fish eggs and larvae are more vulnerable to suspended sediments than older life stages. However, dilution estimates (e.g. Hinwood et al., 1994; Neff, 2005) suggest suspended sediment concentrations caused by the discharge of drill cuttings will be well below the levels required to cause an effect on fish or invertebrate larvae (i.e. predicted levels are well below a 96-hour exposure at 100 mg/L, or instantaneous 500 mg/L exposure), beyond the immediate vicinity of the discharge.

Due to the low levels of planktonic productivity in the offshore area, plankton populations on a regional scale are not expected to be affected by drilling or well abandonment activities. In addition, due to the open nature of the marine environment of the PAA and associated environmental conditions (i.e. windy with strong currents), the content and dispersive nature of drilling muds within the marine environment and the high population replenishment of these organisms, it is expected that impacts to plankton species will be limited to within tens of metres of the discharge point and return to previous conditions within a relatively short period of time. On this basis, the impacts to plankton from routine and non-routine discharges during drilling activities will be slight and short-term.

Sediment Quality and Benthic Communities

Accumulation of drill cuttings, grit and flocculent 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) 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 960 m3 of top hole cuttings per well; Table 6-11) 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 3.10.1.6 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'. 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 pose little or no risk to the environment.

As described above, the bottom hole sections are drilled after the riser is fitted. Cuttings and unrecoverable fluids are discharged below the water line at the MODU site, 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, while the finer fluid 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 smaller in volume (approximately 360 m3; Table 6-11) 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 (IOGP, 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, undetectable veneer on the seabed. Predicted impacts for bottom hole cuttings are generally confined to a maximum of 500 m from the discharge point (IOGP, 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.

Benthic organisms below the cuttings pile will be buried and smothered; however, the cuttings pile is 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 (IOGP, 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 (IOGP, 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 where cuttings discharges accumulate. Furthermore, ecological impacts are not expected for mobile benthic fauna such as crabs and

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shrimps or pelagic and demersal fish, given their mobility (IOGP, 2016). Balcom et al., (2012) concluded that impacts associated with discharging cuttings and base fluids are minimal, with impacts highly localised to the area of the discharge deposition on the seabed. Changes to benthic communities are normally slight with short-term impacts. 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 (IOGP, 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.

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 each well site). Low levels of sediment deposition away from the immediate area of each 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 (US 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 as discussed for sediment quality (above), 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 each well. The low sensitivity of the benthic communities/habitats within and in the vicinity of the PAA, combined with the low toxicity of WBMs and residual NWBMs, no bulk discharges of NWBM and the highly localised nature and scale of predicted physical impacts to seabed biota, affirm that predicted impact from these discharges is considered likely but of a slight environmental consequence.

KEFs

The PAA overlaps the Continental Slope Demersal Fish Communities KEF and the Ancient Coastline at 125 m depth contour. There is potential for interaction with drill cuttings within the KEF. However, 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) burial or smothering of epifauna and infauna will be largely confined to close proximity to the wellhead. Recovery of affected benthic infauna, epifauna and demersal fish communities is expected to occur, given the short duration of sediment deposition and the widely represented benthic and demersal community composition. The small portion of the overall KEF area that overlaps the Well PAA, in combination with the predicted recovery of the affected benthic communities, affirms that any predicted impact is considered to have no lasting effect.

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 PAA (120 – 300 m). Impacts beyond the 500 m zone of ecological impact for each well as described for drill cuttings and retained fluids discharge are expected to be slight and short-term.

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, potassium formate, MEG and guar gum. The volume of one wellbore and subsequent discharge volume would be ~400 m³. Any change to water quality is expected to be localised and temporary. 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.

Removal (Cutting) of Well Infrastructure

The planned cutting depth is approximately 3-5 m below the mudline, therefore discharges from cutting of well infrastructure using either an abrasive water jet cutting method of a mechanical cutting tool are expected to be confined predominately within the well and settle on the top of the permanent plug. During final cut through the

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conductor pipe, small amounts of flocculent and grit will be released below the mudline to sediments immediately surrounding the well.

Should cutting at a shallower depth be required, however, these discharges may be released to the seabed surface. For the mechanical cutting tool, discharges will be limited to small quantities of metal and cement cuttings from the infrastructure itself as well as small quantities of lubricant. For the abrasive water jet cutting method, discharges include a small amount of grit and flocculent. Depending on the cutting depth, pressure from the jet cutting could push some of the material up to the seabed surface causing localised smothering of benthic communities as well as create localised and temporary increases in turbidity around the well.

All chemicals used for infrastructure removal are assessed in accordance with the Woodside Chemical Selection and Assessment Environment Guideline.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that routine discharges of drill cuttings and drilling fluids described will not result in a potential impact greater than slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes (i.e. Environment Impact – E).

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[46]***	***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 safe execution of activities and therefore no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes C 9.1
For project activity fluids, six-monthly chemical reviews are performed during active drilling campaigns.	F: Yes. CS: Minimal cost. Standard practice.	Regular reviews will ensure chemicals selected for drilling fluids remain ALARP.	Benefits outweigh cost/sacrifice.	Yes C 9.2
Written NWBM justification process followed.	F: Yes. CS: Minimal cost. Standard practice.	The written justification takes onboard the technical need for NWBM use, receiving environment, cost and additional controls that may be required. By undertaking formal assessment, the potential impacts are well understood,	Benefits outweigh cost/sacrifice.	Yes C 9.3

[46] Qualitative measure

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[46]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
		allowing for development of control measures to reduce the consequence of NWBM use. This provides an overall environmental benefit.		
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 on the environment is reduced.	Benefits outweigh cost/sacrifice	Yes C 9.4
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 9.5
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 volumes 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 9.6
Displacement, brine, workover or intervention fluids contaminated with hydrocarbons will be treated prior to discharge or containment. If discharge specification not met the fluid will be returned to shore.	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 9.7
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 9.8
In event of SCE failure (including auger) while	F: Yes.	Ceasing of drilling in the event of equipment	Benefits outweigh cost/sacrifice.	Yes

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[46]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
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. If cuttings are discharged during dryer or auger failure, measurement of OOC to occur more frequently from shakers.	CS: Cost and schedule implications due to cessation of drilling.	failure will allow for time to assess feasibility of drilling ahead while still meeting residual OOC discharge requirements.		C 9.9
Daily operations reports, or similar, record volumes of overboard drilling discharges.	F: Yes CS: Minor costs.	Provides opportunity to confirm that actual discharges are within the discharge volumes outline in the EP.	Benefit outweighs cost.	C 9.10
Professional Judgement – Eliminate				
No additional controls identified				
Professional Judgement – Substitute				
No additional controls 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 9.11
WBM 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 the using WBM.	Benefits outweigh cost/sacrifice.	Yes C 9.12
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 PAP.	Benefits outweigh cost/sacrifice.	Yes C 9.13
Cuttings reinjection into formation. Cuttings are 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 re-injection.	Not considered – control not feasible.	Not considered – control not feasible.	No

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[46]***	***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: Not technically feasible due to water depth. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No
Riserless Mud Recovery (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: Not technically feasible due to water depth. 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 oil on cuttings to environment).	F: Yes. CS: Primary cost/sacrifice of this option is the additional handling required in transporting cuttings to 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	Compared to adopted control, return riser in place cuttings would achieve a reduction in cuttings/mud discharged (although discharge would still occur during riserless drilling on the basis 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 on consequence.	Disproportionate. Given the adopted controls and low current risk rating, the high cost/sacrifice outweighs the benefit gained over the duration of the PAP. 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 cuttings relocation (including if an alternative system which doesn't use transport containers was implemented).	No

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[46]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
	Increased risk of unplanned vessel collision or loss of 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 transportation of 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 well design is optimised to minimise the size of hole drilled while still being able to reach the targets and meet development objectives safely.	Not considered – control not feasible.	Not considered – control not feasible.	No

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[46]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
	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 utilising 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 perform 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
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	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

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[46]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
	of about $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 and 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.			
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 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 the well to rationalise phased/ timed discharge.	No
Selection of smaller core size to reduce volume of drilling cuttings.	F: No. Cannot undertake the required test. CS: Not considered – control not feasible.	Not considered – control not feasible.	Not considered – control not feasible.	No

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[46]***	***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, Woodside considers the adopted controls appropriate to manage the impacts and risks of drill cuttings and fluids discharges to the marine environment. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				
Demonstration of Acceptability				
Acceptability Statement The impact assessment has determined that, given the adopted controls, routine discharges of drilling cuttings and fluids to the marine environment are unlikely to result in a potential impact greater than slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes. Further opportunities to reduce the impacts and risks have been investigated above. The adopted controls are considered good oil-field practice/industry best practice. The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of these discharges to a level that is broadly acceptable.				

Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 9 No impact to water quality or marine biota greater than a consequence level of E47 from discharging drilling cuttings or fluids during the PAP.	C 9.1 Drilling and completions fluids will have an environmental assessment completed prior to use.	PS 9.1 All chemicals intended or likely to be discharged into the marine environment reduced to ALARP using the chemical assessment process.	MC 9.1.1 Records demonstrate chemical selection, assessment and approval process for selected chemicals is followed.
	C 9.2 For project activity fluids, periodic chemical reviews are performed.	PS 9.2 Acceptability of previously approved chemicals are re-evaluated to ensure ALARP and alternatives are considered.	MC 9.2.1 Records confirm periodic reviews have taken place, and any actions/changes are being tracked to closure.
	C 9.3 Written NWBM justification process followed.	PS 9.3 NWBMs only used where written justification process has been followed.	MC 9.3.1 Records show NWBM justification process has been followed and NWBM only used where technically required.
	C 9.4 NWBM base oils selected based on expected toxicity.	PS 9.4 Group III base oils used in NWBM.	MC 9.4.1 Fluid reports demonstrate that only Group III base oils used in NWBM.
	C 9.5 Backload bulk NWBM or maintain on rig for re-use	PS 9.5 No overboard disposal of bulk NWBM	MC 9.5.1 Incident reports of any unplanned discharges of NWBM
	C 9.6	PS 9.6	MC 9.6.1

[47] Defined as “Slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.” as in Table 2-3.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
	Bulk operational discharges conducted under MODU's permit to Work (PTW) system (to operate discharge valves/pumps).	Increased level of assurance and verification on bulk operational discharges.	Environmental inspection records demonstrate that bulk discharges are conducted under the MODU PTW system.
	C 9.7 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 9.7 Achieve less than 1% by volume oil content before discharge.	MC 9.7.1 Discharge reports demonstrate contaminated fluids were less than 1% by volume oil content before discharge.
	C 9.8 SCE used to treat NWBM cuttings prior to discharge.	PS 9.8 Average OOC (sections using NWBM only) discharge limit of 6.9% or less oil on wet cuttings is achieved.	MC 9.8.1 Discharge reports confirm the average OOC for the entire well (sections using NWBM only) do not exceed limit.
	C 9.9 In event of SCE failure (including auger) 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. If cuttings are discharged during dryer or auger failure, measurement of OOC to occur more frequently from shakers	PS 9.9 The decision whether to repair SCE or drill ahead has considered 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 9.9.1 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 assessment to drill ahead with failed SCE can be produced.
	C 9.10 Daily operations reports, or similar, record volumes of overboard drilling discharges.	PS 9.10 Overboard drilling discharges are recorded	MC 9.10.1 Daily operations reports, or similar, show volumes of overboard drilling discharges.
	C 9.11 Mud pit wash residue will be measured for oil content prior to discharge.	PS 9.11 Achieve less than 1% by volume oil content before discharge	MC 9.11.1 Discharge report demonstrates 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 9.12 WBM drill cuttings that are returned to the MODU will be processed using SCE equipment.	PS 9.12 WBM drill cuttings that are returned to the MODU processed using SCE equipment allowing reuse of mud prior to discharge.	MC 9.12.1 Daily drilling reports demonstrate that operational SCE is in use.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
	C 9.13 Drill cuttings returned to the MODU will be discharged below the water line.	PS 9.13 Cuttings discharged below the water line	MC 9.13.1 Inspection records confirm cuttings discharge chute/line below the water line.

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6.7.7 Routine and Non-Routine Discharges: Cement, Cementing Fluids, Subsea Well Fluids, Produced Water, Unused Bulk Product and Subsea Chemicals

Context		
Relevant Activities Drilling Activities – Section 3.103.10 Subsea Installation Activities - Section 3.113.11 Contingent Activities – Section 3.12	Existing Environment Regional Context – Section 4.2 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6	Consultation Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Routine discharge of cement and cementing fluids, to the seabed and the marine environment.	X	X		X			A	E	-	-	GP PJ	Broadly Acceptable	EPO 10
Routine discharge of subsea well fluids (inc. BOP and well construction activity control fluids).	X	X		X					-	-			
Produced / reservoir water disposal	X	X		X					-	-			
Non-routine discharge of unused bulk products at end of drilling campaign	X	X		X					-	-			

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.

At the commencement of the drilling campaign there may be a requirement to run a cement unit test to ensure the functionality of the cement unit and the cement bulk delivery system prior to performing an actual cement job. This test would result in a small volume (typically 10 m^3) of cement slurry being discharged at the sea surface. The slurry is usually a mix of cement and water however may contain stabilisers or chemical additives.

When cementing the conductor and surface casings after top hole sections of a 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 111 m^3 is estimated to be circulated to the seabed at the well location, which forms a thin concrete film on the seabed in close proximity to the well.

Wherever possible, the cement line flush volumes are included in the planned cement jobs. 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

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clogging of the lines and equipment. This is estimated at about 55 m³ (based on up to five cement jobs x 10 m³ discharged per job per well). In the unlikely event a respud event is required it would result in additional cement jobs. Also, in the rare event that the cement products become contaminated, the entire volume (~180 m³) 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 seawater and dye. The dye is used to provide a pre-indicator of cement overflow to the seabed surface, to ensure adequate cement height.

Subsea Fluids – Blow Out Preventors (BOP) and Well Construction Activity Control Fluids

Subsea fluids are likely to be released during drilling, including the release of BOP control fluids. Subsea control fluids are water-based hydraulic control fluids used in control systems on the subsea trees and BOPs. The BOP is required, by legislation, to be regularly function tested when subsea.

Subsea control fluids will be discharged during function testing of the BOP on installation and pressure testing.

The BOP is function tested during assembly and maintenance and during operation on the seabed as described in Section 3.10.1.3. As part of this testing, small volumes (up to 90 L) of BOP control fluid (generally consisting of water mixed with a glycol based detergent or equivalent water-based anti-corrosive additive) are 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.

Subsea Fluids – Displacement Fluids

As required throughout activities with the riser connected, the well will be displaced from one drilling fluid system to another. A chemical clean-out pill or fluids train will be circulated between the different fluids. This will result in a discharge of operational fluids in accordance with the Woodside internal guidelines.

Non-routine discharge of unused dry bulk products at the end of the drilling campaign:

Adequate stocks of dry bulk product are required to be stored on the MODU for the duration of the drilling activity for safe operations and well control purposes, as defined in the Woodside Well Control Bridging Document. Approximate quantities typically required are as follows:

- cement: approximately 100 tonnes
- barite: approximately 120 tonnes
- bentonite: approximately 120 tonnes.

At the end of the drilling activity and prior to demobilisation, Woodside is contractually obliged to remove the dry bulk product from the MODU. A number of options for removing excess product from the MODU exist, with the last option being to discharge to the marine environment. Woodside have developed a process to assess all safe and technically feasible options for the excess product before a decision is made to discharge overboard, this includes the considering the following options, as described below and illustrated in Figure 6-1:

- Retaining products on the MODU to be used for subsequent Woodside drilling activities where the PAP is not the last in the Woodside MODU sequence
- Retaining products on the MODU to be used by the next titleholder who has the MODU on hire
- Transferring to another Woodside-contracted MODU operating in the region
- Transferring to another titleholder-contracted MODU operating in the region
- Returning to shore for onshore storage and/or disposal if a facility is available that is both safe and technically feasible to transfer to
- Discharged to the marine environment as a slurry if it is concluded that no other options outlined in Figure 6-1 are feasible and that concentrations of mercury and cadmium in barite are <1 mg/kg and <3 mg/kg, respectively.

Woodside's base plan is to retain dry bulk product on board the MODU at the end of the campaign, either for reuse by Woodside (if a subsequent Woodside drilling activity is contracted after the petroleum activity), or transfer the dry bulks to the next titleholder who has the MODU on hire. At the time this EP was written it was not yet confirmed whether Woodside would be contracting the MODU for subsequent petroleum activities or if there was another titleholder who planned to contract it.

If there are no available options to leave the dry bulk products on the MODU, Woodside would look to transfer excess dry bulk product to another MODU operating in the region, either for Woodside use or for another titleholder. MODU schedules and regional activities are closely monitored to identify these transfer opportunities early, allowing sufficient time to coordinate transfer arrangements. At the time this EP was written it was not yet confirmed if there was another

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MODU to transfer dry bulk product to. The opportunity to transfer to another MODU would typically present toward the end of the drilling activity Woodside has a proven record of transferring dry bulk materials for reuse between operators and offshore facilities within these timeframes.

The backload of dry bulks to shore at the end of the campaign has been explored with Woodside's fluids providers. However, current onshore infrastructure does not support the safe transfer of bulk product at high pressure. When the MODU receives bulk product from a shore base, it involves the pneumatic transfer of product from a lower pressure container/tank to the higher pressure MODU or supply vessel container/tank. However, transfer of bulk product from the MODU to shore would involve the transfer of that material, which is powder, from a high pressure to low pressure mobile tank. These high to low pressure transfers of dry powder carry safety risk as the pressure differential between the two systems can result in an uncontrolled, or rapid fluid flow causing pressure build up, beyond safe limits. Dry bulk products can be transported from shore when initially processed given the manufacturing locations have necessary infrastructure to package bulks in bags for transportation and sale, including bagging machines. These dry bulk products cannot be returned to shore in this same manner. Once the product is transported offshore, it is stored in tanks under high pressure conditions. To return product to shore in the same manner it is initially transported from manufacturing location, the product would need to be high-pressure transferred from the MODU or support vessel tanks to bags, which is not considered to be feasible.

During the PAP Woodside will continue exploring the feasibility of installing appropriate infrastructure including pressure release valves and other transfer equipment to enable safe transfer of dry bulk product to shore at the end of the drilling activities.

If reuse of excess bulks for subsequent activities in the region is not possible and no feasible options for safe transfer of dry bulk product are identified by completion of the campaign, excess dry bulk will be discharged to the marine environment in the form of a slurry. This will only occur if it can be demonstrated that there are no other options identified in Figure 6-1. Use and discharge of all chemicals and products will be conducted in line with Woodside's internal guidelines (Section 7.2).

Dry bulk materials generally pose little or no risk to the environment (PLONOR)[48], though barite may contain traces of heavy metals, such as mercury and cadmium. Woodside requires that concentrations of mercury and cadmium in barite be <1 mg/kg and <3 mg/kg, respectively. This conforms to the American Petroleum Institute (API) specification for drilling barite. Heavy metal analysis is conducted on individual batches of stock barite prior to mobilisation offshore. This sampling confirms that heavy metals of concern (cadmium and mercury) are within limits prescribed by API standards.

[48] Barite (as barium sulphate) is on the OSPAR List of Substances Used and Discharged Offshore which are Considered to Pose Little or No Risk to the Environment (PLONOR). The List is available at: https://www.cefas.co.uk/media/p3sbu3bn/ospar-list-of-substances-used-and-discharged-offshore-which-are-considered-to-pose-little-or-no-risk-to-the-environment-plonor-update-2021.pdf

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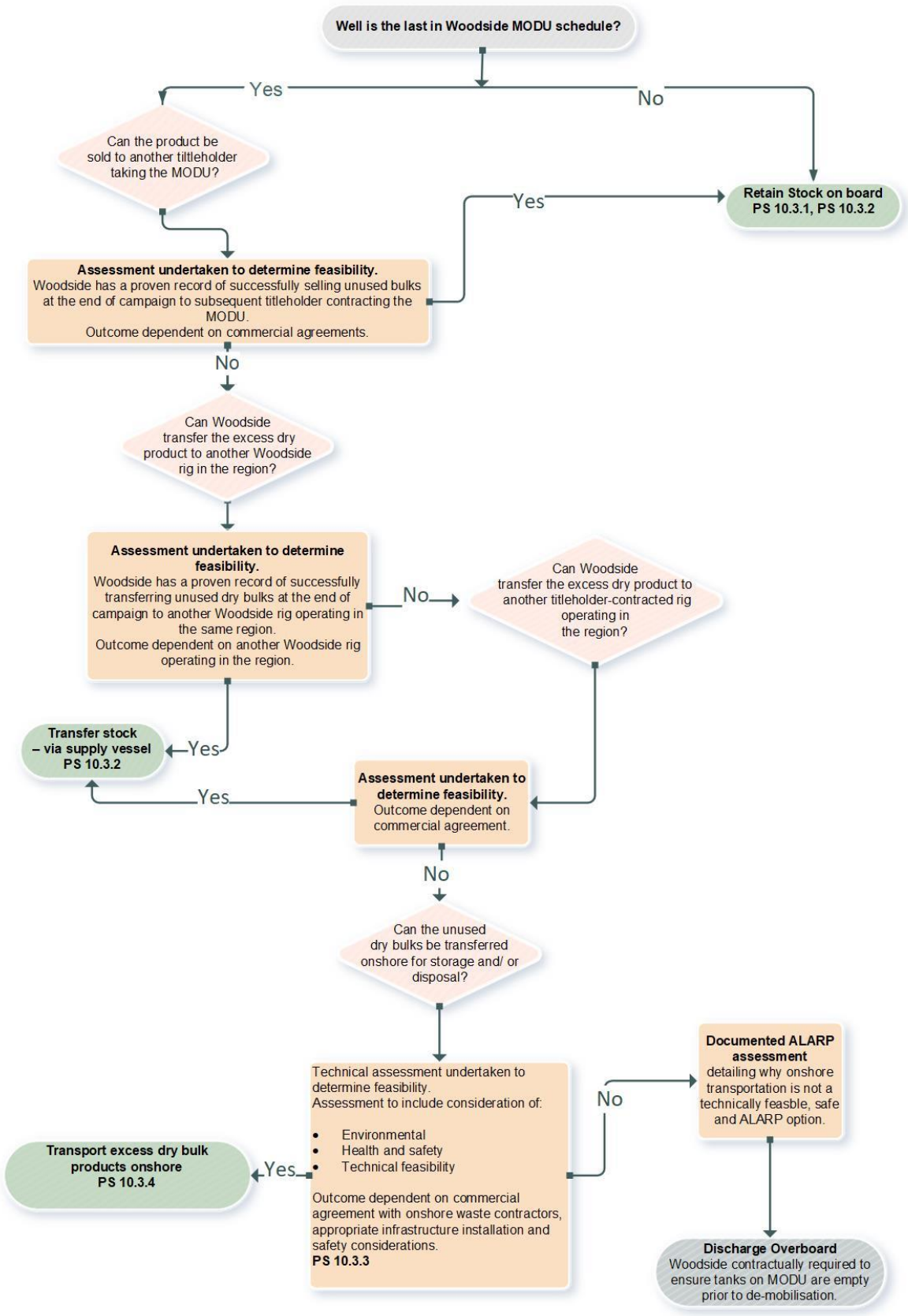

Figure 6-1: Management process for excess bulk product

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Contingency Activities

Well Intervention

Woodside may need to intervene or workover wells within the PAA. These activities generally occur within the wellbore and may include well testing and flowback activities, as well as any other drilling activities described in Sections 3.10 and 3.12, which may including discharge of subsea control fluid (control of subsea tree), completions fluids and well annular fluids. Discharges are not expected to be different from those previously described. Kill weight brine may also be used during well suspension or well abandonment, which is a brine (e.g. sodium chloride) of adequate density to control formation pressure.

Well unload to MODU

If required, a temporary production system water filtration 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 and the produced water will be treated to meet 30 ppm OIW. Fluids that cannot be treated or flared will be sent onshore in tanks for disposal. Approximately 500 bbls (80 m^3) of produced water is yielded per well, which may be discharged via the treatment package.

Impact Assessment

Potential impacts to environmental values

Pelagic and benthic habitats and communities in the PAA are considered to be of low sensitivity and reflective of the wider NWMR. No known regionally significant benthic or infauna habitat occur in the area. The Continental Slope Demersal Fish Communities and Ancient Coastline at 125 depth contour KEF overlaps the PAA, (Section 4.7), however impacts to values and sensitivities of these KEF are not expected due to the highly localised and small physical footprint of the discharges, coupled with the low toxicity of cementing and subsea fluids used for the PAP. The likelihood of any significant impact to marine biota is subsequently considered to be low.

Cement

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 Azerbaijan, 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 Azerbaijan, 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. 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 considered slight and short-term due to its localised nature..

Cementing Fluids, Subsea Well Fluids (BOP Control Fluids and Well Displacement Fluids) and Other Unused Bulk Products

All chemicals that may be operationally released or discharged to the marine environment by the PAP are evaluated using a defined framework and set of tools to ensure the potential impacts of the chemicals selected are acceptable, ALARP and meet Woodside's expectation for environmental performance. Therefore, any chemicals selected and potentially released are expected to be of low toxicity and biodegradable. Additionally, where cements have been mixed in excess and cannot be reused or returned to shore, these will be turned into a slurry. As chemicals have initially been chosen based on the environmental performance and based on an ALARP assessment, additional dilution prior to discharge further reduces the environment impact to water quality, sediment quality and marine benthic and/or infauna communities. Given the minor quantities of routine and non-routine planned discharges, short discharge durations and the low toxicity and high dispersion in the open, offshore environment, any impacts on the marine environment are expected to be slight and localised.

Produced / Reservoir Water

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Approximately 500 bbls (80 m^3) of treated produced / reservoir water may be discharged to the marine environment, meeting the 30 ppm OIW. Given the minor volumes of produced / reservoir water discharges, short discharge durations and the low toxicity and high dispersion in the open, offshore environment, any impacts on the marine environment are expected to be slight and localised.

Cumulative Impacts

Given the highly localised nature of these discharges and potential impacts, cumulative impacts to marine biota, water quality and sediments are expected to be slight and short-term.

Summary of Potential Impacts to environmental values(s)

The overall impact significance level for routine and non-routine discharges of cement, cementing fluids, subsea well fluids and unused bulk product is a slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes (e.g. Environment Impact – E).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[49]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
No additional controls identified				
Good Practice				
Subsea control and cementing 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 10.1
For project activity fluids, periodic 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 9.2
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 volumes 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 9.6
Displacement, brine, workover or intervention fluids contaminated with hydrocarbons will be	F: Yes. CS: Minimal cost. Standard practice.	Ensuring <1% oil content will provide a small reduction in consequence when fluids	Benefits outweigh cost/sacrifice.	Yes C 9.7

49 Qualitative measure

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treated prior to discharge or contained. If discharge specification not met the fluid will be returned to shore.		are discharged to the environment.		
During well unloading and completion activities, produced water will be processed through the well test water filtration treatment package prior to discharge to the environment. Water will be treated to less than 30 ppm oil in water content prior to discharge to the environment. If this cannot be met, fluids will be returned to shore.	F: Yes CS: Minimal cost, standard practice	Reduced toxicity to the marine environment when discharged.	Benefits outweigh cost/sacrifice.	Yes C 10.2
Daily operations reports, or similar, record volumes of overboard drilling discharges.	F: Yes CS: Minor costs.	Provides opportunity to confirm that actual discharges are within the discharge volumes outline in the EP.	Benefit outweighs cost.	C 9.10
Professional Judgement – Eliminate				
Do not use BOP/Xmas tree control fluids.	F: No. BOP and Xmas tree control fluids are critical to the operation of the BOP and Xmas trees. CS: Not considered, control not feasible.	Not considered, control not feasible.	Not considered, control not feasible.	No
Excess dry bulk products will be managed as per Figure 6-1.	F: Yes. However, the cement may not meet the required technical specifications, and hence not be usable. CS: Minor administrative costs associated with coordinating reuse opportunities. Cost savings associated with the re-use of dry bulk products. Moderate cost associated with onshore transportation and/ or disposal, if deemed feasible.	Reusing bulk products or identifying an opportunity for it to be returned to shore may eliminate any environmental impacts associated with discharge to the marine environment, where these options are safe and technically feasible. Furthermore, following the process outlined in Figure 6-1 confirms that discharge to the marine environment only occurs when there are no other safe or technically feasible options and therefore when ALARP.	Benefits outweigh cost/sacrifice.	Yes C 10.3

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Sampling/analysis of stock barite to ensure acceptable levels of heavy metals (i.e. concentrations of mercury and cadmium in barite are <1 mg/kg and <3 mg/kg, respectively)	F: Yes. CS: Minimal cost. Standard practice.	Barite may contain heavy metals, such as cadmium and mercury, depending on their geological origin. Limiting the concentrations of cadmium and mercury is consistent with industry good practice. Limiting cadmium and mercury concentrations in barite reduces the environmental risk from discharges of barite to the environment, in the event barite is discharged to the marine environment in accordance with Figure 6-1.	Benefits outweigh cost/sacrifice.	Yes C 10.5
Return bulk unused inhibited MEG/brine package for onshore disposal where possible	F: Yes. CS: Minor	Transfer of excess MEG/brine package for onshore disposal would eliminate the bulk discharge to the marine environment and eliminate the likelihood and consequence of impacts from such activities	Benefits outweigh cost/sacrifice.	Yes C 10.6

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, Woodside considers the adopted controls appropriate to manage the impacts and risks of cement, cementing fluids, subsea well fluids and unused bulk products. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that, given the adopted controls, cement, cementing fluids, subsea well fluids and unused bulk products discharges are unlikely to result in an impact greater than slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes. Further opportunities to reduce the impacts have been investigated above. The adopted controls are considered good practice.

When considering the broader acceptability of the potential impacts consideration has been given to the legislative context, including international conventions such as the Minamata Convention on Mercury (Minamata Convention). While there are currently no specific legislative requirements relating to the Minamata Convention relevant to the management of mercury in this EP, Woodside has undertaken an assessment of the PAP and the Minimata Convention (including the measures in Article 9(5), see Table 6-13) and considers that the PAP is not inconsistent with the Minamata Convention.

Table 6-13: Consideration of control measures outlined in Article 9(5) of the Minamata Convention

Measures in Article 9(5) of the Minamata Convention	Justification for Implementation or Rejection

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Release limit values to control and, where feasible, reduce releases from relevant sources.	The performance standard limiting the concentration of mercury in barite aligns with API standards and limits the release of mercury to the environment. Woodside will only discharge bulk barite if it cannot be used for subsequent drilling activities and where technical assessment outcomes demonstrate that onshore disposal is not feasible.
The use of best available techniques[50] and best environmental practices[51] to control releases from relevant sources[52].	Woodside has reviewed the, *Releases of mercury: adoption of guidance on best available techniques and best environmental practices to control releases of mercury from relevant sources (article 9)*[53] which was adopted at the 5Th CoP 2023. The measures included, are for gas processing and therefore not relevant to offshore oil and gas drilling. Woodside is committed to implementing the process shown in Figure 6-1 which demonstrates ALARP and is consistent with the Minimata Convention. Woodside's bulk excess discharge process (as defined in Figure 6-1 meets the definition of "available" in that it provides the opportunity to identify options that are "technically and economically viable" and which are "accessible by the operator of the facility".
A multi-pollutant control strategy that would deliver co-benefits for control of mercury releases.	Woodside implements a management process to re-use barite where practicable, shown in Figure 6-1. This process reduces bulk discharges of barite to the environment. Woodside's performance standard limiting mercury concentrations in barite also limits the concentration of cadmium, which is also a recognized toxicant. This performance standard hence is a multi-pollutant strategy.
Alternative measures to reduce releases from relevant sources.	No other opportunities to reduce releases of mercury were identified.

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 10 No impact to water quality or marine	C 10.1 Subsea control and cementing fluids and additives will have an	PS 10.1 All chemicals intended or likely to be discharge into the marine	MC 10.1.1 Records demonstrate chemical selection,

[50] "Best available techniques" are defined in the Minamata Convention as: "*(b) "Best available techniques" means those techniques that are the most effective to prevent and, where that is not practicable, to reduce emissions and releases of mercury to air, water and land and the impact of such emissions and releases on the environment as a whole, taking into account economic and technical considerations for a given Party or a given facility within the territory of that Party. In this context:*
(i) "Best" means most effective in achieving a high general level of protection of the environment as a whole;
(ii) "Available" techniques means, in respect of a given Party and a given facility within the territory of that Party, those techniques developed on a scale that allows implementation in a relevant industrial sector under economically and technically viable conditions, taking into consideration the costs and benefits, whether or not those techniques are used or developed within the territory of that Party, provided that they are accessible to the operator of the facility as determined by that Party; and
(iii) "Techniques" means technologies used, operational practices and the ways in which installations are designed, built, maintained, operated and decommissioned;
[51] "Best environmental practices" are defined in the Minamata Convention as: *"(c) "Best environmental practices" means the application of the most appropriate combination of environmental control measures and strategies;"*
[52] Australia has not yet identified "relevant sources" in the context of this article.
[53] NATIONS UNIES (minamataconvention.org)

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biota greater than a consequence level of E[54] from discharging cement, cementing fluids, subsea well fluids and unused bulk products during the PAP.	environmental assessment completed prior to use.	environment reduced to ALARP using the chemical assessment process.	assessment and approval process for selected chemicals is followed.
	C 9.2 Refer Section 6.7.6	PS 9.2 Refer Section 6.7.6	MC 9.2.1 Refer Section 6.7.6
	C 9.6 Refer Section 6.7.6	PS 9.6 Refer Section 6.7.6	MC 9.6.1 Refer Section 6.7.6
	C 9.7 Refer Section 6.7.6	PS 9.7 Refer Section 6.7.6	MC 9.7.1 Refer Section 6.7.6
	C 9.10 Refer Section 6.7.6	PS 9.10 Refer Section 6.7.6	MC 9.10.1 Refer Section 6.7.6
	C 10.2 During well unloading and completion activities, produced water will be processed through the well test water filtration treatment package prior to discharge to the environment. Water will be treated to less than 30 ppm oil in water content prior to discharge to the environment. If this cannot be met, fluids will be returned to shore.	PS 10.2 Produced water discharged to the marine environment achieves discharge specification of <30 ppm	MC 10.2.1 Records demonstrate that discharge criteria were met before discharge or fluids were contained.
	C 10.3 Options for use of excess bulk cement, bentonite and barite will be managed as per Figure 6-1.	PS 10.3.1 Where the MODU is contracted for a subsequent Woodside drilling activity immediately following the PAP, bulk cement, bentonite and barite is retained on-board for reuse.	MC 10.3.1 Records demonstrate that if the MODU is contracted for subsequent drilling activity immediately following the PAP, dry bulk cement, bentonite and barite retained on board MODU for reuse at the conclusion of drilling campaign.
		PS 10.3.2 Where activity is last in Woodside MODU schedule, assess feasibility to transfer unused dry bulk cement, bentonite and barite to next titleholder who has the MODU on hire, or another Woodside- or other titleholder-contracted MODU operating in the region. If deemed feasible, bulks to be retained on board or transferred for reuse.	MC 10.3.2 Records demonstrate that where activity is the last in the Woodside MODU schedule, feasibility of transfer of unused dry bulk cement, bentonite and barite to next operator of the MODU, another Woodside or other titleholder rig in the region assessed and implemented if feasible.
		PS 10.3.3 Technical assessment of elimination of dry bulk discharge of barite on completion of drilling	MC 10.3.3 Records demonstrate study undertaken where

[54] Defined as “Slight, short-term impact (less than one year) on species, habitat (but not affecting ecosystems function), physical or biological attributes.” as in Table 2-3.

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		campaign undertaken, where options for reuse of bulk products on MODU or other MODUs in the region (PS 10.3.1, PS 10.3.2) are not feasible. Assessment to consider: • Environmental risk • Health and safety risk • Feasibility and timeframes for onshore disposal.	other options for reuse are not applicable.
		PS 10.3.4 No discharge of bulk barite at completion of the drilling campaign, where assessment deems onshore transportation considered technically feasible and ALARP.	MC 10.3.4 Records demonstrate bulk barite transported onshore where transportation options are feasible and ALARP.
	C 10.5 Sampling/ analysis of stock barite to ensure acceptable levels of heavy metals (i.e. concentrations of mercury and cadmium in barite are <1 mg/kg and <3 mg/kg, respectively)	PS 10.5 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 (<3 ppm) dry weight in stock barite.	MC 10.5.1 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 10.6 Unused MEG/ brine will be returned to port/ staging point for disposal where possible.	PS 10.6 Return all unused MEG/Brine for onshore disposal where possible.	MC 10.6.1 Records demonstrate all unused MEG/brine returned to shore for disposal where possible.

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6.7.8 Routine Atmospheric and Greenhouse Gas Emissions

Context		
Relevant Activities Project Vessels - Section 3.6 Drilling Activities – Section 3.10 Subsea Installation Activities – Section 3.11 Contingent Activities – Section 3.12	***Existing Environment*** Socio-economic Environment – Section 4.10	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Exhaust emissions from internal combustion engines and incinerators on project vessels and helicopters			X				A	F	-	-	LCS GP PJ	Broadly Acceptable	EPO 11
Flaring (well test non-routine) during well unloading for pressure test and clean up.			X										
Contingent venting of gas during drilling (e.g. well kick)			X										

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 gases within the atmosphere that absorb long-wave radiation, and thus trap heat reflected from the Earth's surface. The main gases responsible for this effect include carbon dioxide (CO_2), methane (CH_4) and nitrous oxide (N_2O). Other greenhouse gases include perfluorocarbons (PFCs), hydrofluorocarbons (HFCs) and sulphur hexafluoride (SF_6).

MODU, Vessel and Helicopter Operations

Atmospheric emissions are generated by project vessels from internal combustion engines (including all equipment and generators) and incineration activities (including onboard incinerators) during the PAP for standard operations, excluding drilling waste.

Atmospheric emissions generated during these operations will include SO_x, NO_x, particulates and VOCs. SO_x and particulate matter emissions are heavily influenced by the fuel used and its relative sulphur content, MGO usually

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having a lower sulphite content than marine diesel oil (MDO) or heavy fuel oil (HFO). GHG emissions from the MODU, vessel and helicopter operations are expected to be approximately 44,372 CO2-e t (Table 6-14).

A hybrid MODU may be used for the drilling campaign resulting in less fuel needed for station keeping if primarily moored, however dynamic positioning may be used due to the depth of the PAA or in the event of adverse weather conditions. Other vessels required for the PAP (e.g. PIV/IMR) may use DP to conduct installation or intervention activities (Table 3-4). Based on fuel consumption information from the DPS-1 MODU on previous Woodside drilling campaigns and the expected activity duration plus mobilisation, it is estimated that a DP MODU will consume approximately 44t/d when compared to similar scenarios. Based on the information available it is expected that up to approximately 13,200 tonnes of fuel may be used from MODU activities (60 total days for per well) and 315 tonnes per well intervention scope (~30 days per well). Other DP vessels associated with the subsea installation (PIV, IMR), and contingent well intervention activities may use up to 1,500 t (based on 100 days and a rate of 15 t/day) and 300 t (based on a 20 day single well intervention activity at 15 t/day). If a moored MODU is used for the PAP, GHG emissions associated with this will be less than the estimates that have been provided, which are for a DP MODU to complete the PAP. As such the potential impacts associated with using a moored MODU will be smaller, and within the boundaries assessment associated with the use of a MODU on DP.

Support vessels, refuelling vessel and helicopters will support the PAP, although emissions produced will be substantially less than those produced by the MODU/PIV. Total fuel consumption for support vessel activities (based on 1 x general offshore supply vessel on standby at 2.5 t/day) is expected to be up to 750 t for drilling activities, 150 t for subsea installation activities and ~ 50 t for a contingent well intervention activity. A refuelling vessel will be utilised during the subsea installation activity and may consume up to 30 t at 1.5 t/day. Helicopter operations during drilling activities may consume up to 360 t, based on 1.5 t/day. The potential for multiple helicopter runs has been considered in greenhouse gas summations (Table 6-14).

Well Kick

During drilling of the well and contingent well intervention activities, 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. The total volume of GHG emissions from well kicks and venting is approximately 529 CO2-e t (Table 6-14).

Flaring

If well unloading to the MODU is required, it is expected that gas, condensate, base oil and methanol in the wellbore will be flared and efficiently burned. The flare may be extinguished from events such as water ingress, lack of pilot (propane), weather impact or equipment failure resulting in cold venting of gas from the flare for several minutes. 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. Approximately 48 hours ~1.5mmscf of gas may be flared.

Table 6-14: GHG emissions and sources associated with the PAP

Source	GHG Emissions (CO2-e t)
MODU Activities[1]	
MODU Operations[2]	35,700
1 x Support vessel Operations	2,044
Helicopter operations	981
Well kick - Drilling Ops (60bbl Cold vent)	0.5
Pipelay, Installation and Commissioning[3]	
1 x Support Vessel	681
IMR vessel	613
Primary installation vessel	4,088
Refuelling Vessel	82
Intervention / Contingency Scenarios (Including Unload to MODU)[4]	
Intervention Vessel	858
1 x Support vessel Operations	143
Vented (MODU unload)	378

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Flow back (MODU unload)	1918
Well Kick/Knockout drum overflow (Extinguished flare)	28
Well Intervention Riser Depressurisation (Venting)	82

1. MODU activities estimates cover activities described in Section 3.10.

2. MODU emissions are based off the use of a MODU operating on DP while actively drilling. This is considered a conservative volume of GHG emissions to inform impact assessment. GHG emissions from hybrid and moored MODUs would be less and substantially less, respectively, due to reduced fuel burn from station keeping.

3. Pipelay, installation and commissioning estimates cover all activities described in Section 3.11.

4. Intervention/contingency scenario estimates cover activities described in Section 3.12 and are based on a single event. The actual number of intervention/contingency events are unknown and will depend on circumstances encountered during the PAP.

Impact Assessment

Potential impacts to environmental values

Air Quality (atmospheric pollutants and GHG emissions)

Atmospheric emissions may result in a localised, temporary decline in local air quality, within the immediate vicinity of the emissions source. As described above, produced atmospheric and GHG emissions associated with the project may include SO2, NOx, ozone depleting substances, CO2, particulates and VOCs. Emissions from engines, generators and deck equipment may be toxic, odoriferous or aesthetically unpleasing, and will result in a localised, temporary reduction in air quality.

Given the offshore location of the PAA, and the low volumes of atmospheric emissions which will be generated, biodiversity, ecological integrity, social amenities and human health will not be impacted and any potential impact to air quality is localised with no lasting effect.

Aesthetic Value

Atmospheric emissions have the potential to introduce localised, temporary odour and visual amenity issues which can result in changes to the aesthetic value of an area.

Given the distance from shore of the PAA (~ 50 km) and the short duration of the activities, the potential for a change in air quality from atmospheric emissions resulting in a change to aesthetic value for tourism/recreation or settlements is not considered to be credible and will have no lasting effect. Therefore, the impact of a change in aesthetic value from atmospheric emissions associated with PAP is of no lasting effect.

It is important to recognise that climate change impacts associated with greenhouse gas cannot be attributed to any one activity or one project because climate change is the result of global GHG emissions, minus GHG sinks that have accumulated in the atmosphere since the industrial revolution. They do not take into account the net impact of each project or activity. There is no direct link between greenhouse gas emissions from the activity and climate change impacts.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that routine atmospheric and GHG emissions will not result in a potential impact greater than no lasting effect (e.g. Environment Impact – F) based on a localised effect to air quality of the regional airshed and a low value receptor.

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[55]	*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 the likelihood of air pollution.	Control based on legislative requirements – must be adopted.	Yes C 11.1
Offshore Petroleum and Greenhouse Gas Storage (Resource Management	F: Yes CS: Minimal cost. Standard practice	The accepted WOMP will manage the risk of well kicks, reducing the	Control based on legislative	Yes C 11.2

[55] Qualitative measure

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and Administration) Regulations 2011: Accepted Well Operations Management Plan (WOMP) and application to drill.		likelihood of occurrence. No reduction in consequence will occur.	requirements – must be adopted.	
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 11.3
Subsea BOP installed and 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.	BOP testing reduces the volume of gas vented in the event of a well kick.	Benefits outweigh cost/sacrifice	Yes C 11.4
Process conducted to calculate, update and monitor kick tolerance for use in well design and while drilling, including: The BOP shall be closed upon detecting a positive well influx. The shut in procedure shall be according the rig contractor procedures or as the well conditions dictate. Kick tolerance calculations will be made for drilling all hole sections based on the weakest known point in the well. Kick detection techniques will be adjusted based on the level of kick tolerance through a management of change (MOC). The manual also includes requirements for kick tolerance management in the event of down-hole losses.	F: Yes CS: Standard practice. Required by Woodside standards.	Processes will reduce the volume of gas vented in the event of a well kick.	Benefits outweigh cost/sacrifice	Yes 11.5

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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.	F: Yes CS: Standard practice. Required by Woodside standards.	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 11.6
Woodside will provide GHG emissions data, from flaring, to MODU/ vessel contractors to enable legislative reporting requirements under the NGER Act to be met, where required.	F: Yes CS: Standard practice. Required by Woodside standards.	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 11.7
Good Practice				
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 11.8
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.	F: No. Venting is a critical safety activity required in the event of a kick 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				
Manage vessel speed to reduce fuel combustion	F: Yes CS: Standard practice	Reducing fuel combustion reduces atmospheric emissions.	Benefits outweigh cost/sacrifice	Yes C 11.9

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 2.7.1. Woodside considers the adopted controls good oil-field practice, and appropriate to manage the impacts of fuel combustion, 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, routine atmospheric emissions from fuel combustion, incineration, and venting are unlikely to result in an impact significance greater than no lasting effect. The

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adopted controls are considered consistent with industry legislation, codes and standards, and professional judgement and meet the requirements of Australian Marine Orders.

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 atmospheric emissions to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 11 Undertake the PAP in a manner that will not result in a substantial change in air quality which may adversely impact on biodiversity, ecological integrity, social amenity or human health.	C 11.1 Marine Order 97 (Marine Pollution Prevention – Air Pollution) which detail requirements for: • International Air Pollution Prevention (IAPP) Certificate, required by vessel class • Use of low sulphur fuel when available • Ship Energy Efficiency Management Plan (SEEMP), where required by vessel class • Onboard incinerator complies with Marine Order 97.	PS 11.1 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 11.1.1 Marine Assurance inspection records demonstrate compliance with Marine Order 97.
	C 11.2 Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011: accepted Well Operations Management Plan (WOMP), which describes the well design and barriers to be used to prevent a loss of well integrity, 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	PS 11.2 Well drilled in compliance with the accepted WOMP, including implementation of barriers to prevent a loss of well integrity.	MC 11.2.1 Acceptance letter from NOPSEMA demonstrates the WOMP and application to drill were accepted by NOPSEMA prior to the drilling activity commencing. MC 11.2.2 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 11.2.3 Records demonstrate composition and weight of drilling fluids were applicable to down hole conditions.

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	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) remain monitored and provide sufficient pressure to counter pore pressure during well construction • (Cementing barriers, including conductor, casing and liners) 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.		
	C 11.3 As-built checks shall be completed during well operations to establish a minimum acceptable standard of well integrity is achieved.	PS 11.3 Achieve a minimum acceptable standard of well integrity.	MC 11.3.1 Records show Well Acceptance criteria are developed for each well.
	C 11.4 Subsea BOP installed and 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	PS 11.4 Subsea BOP specification, installation and testing compliant with internal Woodside Standards and international requirements (API Standard 53 5th Edition) as agreed by Woodside and MODU contractor.	MC 11.4.1 Records demonstrate that BOP and BOP control system specifications and testing were in accordance with minimum standards for the expected drilling conditions as agreed by Woodside and MODU contractor.

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	• The capability of ROV intervention • Independent power systems.		
	C 11.5 Process conducted to calculate, update and monitor kick tolerance for use in well design and while drilling, including: The BOP shall be closed upon detecting a positive well influx. The shut in procedure shall be according the rig contractor procedures or as the well conditions dictate. Kick tolerance calculations will be made for drilling all hole sections based on the weakest known point in the well. Kick detection techniques will be adjusted based on the level of kick tolerance through a management of change (MOC). The manual also includes requirements for kick tolerance management in the event of down-hole losses.	PS 11.5 Kick tolerance is calculated, managed, monitored and updated while drilling.	MC 11.5.1 Records demonstrates well kick tolerance is calculated, managed, monitored and updated while drilling.
	C 11.6 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 11.6 Well is drilled in accordance with the contractor WCBD to reduce the likelihood of emissions to air from a well kick during drilling operations.	MC 11.6.1 Records demonstrate well drilled in accordance with WCBD.
	C 11.7 Woodside will provide GHG emissions data, from flaring, to MODU contractors to enable legislative reporting requirements under the NGER Act to be met, where required.	PS 11.7 GHG emissions data from flaring provided to MODU contractor.	MC 11.7.1 GHG data provided to MODU contractor.
	C 11.8 Well unloading acceptance criteria that define the well objectives will be established	PS 11.8 Flaring restricted to a duration necessary to achieve the well objectives.	MS 11.8.1 Records demonstrate flaring was restricted to a duration necessary to achieve the well objectives.
	C 11.9 Manage vessel speed to reduce fuel combustion	PS 11.9 Vessel speed will be managed to reduce fuel consumption where practicable.	MC 11.9.1 Records demonstrate speed of support vessels managed.

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6.7.9 Routine Light Emissions: External Lighting on MODU and Project Vessels

Context		
Relevant Activities Project Vessels – Section 3.6	***Existing Environment*** Regional Context – Section 4.2 Protected Species – Section 4.6	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
External light emissions on board MODU and project vessels					X		A	F	-	-	GP	Broadly Acceptable	EPO 12
Flaring					X								

Description of Source of Impact

Project Vessel Operations

The MODU and project vessels 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 project vessels and cannot be reasonably eliminated.

The extent of potential impact for this activity is restricted to the line of sight for each source emitting light. Based on other previous work undertaken by Woodside this is about 30 km from the MODU during drilling activities and 30 km from vessels (Woodside, 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).

Whilst 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 project vessels are expected to be below 1.00 Lux within 300 m from the source.

Cumulative light sources

Cumulative light impacts have the potential to occur from multiple vessels in the PAA during the drilling scope, if an IMR vessel be utilised for xmas tree installation. This scenario would include the MODU, the IMR vessel and two OSVs on standby and resupplying the rig, (Table 3-3), and will result in slightly elevated ambient light levels Cumulative impacts from light during this scenario would be limited to a three day window per well during xmas tree installation from the IMR vessel. Therefore, light impacts during concurrent activities in the PAA are likely to be temporary in nature and not expected to significantly increase impacts to marine fauna.

Additionally, IMR activities on the nearby JULA production manifold under the in force Julimar Operations EP may occur which may result in slightly elevated ambient light levels. Activities conducted on the JULA production manifold are likely to consist of one project vessel and are not expected to significantly increase impacts to marine fauna.

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Impact Assessment

Potential impacts to environmental values

Receptors that have important habitat within a 20 km buffer of the PAA 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). 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, 2020a).

Light emissions can affect fauna in two main ways:

- Behaviour: Many organisms 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. Artificial lighting has the potential to create a constant level of light at night that can override these natural levels and cycles.
- Orientation: Species such as marine turtles and birds may also use lighting from natural sources to orient themselves in a certain direction at night. In instances where 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 PAA are predominantly pelagic fish and zooplankton, with a low abundance of transient species such as marine turtles, whale sharks, whales and migratory seabirds. Given the low abundance of fauna expected to occur within the PAA, impacts from light emissions are considered to be highly unlikely. 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 — the nesting locations as identified in Table 6 of the Marine Turtle Recovery Plan (Commonwealth of Australia, 2017).

The PAA is about 50 km offshore (from North-west Island) and overlaps with a flatback turtle internesting buffer Habitat Critical , and BIAs for flatback turtle internesting, whale shark foraging, pygmy blue whale distribution and migration, and wedge-tailed shearwater breeding (Section 4.6).

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 (e.g. Longcore and Rich, 2004; Gaston et al., 2014; Rich and Longcore, 2006; Commonwealth of Australia, 2022). As the PAA 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. A breeding BIA for the wedge-tailed shearwater overlaps the PAA. The nearest emergent land that could be used for roosting or nesting habitat is the Montebello Islands (about 50 km from the PAA).

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, 2020a, 2020b, 2020c). For shearwater species, 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; Telfer et al., 1987). Artificial light can also impact important behaviour of nesting adults (e.g. adult nest attendance, maintaining nest sites) or confuse shearwater species, resulting in injury or mortality as a result of birds colliding with structures (Cianchetti-Benedetti et al., 2018; Rodriguez et al., 2017). As the PAA is about 50 km from the nearest emergent land, impacts to adult nesting or fledgling seabirds and migratory shorebirds are not expected. Artificial light from the PAP is not predicted to disrupt critical breeding behaviours within important nesting habitat or displace seabirds from nesting habitat.

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 (Department of Environment, 2015). The risk associated with collision from seabirds and shorebirds attracted to the light (Commonwealth of Australia, 2022) is considered to be low, based on the intermittent and localised nature of the activities in the PAA, as well as the distance offshore. Impacts are expected to be limited to temporary behavioural disturbance to isolated individuals and is not expected to disrupt important migration patterns of migratory seabirds.

Foraging adult seabirds may occur within the PAA. Foraging adult seabirds, including shearwaters, are less susceptible to impacts from artificial light than fledglings or nesting adult seabirds. However, they are still vulnerable as artificial light can interact with offshore foraging behaviour which may occur during the day or night.

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 1997). During the breeding period at the Muiron Islands off Exmouth Gulf (from around August to April, peak November), adult wedge-tailed shearwaters were observed taking a combination of short (1–4 days) or long (6–30 days) foraging trips from the Muiron Islands, travelling over large areas across the north west of Australia towards Indonesia (Cannell et al., 2019). During the breeding period, foraging adult wedge-tailed shearwaters were observed travelling up to around 1000 km from the breeding colony (Cannell et al., 2019). Although the breeding BIA overlapping the PAA is defined as the area within around 70-80 km from the Montebello Islands, wedge-tailed shearwaters on the NWS have been observed foraging beyond the breeding BIA. Based on the large area where foraging is known to occur, the PAA does not represent a significant portion of the known foraging area for the wedge-tailed shearwaters. Therefore, impacts to

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wedge-tailed shearwaters are likely to be limited to localised behavioural disturbance to isolated transient individuals. Artificial lighting from the PAP is not expected to significantly impact foraging or displace seabird species from important foraging habitat.

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).

The nearest turtle nesting locations to the PAA are at Montebello Islands, about 50 km south-east of the PAA, for flatback, green, loggerhead and hawksbill turtles.

For a derrick height of 50 m (maximum likely for potential MODUs that could be contracted for the PAP and highest point of light from MODU), the distance to the visible horizon is ~27 km – i.e. anything beyond this distance is below the horizon and direct light would not be visible. Therefore, direct light from project vessels/MODU will not reach any nesting location, but there is the potential for sky glow (particularly from flaring rather than operational lighting) to be visible at the closest nesting locations.

Whilst sky glow from flaring may be visible at the closest nesting beaches in the Montebello Islands (~50 km from the PAA), it is not credible that it would result in any behavioural impact (i.e. not biologically relevant). The light source is located directly offshore in the same direction that emerging hatchlings would be heading in anyway during normal sea-finding behaviour, meaning that no significant misorientation or disorientation would occur.

Since the PAA is located ~50 km from turtle nesting beaches in the Montebello Islands, the risk of significant numbers of dispersing hatchlings becoming attracted to direct light or sky glow from project vessels/MODU is not considered credible. This is supported by the findings of a desktop lighting impact assessment for the Scarborough Project, conducted by Pendoley Environmental (PENV, 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 localised behavioural impacts to isolated individual hatchlings offshore, with no lasting effect to the species.

Marine Turtles – Adults

Artificial lighting may affect the location that turtles emerge to the beach, the success of nest construction, whether nesting is abandoned, and even the seaward return of adults (Salmon et al., 1995a, 1995b; Salmon & Witherington, 1995). However, such lighting is typically from residential and industrial development overlapping the coastline, rather than offshore from nesting beaches. While the PAA overlaps with the north-west extent of a flatback turtle interesting BIA and Habitat Critical (described in Section 4.6.2), the nearest landfall for this BIA occurs at North West Island of the Montebello Islands, about 50 km south-east of the PAA.

The BIA and Habitat Critical 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. Impacts to nesting turtles are therefore not expected. Internesting flatback turtles favour depths of < 25 m, and foraging flatback turtles predominantly occur in waters shallower than 130 m (Whittock et al., 2016a, 2016b). Given the water depth of the PAA (130 - 300 m), turtles are unlikely to be foraging. However, it is acknowledged that marine turtles may be present transiting the PAA in low densities.

Marine Protected Areas

Within 50 km of the light sources of the PAP is the Montebello AMP. The values of the Montebello AMP are listed in the North-west Marin Parks Management Plan and those that are relevant to impacts from light emissions are:

- Natural Values:
  - internesting, foraging, mating and nesting for marine turtle (flatback and green turtles)
  - whale shark foraging BIA
  - wedge tailed shearwater breeding BIA
  - diverse fish communities.
- Cultural Values
  - none specifically relevant to acoustic emissions, beyond cultural values associated with the species listed under "Natural Values".
- Heritage Values
  - None specifically relevant to light emissions.
- Social and Economic Values

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- None specifically relevant to light emissions.

Each of the relevant natural values of the Montebello AMP have been assessed in the sections above. For the reasons stated, it is expected that there will be no lasting effect from the light emissions generated during the PAP and therefore the PAP is not inconsistent with the values of the Montebello AMP.

Other marine protected areas that are within 50 km of the PAA are:

- Montebello Islands State Marine Park (49 km of the PAA)
- Montebello Islands Conservation Park (46 km from the PAA)
- Unnamed 5(1)(h) reserve WA41080 S5H (45 km from the PAA)
- Barrow Island Marine Management Area (47 km from the PAA).

Given the distance of these areas from the PAA the only light source that could reach these areas is from the flare. Flaring is temporary in nature and will not be occurring throughout the entire PAP. Potential impacts to species associated with these areas are assessed in the sections above which have concluded that any impacts would have no lasting effect.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that routine light emissions will result in an impact of no lasting effect to the high value receptors (seabirds, migratory shorebirds and marine turtles) (i.e. Environment Impact – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[56]	*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.	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 12.1
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 11.8
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)	F: Yes. The Seabird 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 allows for standardised data collection to better understand seabird interactions with project vessels, provide guidance on seabird management for the best outcome for grounded birds and facilitate escalation and adoption of management actions within 24 hrs, preferably before next	While the control does not result in significant reduction of impacts, it is good practice and not at significant cost.	Yes C 12.2

[56] Qualitative measure

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A scalable adaptive management process should negative light impacts to nocturnal seabirds be detected		nightfall, should triggers be met.		
Professional Judgement – Eliminate				
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 external lighting on the MODU and vessels, 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 and provides minimal environmental benefit. The costs/sacrifices outweigh the benefit gained.	No
Variation of the timing of the PAP to avoid peak turtle internesting periods (December to January).	F: Yes 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
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, Woodside considers the adopted controls appropriate to manage the impacts and risks of acoustic light. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.				
Demonstration of Acceptability				
Acceptability Statement The impact assessment has determined that, given the adopted controls, routine light emissions from external lighting on the MODU and project vessels will not result in significant localised and temporary behavioural disturbance to species within the PAA, with no lasting effect (< 1 month). BIAs within the PAA include the flatback turtle internesting, whale shark foraging, pygmy blue whale migration and distribution, and wedge-tailed shearwater breeding areas. Regard has been given to relevant conservation advice and wildlife conservation plans during the assessment of potential impacts and the NLPG were taken into consideration during the impact evaluation. The PAP is not				

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considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice (Section 6.9).

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 light emissions to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 12 No impact to protected species greater than a consequence level of F57 from artificial light emissions during the PAP	C 12.1 Lighting will be limited to the minimum required for navigational and safety requirements, with the exception of emergency events.	PS 12.1 Lighting will be limited to that required for safe work/navigation.	MS 12.1.1 Inspection verifies no excessive light being used beyond that required for safe work/ navigation.
	C 12.2 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	PS 12.2.1 Implementation of the Woodside Offshore Seabird Management Plan by MODU and key PAP vessels to minimise potential impact should nocturnal seabird groundings occur.	MC 12.2.1 Records demonstrate the Woodside Offshore Seabird Management Plan is implemented.
	C 11.8 Refer to Section 6.7.8	PS 11.8 Refer to Section 6.7.8	MS 11.8.1 Refer to Section 6.7.8

[57] *Defined as 'no lasting effect (< 1 month); localised impact not significant to environmental receptors' as in* Table 2-3*/ Section 2.6.3.*

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6.8 Unplanned Activities (Accidents, Incidents, Emergency Situations)

6.8.1 Quantitative Spill Risk Assessment Methodology

6.8.1.1 Quantitative Hydrocarbon Spill Modelling

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 different environmental conditions (both meteorological and oceanographic). 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 (Spaulding et al., 2017; Li et al., 2017; French McCay et al., 2018).

Stochastic modelling was conducted for this study, which compiled data from numerous hypothetical spill simulations (100 for condensate and 200 for diesel) under different environmental conditions to determine the widest extent of possible oil dispersion. The environmental conditions for each of the hypothetical spills 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 simulations that show something unusual or unexpected make an important contribution to the overall outcomes and fate of the hydrocarbon.

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 cessation of the spill. 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.

The physical characteristics of JULA04 condensate, along with marine diesel, as used in the hydrocarbon spill modelling studies, are provided in Table 6-15.

Table 6-15: JULA-P hydrocarbon characteristics used in oil spill modelling.

Hydrocarbon Type	Initial Density (g/cm^3)	Viscosity (cP)	Component BP (°C)	Volatiles <180 °C	Semi volatiles 180–265 °C	Low Volatility (%) 265–380 °C	Residual (%) >380 °C	Aromatic (%) of whole oil <380 °C BP
				Non-Persistent			*Persistent*	
			% of total	43.6	22.9	27.1	6.5	19.8

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JULA04 condensate	0.798 @ 15°C	1.742 @ 20°C	% aromatics	8.8	5.1	6.0	-	-
Marine diesel	0.829 @ 25°C	4.0 @ 25°C	% of total	6.0	34.6	54.4	5.0	3.0
			% aromatics	1.8	1.0	0.2	-	-

6.8.1.2 Worst-case Scenario

In assessing the potential impacts of an unplanned hydrocarbon release, representative worst-case scenarios (in terms of volume and location) were assessed. A summary of the credible hydrocarbon spill scenarios that could occur during the JDP3 PAP are provided in Table 6-16.

Table 6-16: Credible hydrocarbon spill scenarios

Scenario	Hydrocarbon type	Maximum credible volume	Location
Loss of well integrity	Condensate	75,453 m3	Well location
Vessel collision resulting in rupture of a tank	Marine Diesel Oil (MDO)	2000 m^3	Well Location
Loss of containment during bunkering	MDO	50 m^3	Within PAA

For the JDP3 PAP, the worst-case scenario was identified to be a loss of 75,453 m^3 in the event of a loss of well containment resulting in an uncontrolled surface release for five days, followed by a 63-day[58] uncontrolled seabed release. As the worst-case scenario, the following assessment of impacts will also address the potential impacts of other credible lesser releases.

An instantaneous release of 2000 m^3 of marine diesel following a collision between the PIV and a refuelling vessel, representing loss of the largest vessel fuel tank integrity following a collision (refuelling vessel), was also used to inform this EP. Previous modelling is available for a similar spill scenario of the same release volume and hydrocarbon type at a similar location (<5 km away at the Julimar manifold). This modelling is therefore an analogous assessment of the vessel collision scenario presented in this EP, and hence has been adopted.

The assessment of impacts from these worst case scenarios will also address the potential impacts of other credible lesser releases.

6.8.1.3 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). In this case, the EMBA is driven by a combination of the worst-case credible hydrocarbon spill scenario, which, in this instance, is the loss of 75,453 m^3 in the event of a loss of well containment, as well as a loss of 2000 m^3 of marine diesel in the event of a vessel collision. At points, the marine diesel EMBA, extends further than the loss of well containment EMBA due to hydrocarbon characteristics.

[58] The 63-day Drilling Time Estimate used for the spill modelling is based on drilling and setting the 9-5/8" Liner at a total depth of ~4500mMD prior to attempting well interception and kill. Further modelling and relief well work has indicated the well could be intercepted at ~2600mMD. As such the total estimate stated in sections of this document relevant to relief well drilling, and also in the WOMP, is reduced to 48.9 days due to a substantial reduction in drilling timing.

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As the weathering of different fates of hydrocarbons (surface, entrained and dissolved) differs due to the influence of the metocean mechanism of transportation, the EMBA combines the potential spatial extent of the different fates.

The EMBA covers a larger area than the area that is likely to be affected during any single spill event, as the model was run for a variety of weather and metocean conditions. The EMBA therefore represents the total extent of all the locations where hydrocarbon thresholds could be exceeded from all modelling runs.

Surface and accumulated shoreline hydrocarbon concentrations are expressed as grams per square metre (g/m²), with entrained and dissolved aromatic hydrocarbon concentrations expressed as parts per billion (ppb). A conservative approach adopting accepted contact thresholds that are documented to impact the marine environment are used to define the EMBA. These hydrocarbon thresholds are presented in Table 4-1 and Table 6-17 and described in the following subsections.

Woodside recognises that hydrocarbons may be present beyond the ecological impact EMBA (Section 4.1) at low concentrations that may be visible but are not expected to cause ecological impacts. The threshold for visible surface oil (1 g/m^2) has therefore been used to define an additional boundary within which socio-cultural impacts to the visual amenity of the marine environment may occur. This area is referred to as the socio-cultural EMBA. Any ecological impacts from dissolved and entrained hydrocarbons above prescribed thresholds, as in Table 4-1 and Table 6-17**,** may also result in socio-cultural impacts. Potential impacts to socio-cultural values assessed within these EMBAs include:

- protected areas
- national and Commonwealth heritage listed places
- tourism and recreation
- fisheries.

Table 6-17: Summary of environmental impact thresholds applied to the quantitative hydrocarbon spill risk modelling results

Hydrocarbon Type	EMBA				Socio-cultural EMBA
	Surface Hydrocarbon (g/m2)	***Entrained hydrocarbon (ppb)***	***Dissolved aromatic hydrocarbon (ppb)***	***Accumulated hydrocarbons (g/m2)***	***Surface Hydrocarbon (g/m2)***
Condensate	10	100	50	100	1
Diesel	10	100	50	100	1

6.8.1.4 Surface Hydrocarbon Threshold Concentrations

The spill modelling outputs defined the EMBA for surface hydrocarbons resulting from a spill (contact on surface waters) using a threshold of ≥10 g/m² for diesel. 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 of 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/m² threshold is the reported level of oiling to instigate impacts to seabirds and is

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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 from the most vulnerable wildlife such as seabirds. Due to weathering processes, surface hydrocarbons will have a lower toxicity due to change 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/m² represents a 'dull metallic colour' (Bonn Agreement, 2015) (Table 4-1 and Table 6-18). 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/m² is based on the relationship between film thickness and appearance (Bonn Agreement oil appearance code, 2015), and represents a 'rainbow sheen' appearance. This threshold is considered below levels which would cause ecological impacts, and instead represents potential for visual amenity impacts. This threshold area is referred to as the 'socio-cultural EMBA'.

Table 6-18: The Bonn Agreement oil appearance code

Appearance (following Bonn visibility descriptors)	Mass per area (g/m²)	Thickness (µm)	Volume per area (L/km^2)
Discontinuous true oil colours	50 to 200	50 to 200	50,000 to 200,000
Dull metallic colours	5 to 50	5 to 50	5000 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

6.8.1.5 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/m² 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.

6.8.1.6 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, 2002; NRC, 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 NOPSEMA Oil Spill Modelling Guidance Bulletin (NOPSEMA, 2019).

6.8.1.7 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).

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The entrained threshold has been selected to be consistent with the NOPSEMA Oil Spill Modelling Guidance Bulletin (NOPSEMA, 2019). An entrained threshold of 100 ppb is considered to be appropriate given the oil characteristics for informing potential impacts to receptors.

6.8.1.8 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 H). This planning area has been set with reference to the low exposure entrained value of 10 ppb detailed in NOPSEMA Bulletin #1 Oil Spill Modelling (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.

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6.8.2 Unplanned Hydrocarbon Release: Loss of Well Integrity

Context		
Relevant Activities Drilling Activities – Section 3.10 Subsea Installation Activities - Section 3.11 Contingent Activities – Section 3.12	***Existing Environment*** Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6 Socio-economic Environment – Section 4.10	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Loss of hydrocarbons to marine environment due to loss of well containment	X	X	X	X	X	X	B	B	1	M	LCS GP PJ RBA CV SV	Acceptable if ALARP	EPO 13

Description of Source of Impact

Woodside has identified a subsea well blowout as the scenario with the worst-case credible environmental outcome as a result of loss of well containment. A loss of well containment is an uncontrolled release of reservoir hydrocarbon 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. Woodside has identified one well blowout scenarios:

- 2. “Swab” blowout – full reservoir open to flow in the 8.681” hole section

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
- probability of a blow-out from a well intervention is 1 x 10-4 (0.0001, or 0.01%), considerably lower than 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 many times in the industry, but not in the Company.

Credible Scenario – Loss of Well Containment

The credible worst-case scenario to be considered during the JDP3 PAP is an uncontrolled subsea release to environment lasting 63 days. This time frame has been selected because:

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- The Mutual Aid Memorandum of Understanding informed a likely relief well drilling and response time following the Montara well loss of containment in 2009 (77 days).
- Internal Woodside guidelines and procedures indicate that appropriate modelling and response times for well based spill scenarios is reservoir-specific, and reliant on drilling times.

Quantitative Hydrocarbon Spill Modelling – Loss of Well Containment

Spill modelling was undertaken by RPS, on behalf of Woodside, to determine the fate of hydrocarbon released from the loss of well containment scenario, based on the JULA04 condensate characteristics (Table 6-15). The modelled release rate provided assumes the worst case scenario for the largest oil volume release (Table 6-19). Modelling considered metocean conditions throughout the year; this was done to inform the determination of consequence of loss of well control during intervention at any time of the year.

Table 6-19: Summary of modelled credible scenario – well blowout

Loss of well integrity	
Total discharge[59] at surface	5 days 6,000 m³
Total discharge at seabed	58 days 69,453 m³
Water depth	190 m
Fluid	JULA04 condensate

Hydrocarbon characteristics

JULA04 Condensate is a mixture of volatile and persistent hydrocarbons with high proportions of volatile and semi-volatile components. In favourable evaporative conditions, about 43.6% of the oil mass should evaporate within the first 12 hours (BP < 180°C); up to a further 22.9% could evaporate within the first 24 hours (180°C < BP < 265°C); and a further 27.1% should evaporate over several days (265°C < BP < 380°C). Approximately 6.5% 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 19.8% by mass of whole oil. Around 8.8% by mass is highly soluble and highly volatile. A further 11.1% 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.

Weathering processes under realistic variable wind conditions are illustrated in the example mass balance weathering graph for a discrete spill of 50 m³ of Julimar South-1 condensate released at the surface, which is considered informative for this scenario (Figure 6-2). The graph demonstrates that the majority of evaporation would take place within the first 12 hours, with 36% of oil mass is forecast to have entrained and a further 56% is forecast to have evaporated, leaving <1% of oil floating on the water surface. The residual compounds will tend to remain entrained beneath the surface under conditions that generate wind waves (>6 m/s).

During calm conditions, approximately 65% of oil is predicted to evaporate within 12 hours. Under these calm conditions, the majority of the remaining oil on the water surface will weather at a slower rate due to being comprised of the longer-chain compounds with higher boiling points.

[59] The discharge volumes in Table 6-19 are predicted using reservoir modelling software packages that consider a number of factors (well design, reservoir properties and environmental conditions such as water depth, temperature and pressure) to provide a production profile over the oil spill modelling period.

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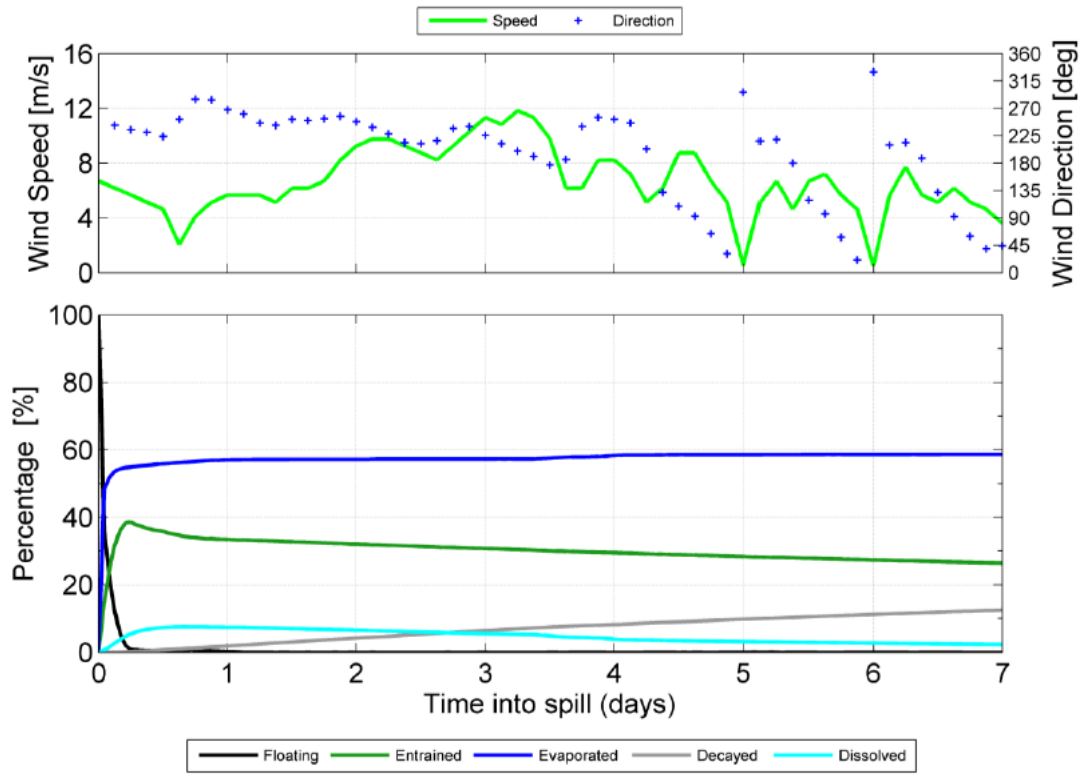

Figure 6-2: Proportional mass balance plot representing the weathering of 50 m3 from a surface spill of JUL04 condensate spilled onto the water surface and subject to variable wind at 27°C water temperature and 25°C air temperature.

Subsea Plume dynamics

The well blowout surface/subsea release that has been modelled forecasts the size of the hydrocarbon droplets that would be released from the well as determined by the OILMAP model. The results of the OILMAP simulation predict that the discharge will generate a cone of rising gas that will entrain the oil droplets and ambient sea water up to the water surface. The mixed plume is initially forecast to jet towards the water surface with a vertical velocity of around 11 m/s, gradually slowing and increasing in plume diameter as more ambient water is entrained. The diameter of the central cone of rising water and oil at the point of surfacing is predicted to be about 24.4 m.

The high discharge velocity and turbulence generated by the expanding gas plume is predicted to generate droplet sizes ranging from 708 µm to 2,549 µm. The results suggest that beyond the immediate vicinity of the blowout, the majority 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.

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. These issues should be considered when evaluating the practicality of the response operations at or near the blowout site.

Impact Assessment

Potential Impacts Overview

EMBA

Quantitative hydrocarbon spill modelling results are shown in Table 6-20 and have been used to define the EMBA (Section 4.1)

Surface Hydrocarbons

Quantitative hydrocarbon spill modelling results for surface hydrocarbons are shown in Figure 4-1. In the event of the loss of well containment scenario occurring, surface hydrocarbons at or above 1 g/m2 are forecast to potentially occur up to 34 km from the release site. Contact from surface oil concentrations greater than the 10 g/m2 threshold is predicted at one receptor, the Montebello AMP (2%) (Table 6-20).

Entrained Hydrocarbons

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Entrained hydrocarbons at concentrations equal to or greater than the 100 ppb threshold are predicted to be found up to 555 km from the release site. Contact by entrained hydrocarbons at concentrations equal to or greater than 100 ppb is predicted at the Montebello AMP (69%), as well as several other sensitive receptors with probabilities of less than 50 % (Table 6-20). The maximum entrained hydrocarbons concentration forecast for any receptor is predicted to be 3,565 ppb at Montebello AMP.

Dissolved Hydrocarbons

Dissolved aromatic hydrocarbons at concentrations equal to or greater than the 50 ppb thresholds are predicted to be found up to around 650 km from the release site. Contact by dissolved aromatic hydrocarbons at concentrations equal to or greater than 50 ppb is predicted to be greatest at the Montebello AMP (58%), as well as several other sensitive receptors with probabilities of less than 50% (Table 6-20). The maximum dissolved aromatic hydrocarbon concentration forecast for any receptor is predicted to be 1,391 ppb at Montebello AMP.

Accumulated Hydrocarbons

The potential for accumulation of oil on shoreline, occurring above thresholds concentrations (100 g/m2) are predicted to be found up to around 81 km from the release site. The maximum accumulated volume at shoreline concentrations of >100 g/m2 is predicted to be greatest at the Montebello Islands and State Marine Park, Hermite Island and Barrow Island (2% probability at each). The maximum accumulated shoreline volume for any receptor is predicted to be 14 m3 at Exmouth, Ningaloo World Heritage and Ningaloo State Marine Park receptor groups (10-100g/m2) (Table 6-20).

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Table 6-20: Key receptor locations and sensitivities potentially contacted above impact thresholds by the loss of well containment scenario with summary hydrocarbon spill contact (table cell values correspond to probability of contact [%])

Environmental setting	Location / name	Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure [WM0000PG10055394])																												Probability of hydrocarbon contact and fate (%) Note: the probability is based on stochastic modelling of 100 hypothetical worst-case spills under a variety of weather and metocean conditions					
		Physical		Biological																						Socioeconomic and Cultural					Socio-cultural EMBA		Ecological EMBA			
		Water Quality	*Sediment Quality*	*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 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 (foraging and internesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident /Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and 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	Argo-Rowley Terrace AMP	✓						✓							✓	✓			✓				✓	✓	✓		✓			✓		-	-	-	4	1	-
	Montebello AMP	✓	✓	✓			✓	✓							✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		8	-	2	69	58	-
	Ningaloo AMP	✓	✓	✓			✓	✓							✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		-	-	-	47	25	
	Shark Bay AMP	✓	✓					✓		✓					✓		✓		✓		✓		✓	✓	✓		✓	✓			-	-	-	1	1	-
	Gascoyne AMP	✓	✓												✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	-	-	-	45	25	-
	Rankin Bank	✓	✓	✓			✓	✓		✓						✓				✓		✓		✓	✓	✓		✓			-	-	-	-	26	-
Islands	Montebello Islands (including MP and Hermite Islands)	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		-	17	-	28	8	2
	Barrow Island (including MMA, MP, Boodie and Middle Islands and NRs)	✓	✓	✓	✓		✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	-	12	-	39	13	2
	Pilbara Islands – Southern Islands (Airlie, Bessieres, Mary Anne Group, Middle, Passage, Peak, Serrurier, Table and Thevenard Islands, Great	✓	✓		✓		✓		✓			✓		✓		✓	✓		✓	✓		✓	✓	✓	✓	✓		✓	✓		-	8	-	21	7	-

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Environmental setting	Location / name	Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure [WM0000PG10055394])																											Probability of hydrocarbon contact and fate (%) Note: the probability is based on stochastic modelling of 100 hypothetical worst-case spills under a variety of weather and metocean conditions					
		Physical		Biological																				Socioeconomic and Cultural					Socio-cultural EMBA		Ecological EMBA			
		Water Quality	Sediment Quality	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 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 (foraging and internesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident /Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and 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)
	Sandy Island NR, North Sandy Island NR, Thevenard Island NR)																																	
	Lowendal Islands	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓		-	9	-	6	2	-
	Muiron Islands (includes MMA and Sunday Island)	✓	✓	✓	✓		✓	✓		✓		✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓		-	21	-	48	22	-
Reefs, Banks and Shoals	Montebello Shoals	✓	✓	✓			✓	✓			✓				✓	✓			✓	✓	✓	✓		✓	✓						-	-	-	18	8	-
	Barrow Island Reefs and Shoals (including Poivre Reef and Tryal Rocks)	✓	✓	✓			✓	✓			✓				✓	✓			✓	✓	✓	✓		✓	✓						-	-	-	37	27	-
	North West Reef	✓	✓	✓			✓	✓			✓				✓	✓			✓	✓	✓	✓		✓	✓						-	-	-	5	2	-
	Pilbara Reefs (including Brewis Reef, Little Shoals, Outtrim Patches, Penguin Bank, Ripple and	✓	✓	✓			✓	✓			✓				✓	✓			✓	✓	✓	✓		✓	✓						-	-	-	25	9	-

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Environmental setting	Location / name	Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure [WM0000PG10055394])																											Probability of hydrocarbon contact and fate (%) Note: the probability is based on stochastic modelling of 100 hypothetical worst-case spills under a variety of weather and metocean conditions					
		Physical		Biological																				Socioeconomic and Cultural					Socio-cultural EMBA		Ecological EMBA			
		Water Quality	Sediment Quality	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 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 (foraging and internesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident /Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and 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)
Coastlines	Rosily Shoals, Sultan Reef, Taunton Reef and Trap Reef)																																	
	Ningaloo Reef	✓	✓	✓			✓	✓			✓				✓	✓			✓	✓	✓	✓	✓	✓	✓						-	-	-	26	12	-
	Carnarvon				✓	✓	✓	✓			✓	✓	✓	✓	✓	✓	✓		✓				✓	✓	✓				✓			-	-	-	1	-	-
	Exmouth		✓	✓		✓	✓	✓			✓	✓		✓	✓	✓	✓		✓	✓	✓	✓	✓		✓	✓		✓	✓		-	13	-	21	10	-
	Middle Pilbara – Islands and Shoreline	✓			✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓		✓	✓		✓	✓	✓	-	3	-	2	-	-
	Ningaloo (WHA, MP, Cape Range NP)	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		2	13	-	47	25	-

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Summary of Potential Impacts to environmental values(s)
Summary of Potential Impacts to protected species
Receptor group
Offshore Cetaceans A range of cetaceans were identified as potentially occurring within the PAA 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 [DHNRDT] 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 (DHNRDT 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 (DHNRDT., 2016), and long-term population level impacts to killer whales were linked to the Exxon Valdez tanker spill (Matkin et al., 2008). Pygmy blue whales and humpback whales are known to migrate seasonally through the wider EMBA and a migration BIA for the pygmy blue whale overlaps the PAA. A major spill in May to November would coincide with humpback whale migration through the waters off the Pilbara and North West Cape (Section 4.6.5). A major spill in April–August or October would coincide with pygmy blue whale migration (Section 4.6.5). 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. 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. ***Nearshore Cetaceans and Dugongs*** 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 Southern Island Group (see Table 6-20) 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), as well as overlapping foraging, breeding, nursing and calving BIAs for dugongs (~181 km south of the PAA).; therefore, migratory humpbacks moving into the Gulf, or more residential dugongs, 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 threshold concentrations for the ecological EMBA is expected for Camden Sound, an important calving area for humpback whales. The potential impacts of exposure are discussed above. 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.

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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. 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.

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

Offshore

Adult sea turtles exhibit no avoidance behaviour when they encounter hydrocarbon spills (NOAA 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 (NOAA 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 (NOAA 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).

A flatback turtle internesting BIA and Habitat Critical overlaps the PAA (Figure 4-5). However, the PAA 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 (130 - 300 m). 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 Habitat Criticals' overlap the EMBA (Section 4.6.2, Figure 4-5, Table 4-9).

In particular, the internesting BIAs and Habitat Critical areas for green, loggerhead and hawksbill turtles extend for ~20 km from known nesting locations, and for ~60 km for flatback turtles. It is noted that the PAP is proposed to be undertaken in Q2 2024 to Q1 2025, which coincides with the peak hatching season of several species (November to April), where higher numbers of turtles may be present (refer to Section 4.6.5). Oil from an ongoing loss of containment could be present during nesting season depending on the timing of a spill.

There is the potential for marine turtles to be present at submerged shoals within the EMBA, such as Rankin Bank and Glomar Shoals, however these receptors are not expected to be contacted by entrained hydrocarbons above the threshold concentration. Submerged reefs and shoals of Barrow Island and southern Pilbara islands have the potential to be contacted by entrained hydrocarbons above the threshold concentrations. Marine turtles may be present at such reefs and shoals given the benthic communities associated with the areas.

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.

Mainland and Islands

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 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 above. 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. In addition, The potential for accumulation of oil on shoreline, occurring above thresholds concentrations (100 g/m2), was predicted at the Montebello Islands and State Marine Park, Hermite Island and Barrow Island. (Table 6-20). Shoreline oil from an ongoing loss of containment could be present at these receptors during nesting/hatching season depending on the timing of a spill.

The potential impacts of exposure are as discussed above. 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 at nesting beaches. Contact with gravid adult females or hatchlings may occur on nesting beaches (accumulated hydrocarbons) or in nearshore waters (entrained hydrocarbons) where hydrocarbons are predicted to make shoreline contact. If accumulated hydrocarbons (Montebello/Hermite/Barrow Island and Montebello State Marine Park) or entrained hydrocarbons reach the shoreline or internesting coastal waters (refer to Table 6-20 for receptor locations), there is the potential for impacts to turtles

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using the affected area. Animals that lay eggs have been shown to pass metabolised oil related compounds into their offspring which has the potential to be toxic to the developing embryos. Similarly, adult female turtles can pass metabolised oil and related products to their eggs, thereby potentially exposing developing embryos and impairing the development and survival of embryos (DWH Natural Resource Damage Assessment Trustees, 2016).

During the breeding season, turtle aggregations near nesting beaches within the EMBA are most vulnerable due to greater turtle densities and potential impacts may occur at the population level. Potential impacts on marine turtles may be major and long-term in the unlikely event of a loss of well control. However, based on the assessment above and given the volatile and non-persistent nature of the hydrocarbons and low levels of shoreline accumulation, the extent of impacts is not expected to result in a threat to the overall viability of marine turtle populations in the wider region.

A worst-case hydrocarbon spill scenario has the potential to result in major long-term impacts to foraging and nesting marine turtles, with consequence severity dependent on the actual timing, duration and extent of a spill.

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. This may include potential damage to the dermis and irritation to the mucus membranes of the eyes, nose and throat (ITOP, 2011a). They may also be impacts 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 are found in continental shelf waters around offshore islands and potentially submerged shoals (water depths <100 m. Sea snakes may be present in the wider EMBA at the submerged shoals, Rankin Bank and Glomar Shoals, as well as the submerged reefs and shoals of Barrow Island and southern Pilbara islands. Sea snakes may also be present in nearshore waters of the mainland and islands which, along with submerged reefs and shoals, have the potential to be contacted by entrained hydrocarbons above the threshold concentrations. Their abundance is not expected to be high given the water depth and offshore environment. However, 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 disproportionally 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 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 below.

Fish, Sharks and Rays

Offshore

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 are known to feed in the PAA and EMBA, and both areas overlap 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.

There is the potential for resident shark, ray and fish populations associated with offshore reefs and shoals to be impacted directly from hydrocarbon contact, or indirectly through contaminated prey, or loss of habitat. Spill model results indicate Rankin Bank and Glomar Shoals are not predicted to be contacted by entrained hydrocarbons above threshold concentrations). Submerged reefs and shoals of Barrow Island and southern Pilbara islands have the potential to be contacted by entrained hydrocarbons above the 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 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.

Nearshore

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

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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. manta ray species identified in Section 4.6.1) populations to be impacted directly from hydrocarbon contact or indirectly through contaminated prey or loss of habitat.

Spill modelling 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

Offshore waters of the PAA 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). In particular, the EMBA overlaps a number of significant habitats for seabirds and migratory shorebirds such as the Dampier Archipelago and Pilbara Islands.

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 (AMSA 2013, International Petroleum Industry Environmental Conservation Association [IPIECA] 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 (AMSA 2013), 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.

<u>Nearshore</u>

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

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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 (IPIECA, 2004). Whether the toxicity of ingested hydrocarbons is lethal or sub-lethal will depend on the weathering stage and its inherent toxicity (note: the shortest entrained hydrocarbon time to contact with a shoreline is seven days (North Ningaloo Coast)). 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.

Migratory shorebirds may be exposed to stranded hydrocarbon when foraging or resting in intertidal habitats, however, direct oiling is typically restricted to a relatively small portion of birds, and such oiling is typically restricted to the birds' feet. Modelling predicts that shoreline accumulation above impact thresholds are not expected at receptor groups; the potential for impacts to migratory shorebirds by accumulated hydrocarbons on shorelines is considered to be very low.

Important areas for foraging seabirds and migratory shorebirds are identified in Section 4.6.4. Refer to Table 6-20 for locations within the predicted extent of the EMBA that are identified as habitat for seabirds/migratory shorebirds. Suitable habitat or seabirds and shorebirds are broadly distributed along the mainland and nearshore island coasts within the EMBA. Of note are important nesting and resting areas, including (refer to Section 4.6.4 for additional information, including BIAs within the wider EMBA):

- Muiron Islands
- Ningaloo Coast
- Montebello/Barrow/Lowendal Islands Group (including known nesting habitats on Boodie, Double and Middle Islands)
- Pilbara Islands South Island Group

Therefore, a hydrocarbon spill may result in impacts on key feeding habitat and disruption to a significant portion of the habitat. Potential impacts on seabirds and shorebirds are expected to be major and long-term in the highly unlikely event of a loss of well control. However, based on the assessment above and given the volatile and non-persistent nature of the hydrocarbons and low levels of shoreline accumulation predicted, the extent of impacts is not expected to result in a threat to the overall viability of seabird or shorebird populations in the wider region.

Summary of potential impacts to other species

Receptor Group

Pelagic Fish Populations

Fish mortalities are rarely observed to occur as a result of hydrocarbon spills (ITOPF 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). Subtler, 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

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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 Continental Slope Demersal Fish Communities KEF as well as the Ancient Coastline at 125 m depth contour KEF which overlap the PAA. A number of additional KEFs that may host relatively diverse or abundant fish assemblages compared to relatively featureless continental shelf habitats occur within the wider EMBA (Table 4-16 and Figure 4-10). KEFs within 200 km of the PAA include the:

- Exmouth Plateau KEF (89 km north-west), which is an important area of biodiversity (DAWE, 2021)
- Canyons linking the Cuvier Abyssal Plain and the Cape Range Peninsula KEF (143 km south-west), which has been shown to host demersal fish (BMT Oceanica 2016)
- Commonwealth Waters adjacent to Ningaloo Reef KEF (186 km south-west), which has high biological productivity and hosts a yearly aggregation of whale sharks (DAWE, 2021).
- Glomar Shoals KEF (155 km north-east), an area of high productivity, and species richness and abundance in shallow habitats (Abdul Wahab et al., 2018)

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

Receptor Group

Submerged Shoals

The waters overlying the submerged Rankin Bank have the potential to be exposed to dissolved hydrocarbons above threshold concentrations (at or greater than 100 ppb). No entrained hydrocarbons above the threshold value are predicted to reach Rankin Bank however may contact the submerged reefs and shoals of Barrow Island, the Montebello Shoals and southern Pilbara islands (Table 6-20).

Entrained hydrocarbons reaching these shoals will be highly weathered, with the volatile and water soluble (often the most toxic) components expected to have dissipated (minimum time to contact with entrained hydrocarbons is predicted to be 38 days to the Barrow Island reefs and Shoals, 11 days for Montebello Shoals and 11 days to Pilbara banks and shoals). The permanently submerged habitats of Rankin Bank represents sensitive open water benthic community receptors, extending from deep depths to relatively shallow water. Given the water depth, it is likely the potential for biological impact is significantly reduced when compared to the upper water column layers. However, potential biological impacts could include sub-lethal stress and in some instances total or partial mortality of sensitive benthic organisms such as corals and the early life stages of resident fish and invertebrate species.

The submerged shoals are areas associated with sporadic upwelling and associated primary productivity events. Impacts to plankton communities from exposure to entrained hydrocarbons above threshold concentrations may result in short-term changes in plankton community composition but recovery would occur. Hydrocarbon contact during the spawning seasons for resident shoal community benthos and fish (meroplankton), particularly exposure to in-water toxicity effects to biota, may result in the loss of a discrete cohort population but would not affect the longer term viability of resident populations. Therefore, any impacts to resident shoal community benthos and fish (meroplankton) are likely to be localised at the shoals and temporary.

Hydrocarbon exposure to offshore filter-feeding communities may occur depending on the depth of the entrained/dissolved hydrocarbons. Exposure to entrained (aromatic) hydrocarbons (≥50 ppb) has potential to result in lethal or sub-lethal toxic effects. Sub-lethal impacts, including mucus production and polyp retraction, have been recorded for gorgonians exposed to hydrocarbon (White et al., 2012). Shoals that are exposed to entrained and/or dissolved hydrocarbons are expected to result in localised long-term effects, depending on the exposure concentrations and degree of weathering.

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/Barrow Island reefs and shoals, Ningaloo Reef and Cape Range (Table 6-20).

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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, Muiron Islands) 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/Macroalgae and Mangroves

Spill modelling has predicted that entrained hydrocarbons above threshold concentrations have the potential to contact a number of 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 Barrow Island, Lowendal Islands, Muiron Islands, Pilbara Islands, Montebello Islands and Ningaloo Coast may have the potential to be exposed (see Table 6-20 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 Ningaloo Coast, Pilbara islands, and Montebello Islands may be contacted by entrained hydrocarbons within the EMBA (see Table 6-20). 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 (NOAA 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, macroalgae and mangrove 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

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Receptor Group
Benthic Fauna Communities In the event of a major release at the seabed, the stochastic spill model predicted hydrocarbon 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 (Ancient Coastline, Continental Slope Demersal Fish Communities KEF, Canyons KEF, Exmouth Plateau KEF and Commonwealth Waters adjacent to Ningaloo Reef KEF (Section 4.7)). 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 (ITOPF 2011a). Nearshore waters and adjacent offshore waters surrounding the offshore islands (e.g. Montebello/Barrow/Lowendal Islands Group, Muiron Islands, Pilbara Islands), and 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 relevant section above). Therefore, a worst-case hydrocarbon spill scenario has the potential to result in minor, short-term impacts to plankton populations within the EMBA.
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 Ancient Coastline KEF, Continental Slope Demersal Fish Communities KEF, Canyons KEF, Exmouth Plateau KEF and Commonwealth Waters adjacent to Ningaloo Reef KEF. Hydrocarbon exposure to shallow nearshore filter feeding communities (< 20 m) (e.g. Montebello Islands, Barrow Island) 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 localised, long-term impacts to filter feeders within the EMBA.
Open Water – Physical Displacement of Fauna from Gas Plume The effect of the physical extent of the gas plume in the environment is expected to have a limited and localised effect on identified receptors such as the physical barrier created by the gas plume, which may displace transient and/or mobile biota such as pelagic fish, megafauna species (migratory whales) and plankton. It is acknowledged that the physical extent of the plume may displace some open water species transiting the offshore waters of this area of the NWS. The extent of the plume is relatively small in comparison to the surrounding offshore environment but the overall impact to the in-water biota and the marine environment in general is expected to be slight to minor short-term impact to communities in the EMBA.

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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) (ITOPF 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 Montebello/Barrow/Lowendal Islands Group, Pilbara Southern Islands Groups, Ningaloo Coast, Exmouth Gulf West, and the 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.

Sandy Shores/Estuaries/Tributaries/Creeks (including Mudflats)/Rocky Shores

Shoreline exposure for the upper and lower areas differ. The upper shore has the potential to be exposed to surface slicks, while the lower shore is potentially exposed to entrained hydrocarbon. Potential impacts may occur due to hydrocarbon contact with intertidal areas, including sandy shores, mudflats and rocky shores, listed in Table 6-20. Hydrocarbon at sandy shores is incorporated into fine sediments through mixing in the surface layers from wave energy, penetration down worm burrows and root pores. Hydrocarbon in the intertidal zone can adhere to sand particles; however, high tide may remove some or most of the hydrocarbon back of the sediments. Typically, hydrocarbon is only incorporated into the surface layers to a maximum of 10 cm (Etkin, 2003) . As described earlier, accumulated hydrocarbons ≥100 g/m² could impact the survival and reproductive capacity of benthic epifaunal invertebrates living in intertidal habitat (French-McCay, 2009). Note that no shoreline accumulation above impact thresholds was identified by the stochastic modelling and long term impacts to shorelines is not expected.

Key Ecological Features

KEFs potentially impacted by the hydrocarbon spill from a loss of well containment event are detailed in Section 4.7. 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, Refer Section 4.7). 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

Receptor Group

Open Water – Water Quality

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The highly-mixed, open water location will result in rapid evaporation and dispersion. Water quality would be reduced and is predicted to be at or above biological effect concentrations for the surrounding marine waters over the Montebello Marine Park. The submerged Tryal Rocks (30-40 m depth) within the Montebello Marine Park has the potential to be exposed to entrained hydrocarbons at or greater than 100 ppb. The waters surrounding this submerged habitat would show a reduction in quality due to hydrocarbon contamination above background and/or national/international quality standards.

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 release location.

Summary of Potential Impacts to Marine Sediment Quality

Receptor Group

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.

Entrained and dissolved hydrocarbons (at or above the defined threshold) are predicted to potentially contact shallow, nearshore waters of identified islands and mainland coastlines. Hydrocarbons may occur (at or above the ecological impact thresholds) at the Montebello Islands, islands along the Pilbara coast and near Exmouth Gulf and the Ningaloo Coast (refer to Table 6-20).

Such hydrocarbon contact may lead to reduced marine sediment quality through adherence to sediment. However, given the nature of the hydrocarbon and degree of weathering that is expected prior to contact with nearshore seabed habitats, contamination of sediments is expected to be limited and short term.

Therefore, a worst-case hydrocarbon spill scenario has the potential to result in slight, short-term impacts to offshore sediment quality within a localised area of the PAA. For nearshore environments, 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 PAA to the nearest sensitive airshed (town of Dampier ~169 km away), 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, State Marine Parks, World Heritage Areas and other protected places (refer to Table 6-20) may be affected by released hydrocarbons in the event of a loss of well containment. In the unlikely event of a major spill, entrained hydrocarbons and/or dissolved hydrocarbons may contact the identified key receptor locations of islands and mainland coastlines, resulting in the actual or perceived contamination of the protected areas, identified in Table 6-20.

The Montebello AMP has the greatest potential to be contacted by surface hydrocarbons, dissolved aromatic hydrocarbons and entrained hydrocarbons at or above the defined ecological effect concentrations. Hydrocarbons at

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or exceeding impact thresholds also have the potential to contact other protected areas, including the Argo-Rowley Terrace AMP, Gascoyne AMP, Ningaloo AMP and WHA and Shark Bay AMP. In most cases, the hydrocarbons that are predicted to reach these protected areas will be in an advanced state of weathering and at concentrations typically associated with lethal and sub-lethal impacts to only the most sensitive marine organisms. The potential (albeit low probability) of visible surface hydrocarbons exceeding 1 g/m^2 reaching these protected areas may result in a perception of more significant impacts than actually occur.

Objectives in the management plans for protected areas within the EMBA, including AMPs require consideration of a number of physical, ecological, socio-economic and heritage values identified in these areas (Section 4.8). Impact on the values of these protected areas are discussed in the relevant sections above for ecological and physical values and below for socio-economic and heritage values.

Additionally, such hydrocarbon contact may alter perception of the protected marine environment, given these represent areas largely unaffected by anthropogenic influences and contain biological diverse environments.

Summary of Potential Impacts to Socioeconomic Values

Receptor Group

Fisheries – Commercial

Offshore

A hydrocarbon release during a loss of well containment event has the potential to result in direct impacts to target species of three Commonwealth and 19 State fisheries active within the defined EMBA (refer Section 4.10). 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 PAP 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. 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.

Nearshore

In the highly unlikely event of a loss of well integrity, there is the possibility that target species in some areas used by a number of State fisheries, prawn fisheries, pearl oyster fisheries and aquarium, and land hermit crab fisheries in nearshore waters of the mainland coast and islands that are within the EMBA could be affected. Targeted fish, prawn, mollusc and lobster species could experience sub-lethal stress, or in some instances mortality, depending on the concentration and duration of hydrocarbon exposure and its inherent toxicity.

The hydrocarbons predicted to reach these nearshore water locations will be in an advanced state of weathering and at concentrations typically associated with lethal and sub-lethal impacts to only the most sensitive marine organisms. Therefore, direct impacts may be limited to sub-lethal impacts only. However, there is also the potential for tainting of target species and for negative public perception.

Prawn Managed Fisheries

In a major spill, the modelling indicated the entrained EMBA may extend to nearshore waters closest to the mainland Pilbara and Gascoyne coasts, including the actively fished areas of the designated Onslow Prawn Managed Fishery, Exmouth Gulf Prawn Managed Fishery, Nickol Bay Prawn Managed Fishery and the Shark Bay Prawn and Scallop Managed Fishery, and managed prawn nursery areas. Note that the majority of the demarcated area for the prawn managed fishery in the Exmouth Gulf (proper) is outside the EMBA. Those fisheries that occur within the EMBA occur in shallow, nearshore waters where limited hydrocarbon exposures are predicted to occur.

Prawn habitat utilisation differs between species in the post-larval, juvenile and adult stages (Dall et al., 1990). Direct impacts to benthic habitat due to a major spill has 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 a major spill, the model predicted shallow subtidal and intertidal habitats

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at the Muiron Islands, Montebello Islands, Barrow Island, Lowendal Islands, Pilbara Southern Islands Group, and mangrove and seagrass habitats of the Ningaloo Coast are located within the EMBA and could be exposed to hydrocarbon concentrations above threshold concentrations, depending on the trajectory of the plume. Localised loss of juvenile prawns in worse spill affected areas is possible. Whether lethal or sub-lethal effects occur will depend on duration of exposure, hydrocarbon concentration, 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 credible hydrocarbon spill scenario has the potential to result in displacement of fishing activities in the spill-affected area for an extended period, detrimental impacts to seafood quality, and stress/mortality affects to target species including prawn stocks through critical habitat destruction across commercial fisheries within the EMBA.

Tourism including Recreational Activities

In the event of a major spill, the nearshore waters of offshore islands and reefs (e.g. Barrow/Montebello/Lowendal Islands Group, Muiron Islands, Pilbara Islands etc.) 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 at a number of receptor sites. 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.

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 PAA. 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 PAP may lead to exclusion of marine nature-based tourist activities, including charter based fishing and diving, 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.

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 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): 13 km north-west from the PAA
- Wheatstone platform (operated by Chevron): 17 km north-east from the PAA
- John Brookes (operated by Santos): 27 km south from the PAA
- East Spar (operated by Santos): 57 km south from the PAA
- Goodwyn Alpha platform (operated by Woodside): 88 km north-east of the PAA

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.

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Cultural Heritage

There are a number of historic shipwrecks identified within 50 km of the PAA (Table 4-21). The closest known wrecks are those of the Curlew (~1 km north-east), Marietta (~1 km north-east), Vianen (~1 km north-east), Wild Wave (China) (~1 km north-east), Tanami (29 km south east) and Trial (30 km south-east). Within the wider EMBA there are a further 71 shipwrecks.

The modelling results do not predict surface slicks contacting the identified wrecks, and the majority of entrained hydrocarbons are expected to occur close to the surface. However, shipwrecks in the subtidal zone could be exposed to entrained and dissolved hydrocarbons. 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 resident fish species and sessile benthos such as hard corals exhibiting sub-lethal and lethal impacts (which may range from physiological issues to mortality).

Entrained hydrocarbons above the threshold concentration are predicted at the Montebello/Barrow/Lowendal islands. There is also a low probability of shoreline accumulation above the ecological threshold at Barrow/Montebello Islands. However, artefacts, scatter and rock shelters are on land above the high water mark on Barrow and Montebello islands; therefore, no contact is predicted for these areas.

Within the wider EMBA are several designated heritage places (Section 4.9). 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 Section 4. This incorporates AMPs as well as other sensitive marine environments and associated receptors of the Muiron Islands, Ningaloo Coast, Rankin Bank, Montebello/Barrow/Lowendal Islands Group, the Pilbara Southern and Northern Islands Group and Shark Bay. Long-term impacts may occur at these locations, including socio cultural effects as a result of a major spill of condensate from drilling activities within the PAA.

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 a loss of well control within the PAA. 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)[60]***	***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 design and barriers to be used to prevent a loss of well integrity, specifically: All zones with flow potential penetrated by the well bore, containing hydrocarbons, shall be isolated from the surface environment by a minimum of two barriers (primary and secondary). The barriers shall: be effective over the lifetime of well construction and abandonment	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 a 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 11.2

[60] Qualitative measure

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(fluid barriers) remain monitored and provide sufficient pressure to counter pore pressure during well construction and abandonment (cementing barriers, including conductor, casing and liners) conform to the relevant minimum standards set out in the Woodside Barrier Standard. Verification: Effectiveness of primary and secondary barriers shall be verified (physical evidence of the correct placement and performance) during the permanent plugging of the well (if required).				
In the event of a spill, emergency response activities implemented in accordance with the OPEP (per Table 7-8).	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 13.2
Arrangements supporting the activities in the OPEP (per Table 7-8) 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 13.3
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 11.3
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 13.4
Well specific barrier elements, and the specified verification requirements, are identified in	F: Yes. CS: Minimal cost. Standard practice.	This procedure will reduce the likelihood of a spill occurring from a suspended well.	Benefits outweigh cost/sacrifice.	Yes C 13.5

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accordance with the Well Acceptance Criteria Procedure.		Although changes in consequence would occur, the reduction in likelihood results in a reduction in overall risk.		
Good Practice				
Subsea BOP installed and function tested during permanent plugging operations. The BOP shall meet the Woodside Well Control Procedure, Woodside Engineering Standard – Rig Equipment and shall be subject to API Standard 53 BOP Risk Assessment.	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 11.4
Project specific Mooring Design-Analysis.	F: Yes. CS: Standard practice. Required by Woodside standards.	Ensure adequate MODU station holding capacity to prevent loss of station keeping. This will reduce the likelihood of a blowout resulting in release of hydrocarbons to the marine environment.	Benefits outweigh cost/sacrifice.	Yes C 4.3
Professional Judgement – Eliminate				
Do not drill well.	F: No. CS: Inability to achieve program objectives.	A hydrocarbon release would not be credible.	Disproportionate. Given the extremely low likelihood of a loss of well control 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				
No additional controls identified.				
Risk Based Analysis				
A quantitative spill risk assessment was performed (refer Section 6.8.1).				
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.				

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As detailed above, the PAP will be performed in line with these policies, standards and procedures that include suitable controls to prevent loss of well integrity, and response should a loss of well integrity occur.

Societal Values

Due to the PAP's potential extent of the EMBA, the loss of well integrity current risk rating presents a Decision Type B, in accordance with the decision support framework described in Section 2.6. Consultation was conducted for this program to identify the views and concerns of relevant persons and organisations, as described in Section 5. Woodside has consulted with AMSA and WA DoT on spill response strategies. In accordance with the MoU between Woodside and AMSA, a copy of the Oil Pollution First Strike Plan was provided to AMSA.

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 B, Section 2.6.1), 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 Criteria and Assessment

Loss of well integrity has been evaluated as having a high level of current risk rating due to the scale of potential environmental impacts. However, the likelihood of a loss of well integrity occurring is considered highly unlikely. As outlined in Section 2.7, Woodside considers the current risk ratings for a Decision Type B to be 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.

Principles of ESD

The impact and risk evaluation has taken into account the following relevant principles of ESD:

- decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations
- the principle of inter-generational equity—that the present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations
- the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making.

Internal Context

The PAP is consistent with Woodside corporate policies, culture, processes, standards, structure and systems as outlined in the Demonstration of ALARP and Environmental Performance Outcomes, including:

- Woodside Environment and Biodiversity Policy (Appendix A)
- Woodside Risk Management Policy ((Appendix A)
- Engineering Standards – Well Barriers
- Well Acceptance Criteria Procedure
- Drilling and Completions – Well Control Procedure
- Woodside Engineering Standard – Rig Equipment
- Source Control Emergency Response Planning Guideline (SCERP Guidelines)

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 H).

Monitoring and Evaluation (operational monitoring) as a key response in the unlikely event of a hydrocarbon release will assess and track the extent of the hydrocarbon contact and revise the predicted extent of impact.

In addition, the Planning Area for scientific monitoring (refer to Section 5.8 of the Oil Spill Preparedness and Response Mitigation Assessment) can be re-assessed in the highly unlikely event of hydrocarbon release with consideration of the conservation values and social-cultural values of state and commonwealth protected areas (including AMPs), National and Commonwealth Heritage Listed places; tourism and recreation; and fisheries. The post-response SMP will consider assessment and monitoring in line with the affected receptors such as habitat and species, AMPs and fisheries. 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 performed prior to the PAP.

External Context

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During consultation with relevant persons Woodside has also consulted with DOT and AMSA on spill response strategies. In accordance with the MoU between Woodside and AMSA, a copy of the Oil Pollution First Strike Plan was provided to AMSA and DoT. No additional queries or concerns relating to a loss of well integrity hydrocarbon spill risk were raised during consultation.

Other Requirements

Impact assessment has been informed by risk-based analysis, including hydrocarbon spill modelling. The proposed control measures are consistent with industry legislation, codes and standards, good practice and professional judgement including:

API Standard 53 for subsea BOP function testing

AEP Memorandum of Understanding: Mutual Assistance for relief well drilling is in place. Woodside develops an activity SCERP, including the Relief Well Plan, which is signed off by the Drilling Engineering Manager and maintains a list of rigs that are currently operating in Australia (refer also to Appendix H).

OPGGS (Resource Management and Administration) Regulations 2011 to have an accepted WOMP and application to permanently plug for abandonment of the wells.

NOPSEMA will be notified of reportable and recordable incidents, if required, in accordance with Section 7.7. A mutual aid MoU for relief well drilling is in place and the Drilling Engineering Manager maintains a list of rigs that are currently operating in WA.

The EMBA overlaps a number of BIAs for threatened and migratory species, as well as a number of State and Commonwealth MPAs and the Ningaloo Coast WHA. As demonstrated in Section 6, the residual risk of accidental hydrocarbon release from loss of well integrity is not inconsistent with the relevant objectives and actions of any applicable recovery plans or threat abatement plans. Regard has been given to relevant conservation advice and wildlife conservation plans during the assessment of potential impacts. The PAP is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice (Section 6).

Acceptability Statement

The impact assessment has determined that an accidental hydrocarbon release as a result of a loss of well integrity represents a moderate current risk rating and may result in major, long-term impacts (10 - 50 years) on highly valued ecosystems, species, habitat or physical or biological attributes. A number of BIAs for protected species overlap with the EMBA. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the PAP is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice.

The likelihood of a loss of well integrity occurring is highly unlikely, given the adopted controls. The adopted controls are considered consistent with industry legislation, codes and standards, and professional judgement and a risk-based assessment has been conducted to better understand the potential consequences and plan oil spill response. The adopted controls also meet the requirements and expectations of Australian Marine Orders, AMSA and AHO identified during impact assessment and consultation. As demonstrated in Section 6, the potential impacts of hydrocarbon release from loss of well integrity is not inconsistent with the relevant objectives and actions of any applicable recovery plans or threat abatement plans. Regard has been given to relevant conservation advice during the assessment of potential risks. On the basis of the environmental impact assessment outcomes and Woodside's criteria for acceptability outlined in Section 2.7.2, this is considered an acceptable level of risk.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 13 No loss of well integrity resulting in loss of hydrocarbons to the marine environment during the PAP	C 11.2 OPGGS (Resource Management and Administration) Regulations 2011: accepted WOMP which describes the well design and barriers to be used to prevent a loss of well integrity, specifically: All zones with flow potential penetrated by the well bore, containing hydrocarbons, shall be isolated from the surface environment by a minimum of two barriers (primary and secondary). The barriers shall:	PS 11.2 See Section 6.7.8.	MC 11.2.1 See Section 6.7.8 MC 11.2.2 See Section 6.7.8 MC 11.2.3 See Section 6.7.8

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	• be effective over the lifetime of well construction and abandonment • (fluid barriers) remain monitored and provide sufficient pressure to counter pore pressure during well construction and abandonment • (cementing barriers, including conductor, casing and liners) conform to the relevant minimum standards set out in the Woodside Barrier Standard. • Verification: • Effectiveness of primary and secondary barriers shall be verified (physical evidence of the correct placement and performance) during the permanent plugging of the well (if required).		
	C 13.1 In the event of a spill emergency response activities implemented in accordance with the OPEP (per Table 7-8).	PS 13.1 In the event of a spill the OPEP (per Table 7-8) requirements are implemented	MC 13.1.1 Completed incident documentation
	C 13.2 Arrangements supporting the activities in the OPEP (per Table 7-8) will be tested to ensure the OPEP can be implemented as planned.	PS 13.2.1 Exercises/tests will be conducted in alignment with the frequency identified in Table 7-10.	MC 13.2.1 Testing of arrangement records confirm that emergency response capability has been maintained
		PS 13.2.2 Woodside's procedure demonstrates a minimum level of trained personnel, for core roles in the OPEP (per Table 7-8, are maintained	MC 13.2.2 Emergency Management dashboard confirms that minimum level of personnel trained for core OPEP roles are available.
	C 11.3 See Section 6.7.8	PS 11.3.1 See Section 6.7.8	MC 11.3.1 See Section 6.7.8
			MC 11.3.2 See Section 6.7.8
	C 13.3 Implement requirements for permanent well abandonment: • well barrier as per the internal Woodside Standard and Procedure	PS 13.3 Woodside abandons the wells according to internal Woodside procedure.	MC 13.3.1 Records demonstrate well acceptance criteria have been met.

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	• placement, length, material and verification of a permanent barrier		
	C 13.4 Well specific barrier elements, and the specified verification requirements, are identified in accordance with the Well Acceptance Criteria Procedure.	PS 13.4 Well specific barrier elements and verification in accordance with internal Woodside Procedure.	MC 13.4.1 Records demonstrate well specific barrier elements and verification criteria have been met.
	C 13.5 Subsea BOP installed and function tested during permanent plugging operations. The BOP shall meet the Woodside Well Control Procedure, Woodside Engineering Standard – Rig Equipment and shall be subject to API Standard 53 BOP Risk Assessment.	PS 13.5 Subsea BOP specification, installation and function testing compliant with internal Woodside Standards and international requirements (API Standard 53) as agreed by Woodside and MODU contractor	MC 13.5.1 Records demonstrate that BOP and BOP control system specifications and function testing were in accordance with minimum standards for the expected permanent plugging conditions as agreed by Woodside and MODU contractor
	C 4.3 Refer Section 6.7.2	PS 4.3 Refer Section 6.7.2	MC 4.3.1 Refer Section 6.7.2
	For oil spill response outcomes, standards and measurement criteria refer to Appendix H.		

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6.8.3 Unplanned Hydrocarbon Release: Vessel Collision

Context		
Relevant Activities Project Vessels - Section 3.7 Project-Vessel based activities – Section 3.9	***Existing Environment*** Physical Environment – Section 4.4 Habitats and Biological Communities – Section 4.5 Protected Species – Section 4.6 Socio-economic Environment – Section 4.10	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Loss of hydrocarbons to marine environment due to a vessel collision (e.g. project vessels or other marine users)		X		X	X	X	A	D	1	M	LCS GP	Broadly Acceptable	EPO 14

Description of Source of Impact

Background

The temporary presence of the MODU and project vessels in the PAA will result in a navigational hazard for commercial shipping within the immediate area. This navigational hazard could result in a third party vessel colliding with the MODU or a project vessel which could release hydrocarbons.

Spill scenarios involving the MODU are not considered likely for a hydrocarbon release given the collision points, vessel speeds and locations of the vessel 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 installation vessel may have multiple fuel tanks with the largest single tank capacity between 500 - 1000 m^3. A refuelling vessel may have a single fuel tank capacity of 2000 m^3.

A typical project vessel (e.g. a support or survey vessel) is likely to have multiple isolated marine diesel tanks distributed throughout the hull of the vessel. The marine diesel storage capacity of a support vessel can be in the order of 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. Support vessels can have fuel tank sizes ranging from 111m3 – 247m^3. The AHV is considered to have a maximum fuel tank size of 264 m^3, and the survey vessel a maximum of 275 m^3.

In the unlikely event of a vessel collision involving a project vessel during the PAP, the vessel will have the capability to pump marine diesel 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).

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From a review of the ATSB marine safety and investigation reports, one vessel collision occurred in 2011/12 that resulted in a spill of 25–30 L of oil into the marine environment as a result of a collision between a tug and support vessel off Barrow Island. Two other vessel collisions occurred in 2010, one in the port of Dampier, where a support vessel collided with a barge being towed. Minor damage was reported and no significant injury to personnel or pollution occurred. The second 2010 vessel collision involved a vessel under pilot control in port connecting with a vessel alongside a wharf, causing it to sink. No reported pollution resulted from the sunken vessel. These incidents demonstrate the likelihood of only minor volumes of hydrocarbons being released during the highly unlikely event of a vessel collision.

From 2010 to 2011, the ATSB's annual publication defines the individual safety action factors identified in marine accidents and incidents: 42% related to navigation action (2011). Of those, 15% related to poor communication and 42% related to poor monitoring, checking and documentation (ATSB, 2011). The majority of these related to the grounding instances.

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 6-21). Spill scenarios involving the MODU are not considered likely for a hydrocarbon release given collision points, vessel speeds and locations of the vessel tanks. Instead, the most credible scenarios are associated with the collision of a PIV with a refuelling vessel in the event that one should be used within the field.

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 highly unlikely that the full volume of the largest storage tank on a support vessel would be lost.

The last scenario considered was a collision between a project 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 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. Potential spill volumes for these scenarios are summarised in Table 6-21. Given the offshore location of the PAA, vessel grounding is not considered a credible risk.

Table 6-21: Summary of credible hydrocarbon spill scenario as a result of vessel collision

Scenario	Hydrocarbon Volumes	Preventative and Mitigation Controls	Credibility
Loss of containment from MODU as a result of vessel collision	Submerged marine diesel tanks up to an individual capacity of 500 m^3.	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 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 PAA or providing stand-by cover. Normal maritime procedures	Credible Activity support vessel – other vessel collision could potentially result in the release from a fuel tank.

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		would apply during such vessel movements.	
Breach of PIV fuel tanks due to collision with another vessel including commercial shipping/fisheries.	The installation vessel has multiple isolated tanks, largest volume of a single tank is unlikely to exceed 500 to 1000 m³	Tank locations midship (not bow or stern). Installation vessel will be holding station during installation activities or steaming at low speeds when relocating within the PAA.	Credible PIV – third party vessel collision could potentially result in the release from a fuel tank.
Breach of the largest single tank inventory of a fuel tanker due to collision with a primary installation vessel.	A fuel tanker will have a maximum single inventory tank of 2000 m³.	Refer to Section 6.7.4 for preventative and mitigation controls.	Credible | Worst case Installation vessel – fuel tanker collision could potentially result in the release from a fuel tank. It is noted that this scenario is only credible if refuelling of an installation vessel is required in the field.

Quantitative Hydrocarbon Risk Assessment

Analogous modelling was performed by RPS, on behalf of Woodside for the JDP2 campaign, to determine the fate of marine diesel released from a collision at a nearby location <5 km from the proposed JDP3 PAA. The modelling assessed the extent of a marine diesel spill volume of 2000 m³ for all seasons, using an historic sample of wind and current data for the region. The results of the modelling can be used to demonstrate that an analogous marine diesel spill within the PAA has an EMBA that is not predicted to include any shoreline contact or accumulation at impact thresholds. A total of 200 replicate simulations were modelled over an annual period (50 per quarter).

Hydrocarbon Characteristics

Marine diesel is a mixture of both volatile and persistent hydrocarbons. Predicted weathering of marine diesel, based on typical conditions in the region, indicates that about 45% by mass would be expected to evaporate over the first 24 hours (Figure 6-3) (RPS, 2019). After this time the majority of the remaining hydrocarbon is entrained into the upper water column, leaving only a small proportion of the oil floating on the water surface (<1%). 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, thereby extending the area of potential effect.

Given the environmental conditions experienced in the PAA, marine diesel is expected to undergo rapid spreading and this, together with evaporative loss, is likely to result in a rapid dissipation of the spill. Marine diesel distillates tend not to form emulsions at the temperatures found in the region. The characteristics of the marine diesel are given in Table 6-22.

Table 6-22: Characteristics of the marine diesel

Hydrocarbon type	Initial density (g/cm³) at 25 ºC	Viscosity (cP @ 25 ºC)	Component BP (ºC)	Volatiles %<180	Semi volatiles % 180–265	Low volatility (%) 265-380	Residual (%) >380
				Non-Persistent			***Persistent***
Marine diesel	0.829	4.0	% of total	6	34.6	54.4	5

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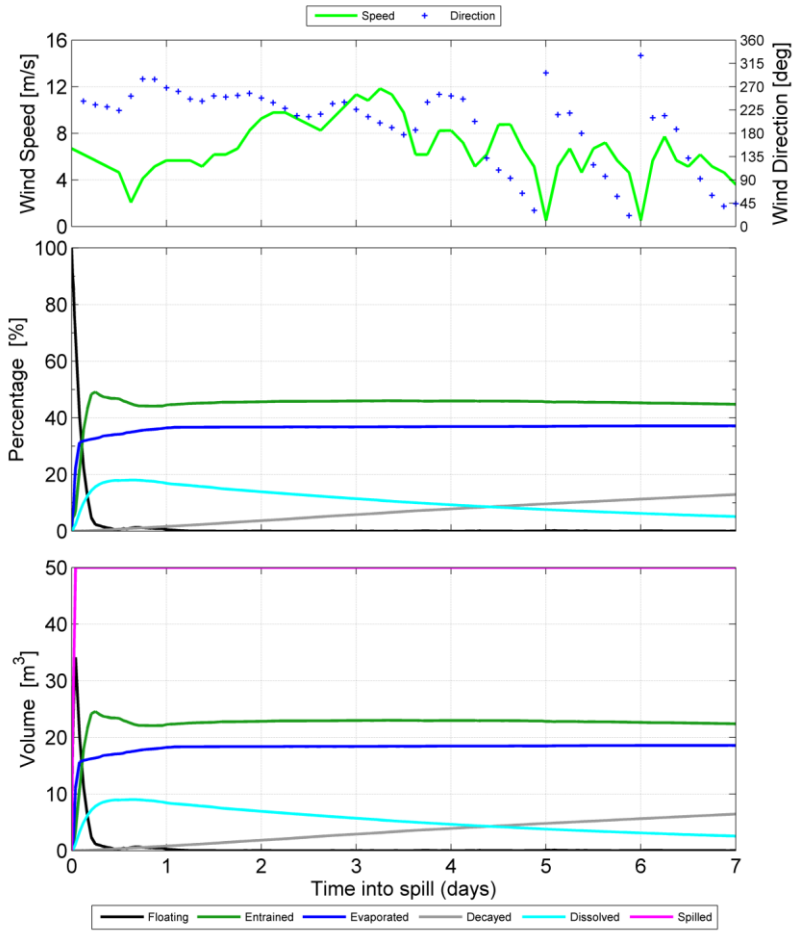

Figure 6-3: Proportional mass balance plot representing weathering of a 2000 m³ surface spill of marine diesel as a one-off release (at a rate of 50 m³/hr) and subject to variable wind at 27 °C water temperature and 25 °C air temperature (RPS, 2019)

Impact Assessment

Potential Impacts Overview

Environment that May Be Affected

Surface Hydrocarbons

Quantitative hydrocarbon spill modelling results for surface hydrocarbons are shown in Table 6-23. If this scenario occurred, a surface hydrocarbon slick would form down-current of the release location, with the trajectory dependent on prevailing wind and current conditions at the time. The modelling indicates that the EMBA would be confined to open water, with surface hydrocarbons extending up to about 88 km from the release location at or above the 10 g/m² impact threshold. A socio-cultural EMBA for surface hydrocarbons which includes the threshold for visible surface hydrocarbons of 1 g/m2 may extend beyond the EMBA in which ecological impacts may occur.

Entrained Hydrocarbons

Quantitative hydrocarbon spill modelling results are shown in Table 6-23. If this vessel collision scenario occurred, a plume of entrained hydrocarbons would form down-current of the release location, with the trajectory dependent on prevailing current conditions at the time. The modelling indicates that locations exposed to entrained hydrocarbons at or above the threshold concentration of 100 ppb are restricted to offshore areas. Table 6-23 provides details of receptors potentially contacted by entrained diesel at 100 ppb.

Dissolved Hydrocarbons: Dissolved aromatic hydrocarbons at concentrations equal to or greater than the 50 ppb threshold are predicted to be confined to open water. No contact with sensitive receptor locations is predicted.

Accumulated Hydrocarbons

Accumulated hydrocarbons above threshold concentrations (≥100 g/m²) were not predicted by the modelling to occur at any location. Potential for accumulation of oil on shorelines is predicted to be low, with a maximum accumulated

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volume of <1 m^3 and a maximum local accumulated concentration of 21 g/m^2 forecast at the Pilbara Islands – Southern Island Group receptor.

Taking into consideration the EMBA derived from hydrocarbon spill modelling for a marine diesel spill, the environment that may be affected will fall within the EMBA of the spill from a loss of well integrity outlined in Section 6.8.2.

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Table 6-23: Probability of hydrocarbon spill contact above impact thresholds within the EMBA with key receptor locations and sensitivities for a 2000 m³ 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])																													Probability of hydrocarbon contact and fate (%) Note: the probability is based on stochastic modelling of 100 hypothetical worst-case spills under a variety of weather and metocean conditions					
		Physical		Biological																						Socioeconomic and Cultural					Socio-cultural EMBA		Ecological EMBA			
		Water Quality	Sediment Quality	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 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 (foraging and internesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident /Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and 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[61]	Argo-Rowley Terrace AMP	✓						✓							✓	✓			✓				✓	✓	✓		✓			✓		-	-	-	1.5	-	-
	Montebello AMP	✓	✓	✓			✓	✓							✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		2.5	-	2	13	3	-
	Gascoyne AMP	✓	✓												✓	✓			✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	-	-	-	8	0.5	-
	Rankin Bank	✓	✓	✓			✓	✓		✓						✓				✓		✓		✓	✓	✓		✓			-	-	-	1	0.5	-
	Abrolhos Islands AMP	✓	✓	✓	✓		✓	✓	✓	✓													✓	✓	✓	✓	✓		✓			-	-	-	0.5	-	-
Islands	Montebello Islands (including State Marine Park)	✓	✓	✓	✓	✓	✓	✓				✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		-	-	-	1	0.5	-
	Pilbara Islands – Southern Island Group (Serrurier, Thevenard and Bessieres Islands – State Nature Reserves)	✓	✓		✓		✓		✓			✓		✓		✓	✓		✓	✓		✓	✓	✓	✓	✓	✓		✓	✓		-	0.5	-	1.5	-	-
	Muiron Islands (WHA, State Marine Park)	✓	✓	✓	✓		✓	✓		✓		✓		✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓			✓	✓		-	-	-	1.5	-	-

[61] Note: hydrocarbons cannot accumulate on open ocean, submerged receptors, or receptors not fully emergent.

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Environmental setting	Location / name	Environmental, Social, Cultural, Heritage and Economic Aspects presented as per the Environmental Risk Definitions (Woodside's Risk Management Procedure [WM0000PG10055394])																									Probability of hydrocarbon contact and fate (%) Note: the probability is based on stochastic modelling of 100 hypothetical worst-case spills under a variety of weather and metocean conditions					
		Physical		Biological																					Socioeconomic and Cultural					Socio-cultural EMBA		Ecological EMBA			
		Water Quality	Sediment Quality	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 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 (foraging and internesting areas and significant nesting beaches)	Sea snakes	Whale sharks	Sharks and rays	Seabirds and/or migratory shorebirds	Pelagic fish populations	Resident /Demersal Fish	Fisheries – commercial	Fisheries – traditional	Tourism and Recreation	Protected Areas / Heritage – European and Indigenous / Underwater Cultural Heritage	Offshore Oil and Gas Infrastructure (topside and subsea)	Surface hydrocarbon (1-10 g/m^2)	Accumulated hydrocarbons (10–100 g/m^2)	Surface hydrocarbon (≥10 g/m^2)	Entrained hydrocarbon (≥100 ppb)	Dissolved aromatic hydrocarbon (≥50 ppb)	Accumulated hydrocarbons (>100 g/m^2)
Mainland (nearshore waters)	WA Coastline	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		-	0.5	-	1.5	-	-
	Ningaloo Coast (North, Middle & South; WHA, and State Marine Park)	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		-	-	-	3	-	-

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Summary of Potential Impacts to environmental values(s)

In the event of a 2000 m³ release of marine diesel spill due to vessel collision, the modelling predicts a low probability of receptors being contacted by entrained hydrocarbons >100 ppb or dissolved aromatic hydrocarbons >50 ppb. The greatest likelihood of contact is at the Montebello AMP (13% and 3% probability respectively) and Gascoyne AMP (8% and 0.5% probability respectively). All other sensitive locations identified in Table 6-23 are predicted to have a 1.5% probability or less of contact at concentrations >500 ppb. Further, entrained hydrocarbons reaching these environments will be highly weathered, with the volatile and water soluble (often the most toxic) components expected to have dissipated. Surface hydrocarbons above 10 g/m^2 are predicted to contact the Montebello AMP only, with a low probability of 2%. No shoreline oiling above 100 g/m^2 is predicted.

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 6.8.2. The hydrocarbon EMBA for the PAP is based on both the loss of well containment EMBA the marine diesel EMBA, as at points, the marine diesel EMBA extends further than the loss of well containment EMBA. Therefore, the potential impacts of entrained hydrocarbons provided in Section 6.8.2, and the scale of impact described provides a suitable assessment for potential impacts of a 2000 m³ 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 minor and short-term.

Protected Species

As identified in Section 4.6, protected species including migrating pygmy blue whales may be encountered near the PAA, 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.

There is also the potential for migrating humpback whales, dugongs and coastal dolphin populations to be exposed in nearshore waters, however, the low concentrations and advanced degree of weathering of hydrocarbons in these nearshore waters is not expected to result in any discernible sublethal or lethal impacts to cetaceans.

The EMBA overlaps with BIAs for marine turtle internesting habitat, as identified in Section 4.6.2. Turtle internesting habitats, such as those in waters adjacent to Barrow Island and the Montebello Islands, are predicted to have very limited or no exposure to surface or dissolved hydrocarbons above their respective impact threshold concentrations. Some marine turtles in these areas may be exposed to patchy occurrences of entrained hydrocarbons, which would be in an advanced state of weathering with reduced toxicity. 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. Should sharks or rays be present in offshore waters near the PAA 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 absence of key habitat and 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 hydrocarbon threshold concentrations are exceeded. A range of lethal and sublethal impacts may occur to plankton exposed to entrained or dissolved hydrocarbons within the

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EMBA. Communities are expected to recover quickly (weeks/months) due to high population turnover (ITOPF, 2011). 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 4.7) occur within the EMBA, however 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 minor.

Protected Areas

Entrained hydrocarbons at or exceeding the 100 ppb threshold have a low probability of contacting the Montebello AMP, Gascoyne AMP and Ningaloo AMP and WHA. Entrained hydrocarbons are only predicted within the surface waters of the deep open waters of these protected areas, with no contact to seabed habitats or to shoreline contact. Potential impacts to water quality and the natural values (e.g. mobile protected species) in these areas would be minor and short-term in nature due to the rapid dispersion and weathering of the marine diesel, as described above. Dissolved and visible surface hydrocarbons (at or exceeding 1 g/m^2) are not predicted to reach any other protected areas.

Socio-economic

A marine diesel spill is considered highly unlikely to cause significant direct impacts on the target species fished by three Commonwealth and 19 State active fisheries (refer Section 4.10) 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 minor impacts, considering that hydrocarbons are confined to the upper layers of the water column. Visible surface hydrocarbons at or exceeding 1 g/m^2 may also occur up to 70 km from the release site, which may result in fouling of fishing gear and a perception of impacts to fish stocks by fisheries stakeholders 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 values(s)

Given the adopted controls, the overall risk rating for an unplanned hydrocarbon release resulting from a vessel collision is moderate based on a minor consequence (short term impact: 1-2 years), to the high value receptors (marine fauna, AMPs, KEFs and commercial fishing), and a highly unlikely likelihood.

Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)[62]	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 look-outs (e.g. visual, hearing, radar etc.), proceeding at safe speeds, assessing risk of collision and taking action	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 14.1

[62] Qualitative measure

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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.				
Marine Order 21 (Safety and emergency arrangements) 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 14.2
Establishment of a 500 m safety exclusion zone around MODU and relevant vessels and communicated to marine users.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduce the likelihood of a collision	Controls based on legislative requirements – must be adopted.	Yes C 1.2
Arrangements supporting the activities in the OPEP (per Table 7-8) 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 13.2
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	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 14.3

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information about the vessel's identity, type, position, course, speed, navigational status and other safety-related data.				
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 on designated radio channel(s) • undertake continuous surveillance and warn the MODU/ installation vessel of any approaching vessels reaching 500 m safety exclusion 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. 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.	F: Yes. CS: Minimal cost – support vessels available routinely in PAA during PAP. 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 14.4

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Australian Hydrographic Office (AHO) will be notified of activities and movements no less than four working weeks prior to commencement of the PAP.	F: Yes. CS: Minimal cost. Standard practice.	Notification of AHO will enable them to update maritime charts thereby reducing the likelihood of a collision with a third-party vessel.	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 1.5
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 PAP 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 AMSA JRCC of activities and movements of the activity 24 to 48 hours before operations commence.	F: Yes. CS: Minimal cost. Standard practice.	Communication of the PAP to other marine users ensures they are informed and aware, thereby reducing the likelihood of a collision with a third-party vessel occurring	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 1.7
SIMOPS Plan in place when MODU working in vicinity of other facilities, vessels or live infrastructure i.e. during xmas tree installation. SIMOPS Plan will contain information on: • Minimum separation distances • Communications • MODU / vessels / activities involved in SIMOPS • Exclusion zone entry and exit processes • ROV operations • Helicopter operations • Key roles, responsibilities and emergency contacts • PTW arrangements • Incident reporting and investigation • Management of Change	F: Yes. CS: Minimal cost. Standard practice.	SIMOPS Plan contains detail such as communications requirements, exclusion zones and entry/exit requirements and roles and responsibilities – which can help reduce likelihood of vessel collision.	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 1.10
DP Activity Specific Operating Guidelines (ASOGS) procedure	F: Yes. CS: Minimal cost. Standard practice.	Ensure safe and accurate DP throughout all activities	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 14.6
Mitigation: Oil Spill Response	Refer to Appendix H.			
Professional Judgement – Eliminate				

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Eliminate use of vessels.	F: No. The use of vessels is required to conduct the PAP. 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:

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, Section 2.7.1), Woodside considers the adopted controls appropriate to manage the risks and consequences of an unplanned loss of hydrocarbon as a result of a 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 accidental hydrocarbon release as a result of a vessel collision represents a moderate current risk rating and a risk consequence of minor. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the PAP is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice.

The adopted controls are considered consistent with industry legislation, codes and standards, good practice and professional judgement and meet the requirements and expectations of Australian Marine Orders, AMSA and AHO identified during impact assessment and consultation. 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 14 No release of hydrocarbons to the marine environment due to a vessel collision associated with the PAP.	C 14.1 Marine Order 30 – Prevention of collisions – 2016, including: adherence to steering and sailing rules including maintaining look-outs (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.	PS 14.1 MODU and project vessels 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 14.1.1 Marine Assurance inspection records demonstrate compliance with standard maritime safety procedures (Marine Orders 21 and 30).
	C 14.2 Marine Order 21 (Safety and emergency arrangements) 2016, including:	PS 14.2 MODU and project vessels compliant with Marine Order 21 (Safety and emergency arrangements) 2016 to prevent	

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	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.	unplanned interaction with marine users.	
	C 1.2 Refer Section 6.7.1	PS 1.2 Refer Section 6.7.1	MC 1.2.1 Refer Section 6.7.1
			MC 1.2.2 Refer Section 6.7.1
	C 13.2 Refer to Section 6.8.2	PS 13.2.1 Refer to Section 6.8.2	MC 13.2.1 Refer to Section 6.8.2
		PS 13.3.2 Refer to Section 6.8.2	MC 13.3.2 Refer to Section 6.8.2
	C 14.3 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.	PS 14.3 MODU and project vessels compliant with Marine Order 27 (Safety of navigation and radio equipment) 2016 to prevent unplanned interaction with marine users.	MC 14.3.1 Marine Assurance inspection records demonstrate compliance with standard maritime safety procedures (Marine Order 27).
	C 14.4 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:	PS 14.4 Define role of support vessels in maintaining safety exclusion 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 14.4.1 Records of non-conformance against controls maintained.

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	• Maintain a 24-hour radio watch on designated radio channel(s) • Perform continuous surveillance and warn the MODU/ installation vessel of any approaching vessels reaching 500 m safety exclusion 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. • Monitor and advise the MODU if: • MODU navigation signals are defective • visibility becomes restricted. • Advise if any buoys in the area are not holding position or are not working as expected.		
	C 1.5 Refer Section 6.7.1	PS 1.5 Refer Section 6.7.1	MC 1.5.1 Refer Section 6.7.1
	C 1.6 Refer Section 6.7.1	PS 1.6 Refer Section 6.7.1	MC 1.6.1 Refer Section 6.7.1
	C 1.7 Refer Section 6.7.1	PS 1.7 Refer Section 6.7.1	MC 1.7.1 Refer Section 6.7.1
	C 1.10 Refer Section 6.7.1	PS 1.10 Refer Section 6.7.1	MC 1.10.1 Refer Section 6.7.1
	C 14.6 DP Activity Specific Operating Guidelines (ASOGS) procedure	PS 14.6 Follow ASOG guidelines	MC 14.6.1 Records demonstrate compliance with ASOG guidelines
	Detailed preparedness and response performance outcomes, standards and measurement criteria for the PAP are presented in Appendix H.		

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6.8.4 Unplanned Hydrocarbon Release: Bunkering or Flare Drop Out

Context		
Relevant Activities Project vessels – Section 3.7	***Existing Environment*** Physical Environment – Section 4.4 Protected Species – Section 4.6	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	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 LCS GP	Broadly Acceptable	EPO 15
Loss of liquid hydrocarbons from flare drop out		X			X								

Description of Source of Impact

Diesel LOC from bunkering

Bunkering of marine diesel between support vessels and the MODU as well as the possible refuelling of cranes, and other equipment may take place on the MODU.

Three credible scenarios for the loss of containment of marine diesel during bunkering operations have been identified:

- Partial or total failure of a bulk transfer hose or fittings during bunkering, due to operational stress or other integrity issues could spill marine diesel to the deck and/or into the marine environment. This would be in the order of less than 200 L, based on the likely volume of a bulk transfer hose (assuming a failure of the dry break and complete loss of hose volume).
- Partial or total failure of a bulk transfer hose or fittings during bunkering, combined with a failure in procedure to shutoff fuel pumps, for a period of up to fifteen minutes, resulting in approximately 24 m^3 marine diesel lost to the deck and/or into the marine environment.
- Partial or total failure of a bulk transfer hose or fittings during helicopter refuelling could spill aviation jet fuel to the helicopter deck and/or into the marine environment. All helicopter refuelling activities are closely supervised and leaks on the helideck are considered to be easily detectable. In the event of a leak, transfer would cease immediately. The credible volume of such a release during helicopter refuelling would be in the order of <100 L.

Given the limited volume of the potential release and offshore location no modelling has been undertaken as it is within significantly less than the 2000 m^3 of marine diesel oil (MDO) in Section 6.8.2.

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Hydrocarbon LOC from flare drop-out

During drilling activities there is a highly unlikely, but credible, potential for the flare to be extinguished. This could occur from water ingress, lack of pilot (propane), weather impact or equipment failure. In this scenario a small volume (approximately 20-40 L depending on the duration of the event) of liquid hydrocarbon droplets could be released from the flare and discharged to the marine environment. Equipment design, back up flare, ESD and operational procedures will ensure that the flare is appropriately operated to prevent a flare drop out event. In the highly unlikely event that the flare does drop out these procedures ensure a prompt response minimising any volumes of hydrocarbons entering the marine environment.

Impact Assessment

Potential impacts to environmental values

A spill at the surface as a result of bunkering activities or from the flare being extinguished is likely to be localised with limited potential contact with sensitive receptor locations. Based on the modelling presented in Section 6.8.3 for a larger spill of diesel (2000 m^3) any release of diesel during bunkering activities is predicted be restricted to open offshore waters. The small volumes of hydrocarbons that could be released to the environment in the event of a flare drop out are also expected to be restricted to open offshore water given the small volume and short duration of any discharge.

The potential biological and ecological impacts associated with much larger hydrocarbon spills are presented in Section 6.8.2 and 6.8.3; further detail on impacts specific to a spill of marine diesel from a bunkering loss or from the flare being extinguished 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 6.8.3 (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 of from the flare being extinguished will be much reduced in terms of spatial and temporal scales, and hence, potential impacts from bunkering or from the flare being extinguished are considered slight.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that other hydrocarbon spills to the marine environment from bunkering or the flare being extinguished will not result in a potential impact greater than slight, short-term impacts on species, habitat (but not affecting ecosystems function), physical and biological attributes (i.e. Environment Impact – E).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[63]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
Marine Order 91 – marine pollution prevention—oil (as relevant to vessel class) requirements, which includes mandatory measures for processing 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 Parts per Million (ppm) prior to discharge.	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 7.4

[63] Qualitative measure

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• IMO approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating if 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. • If 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 onshore. • Valid International Oil Pollution Prevention Certificate.				
DP specific ASOGS procedure	F: Yes. CS: Minimal cost. Standard practice.	Reduced the likelihood of an unplanned release	Benefits outweigh cost/sacrifice	Yes C 14.6
Good Practice				
Bunkering equipment controls: All hoses that have a potential environmental risk following damage or failure shall be placed on a hose register that is linked to the MODU's preventative maintenance system. All bulk transfer hoses shall be pressure-rated at purchase to reduce the risk of accidental hydrocarbon release during bunkering. 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.	By ensuring the appropriate equipment is in place, tested and maintained appropriately, the likelihood of a spill occurring is reduced. Although no significant reduction in consequence could result, the overall risk is reduced.	Benefits outweigh cost/sacrifice	Yes C 15.1
Contractor procedures include requirements to be implemented during	F: Yes. CS: Minimal cost. Standard practice.	By ensuring the appropriate equipment is in place, tested and maintained appropriately, the	Benefits outweigh cost/sacrifice.	Yes C 15.2

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bunkering/refuelling operations, including: • A completed PTW and/or job safety analysis (JSA) shall be implemented for the hydrocarbon bunkering/refuelling operation. • Visually monitoring of gauges, hoses, fittings and the sea surface during the operation. • Hoses will be checked before starting. • 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.		likelihood of a spill occurring is reduced. Although no significant reduction in consequence could result, the overall risk is reduced.		
Professional Judgement – Eliminate				
No refuelling of helicopter on MODU/ PIV.	F: No. Given the distance of the PAA from the airports suitable for helicopter operations, and the 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.	Not considered – control not feasible.	Not considered – control not feasible.	No
The MODU/PIV brought into port to refuel.	F: No. Does not eliminate the fuel transfer risk. It is not operationally practical to transit MODU/PIV back to port for refuelling based on the frequency	Eliminates the risk in the PAA. However, moves risk to another location. Therefore, no overall benefit.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No

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	of the refuelling requirements and distance from the nearest port. CS: Significant due to schedule delay and vessel transit costs and day rates.			
Implement flare operational procedures which include the following controls: • Equipment commissioning and safety check list • Weather restrictions • Equipment continues testing • Response protocols for minimising duration of an extinguished flare.	F: Yes. CS: Minimal, standard practice	Equipment design, back up flare, ESD and operational procedures will ensure that the flare is appropriately operated to prevent a flare drop out event. In the highly unlikely event that the flare does drop out these procedures ensure a prompt response minimising any volumes of hydrocarbons entering the marine environment.	Benefits outweigh cost.	Yes C 15.3

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, Section 2.7.1), Woodside considers the adopted controls appropriate to manage the risks and consequences of an unplanned release of chemicals. 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 accidental discharge of hydrocarbons as a result of bunkering failure represents a low current risk rating and a risk consequence of slight. BIAs within the PAA include the flatback turtle internesting, whale shark foraging, pygmy blue whale migration and distribution, and wedge-tailed shearwater breeding and foraging areas. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the PAP is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice. The adopted controls are considered consistent with industry legislation, codes and standards, good practice and professional judgement and meet the requirements and expectations of Australian Marine Orders.

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 of a loss of hydrocarbons during bunkering / refuelling to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 15 Undertake the PAP in a manner that will prevent an unplanned release	C 7.4 Refer Section 6.7.4	PS 7.4 Refer Section 6.7.4	MC 7.4.1 Refer Section 6.7.4
	C 14.6 Refer Section 6.8.3	PS 14.6 Refer Section 6.8.3	MC 14.6.1 Refer Section 6.8.3

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of chemicals or non-process hydrocarbons to the marine environment resulting in a substantial change in water quality which may adversely impact on biodiversity, ecological integrity, social amenity or human health.	C 15.1 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 pressure-tested at purchase to reduce the risk of accidental hydrocarbon release during bunkering. 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 15.1.1 To ensure damaged equipment is replaced prior to failure.	MC 15.1.1 Environmental inspection records confirm the MODU bunkering equipment is subject to systematic integrity checks.
		PS 15.1.2 All diesel transfer hoses to have dry break couplings and pressure rating suitable for intended use.	MC 15.1.2 Inspection records confirm presence of dry break of couplings and flotation on fuel hoses.
		PS 15.1.3 To ensure adequate resources are available to allow implementation of SOPEP.	MC 15.1.3 Environmental inspection records confirm presence of spill kits.
	C 15.2 Contractor procedures include requirements to be implemented during bunkering/refuelling operations, including: A completed PTW and/or 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.	PS 15.2 Compliance with Contractor procedures for the management of bunkering/helicopter operations.	MC 15.2.1 Environmental inspection records demonstrate bunkering/refuelling undertaken in accordance with contractor bunkering procedures.
	C 15.3 Implement flare operational procedures which include the following controls: • Equipment commissioning and safety check list • Weather restrictions • Equipment continues testing • Response protocols for minimising duration of an extinguished flare.	PS 15.3 Compliance with flare operating procedures	MC 15.3.1 Incident reports show instances of flare drop-out.
	Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the PAP are presented in Appendix H.		

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6.8.5 Unplanned Discharge: Project Fluids

Context		
Relevant Activities Drilling Activities – Section 3.10 Subsea Installation Activities - Section 3.11 Contingent Activities – Section 3.12	***Existing Environment*** Physical Environment – Section 4.4 Protected Species – Section 4.6	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Accidental discharge of project 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		X		X	X		A	E	1	L	LCS GP	Broadly Acceptable	EPO 16

Description of Source of Impact

Drilling Fluids - Transfers

A project 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, as a result of an integrity or fatigue issue, could result in a spill of mud or base oil to either the bunded deck or into the marine environment.

The most likely spill volume of mud is likely to be less than 0.2 m³ 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 m³ 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).

Drilling Fluids - Slip Joint Packer Failure

The slip joint packer enables compensation for the dynamic movement of the MODU (heave) in relation to the static location of the BOP. A partial or total failure of the slip joint packer could result in a loss of 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 m³) 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 m³. In total, it is expected that this catastrophic failure would result in a loss of 5.3 m³.

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 m³) 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.

Loss of a drilling chemical container or drum during transfer from the supply vessel to the MODU may occur due to crane operator error or machinery failure. The maximum container that could be lost is an intermediate Bulk Container

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(IBC) which can hold 1 m³ of chemicals. In the event that an IBC or drum is lost to the marine environment and cannot be recovered the contents will discharge, either immediately or over a period depending on the damage to the drum or container.

NWBM Drilling Fluid System

The selection of a NWBM drilling fluid system (if required) will be based on Woodside processes; 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 Table 6-24). At this time, most of the remainder could be entrained into the water column. In calm conditions, entrained hydrocarbons are likely to resurface with up to 100% able to evaporate over time.

Table 6-24: 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 PAP 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.

Contingency Activities

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. The EDS could be manually activated due to an identified threat to the safety of the MODU, including loss of MODU station keeping resulting from loss of multiple moorings, potential collision by a third-party vessel or a loss of well control. During operations, this could result in a subsurface release of a combination of WBM and/or NWBM and solids 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 base oil of the NWBM would remain in an emulsion with the other components of the mud system. Approximately 103 m^3 of base oil could be released in the event of the riser being disconnected when drilling with NWBM.

Impact Assessment

Potential impacts to environmental values

Water Quality

Change in Water Quality

The worst-case drilling fluid or cement unplanned discharge is 8 m³ which could occur during bulk transfer from the supply vessel to the MODU during drilling and may decrease the water quality in the immediate vicinity of the release. These discharges would be to the sea surface and would rapidly dilute through mixing by surface currents and wave action.

Given the occasional nature of unplanned chemical discharge, the small volumes, and the offshore location of the PAA, the change to water quality resulting from unplanned discharge of chemicals will not be substantial.

Therefore, the magnitude of any potential impact of a change in water quality is slight. Receptor sensitivity of water quality is low (low value, open ocean), and therefore the consequence of a release of hydrocarbons/chemicals on water quality is having no lasting effect (F).

Marine Fauna

Injury or Mortality to Marine Fauna

As a result of a change in water quality, further impacts to receptors may occur, which include injury or mortality to marine fauna resulting from exposure to toxins in the released drilling fluids. Given that surface discharges are rapidly

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dispersed, potential impacts would be highly localised and temporary. The magnitude of potential impact to marine fauna is no lasting effect, which results in a consequence of Slight (E) based on the high receptor sensitivity.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that unplanned discharges of drilling fluids or cement to the marine environment will not result in a potential impact greater than slight and short-term impacts on species, habitat (but not affecting ecosystems function), physical and biological attributes (i.e. Environment Impact – E).

Demonstration of ALARP

Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[64]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Legislation, Codes and Standards				
Marine Order 91 – marine pollution prevention—oil (as relevant to vessel class) requirements, which includes mandatory measures for processing 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 Parts per Million (ppm) prior to discharge. • IMO approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating if 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.	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 7.4

[64] Qualitative measure

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• If 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 onshore. • Valid International Oil Pollution Prevention Certificate.				
Good Practice				
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.	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 16.1
For project activity fluids, periodic chemical reviews are performed.	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 acceptability. Planned discharges are required for safely executing activities; therefore, no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes C 8.2
Contractor procedure for managing project 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 floatation devised to allow detection of a leak • the valve line-up will be checked prior to	F: Yes. CS: Minimal cost. Standard practice for Woodside to review contractor systems prior to performing 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 16.2

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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 locked closed when not in use for mud transfers and operated under a PTW.				
Check for the functionality of: • additional SCE (augers and cuttings dryers) • mud tanks • mud tank room • transfer hoses • NWBM base fluid transfer lines • NWBM base fluid transfer station • base fluid storage.	F: Yes. CS: Minimal cost. Standard practice	Reduces the likelihood of an event occurring and reduces the potential consequences (by limiting volume released).	Benefits outweigh cost/sacrifice.	Yes C 16.3
Professional Judgement – Eliminate				
No additional controls identified				
Professional Judgement – Substitute				
Only use WBM during drilling.	F: Not feasible. While the base case is to use WBM, a contingent NWBM drilling fluid system is 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.	Not considered – control not feasible.	Not considered – control not feasible.	No

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	CS: Significant cost and schedule delay would occur if the MODU was limited to greater storage capacity.			

ALARP Statement

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the impacts and risks of unplanned release of project fluids. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that accidental discharge of project fluids represents a low current risk rating and a risk consequence of slight. BIAs within the PAA include the flatback turtle internesting, whale shark foraging, pygmy blue whale migration and distribution, and wedge-tailed shearwater breeding areas. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the PAP is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice. The adopted controls are considered consistent with industry legislation, codes and standards, good practice and professional judgement and meet the requirements and expectations of Australian Marine Orders identified during impact assessment.

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 an unplanned discharge of chemicals /hydrocarbons to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	***Controls***	***Standards***	***Measurement Criteria***
EPO 16 No unplanned releases of deck and subsea spills to the marine environment inside the PAA greater than a consequence level of E65 during the PAP.	C 7.4 Refer Section 6.7.4	PS 7.4 Refer Section 6.7.4	MC 7.4.1 Refer Section 6.7.4
	C 16.1 Marine riser's telescopic joint to be: • comprised of a minimum of two packers (one hydraulic and one pneumatic) • pressure tested in accordance with manufacturer's recommendations.	PS 16.1 MODU's joint packer designed and maintained to reduce hydrocarbons discharged to the environment.	MC 16.1.1 Environmental inspection records demonstrate that MODU's joint packer is compliant.
	C 8.2 Refer Section 6.7.5	PS 8.2 Refer Section 6.7.5	MC 8.2.1 Refer Section 6.7.5

[65] "Slight, short term impacts (<1 year) as in Table 2-3.

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	C 16.2 Contractor procedure for managing 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 locked closed when not in use for mud transfers and operated under a PTW.	PS 16.2 Compliance with Contractor procedures to limit accidental loss to the marine environment.	MC 16.2.1 Environmental inspection records demonstrate drilling fluid transfers are performed in accordance with the applicable contractor procedures.
	C 16.3 Check for the functionality of: • additional SCE (augers and cuttings dryers) • mud tanks • mud tank room • transfer hoses • NWBM base fluid transfer lines • NWBM base fluid transfer station • base fluid storage.	PS 16.3 To prevent unacceptable use or discharge of NWBM/base oil.	MC 16.3.1 Inspection records demonstrate the presence and functionality of the specified equipment.
For oil spill response outcomes, standards and measurement criteria refer to (Appendix H)			

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6.8.6 Unplanned Discharge: Deck and Subsea Spills

Context		
Relevant Activities	***Existing Environment***	***Consultation***
Project Vessels - Section 3.7 Other Support – Section 3.8 Drilling Activities – Section 3.10 Subsea Installation Activities - Section 3.11 Contingent Activities – Section 3.12	Regional Context – Section 4.2	Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Accidental discharge of hydrocarbons/ chemicals from MODU and project vessels deck activities and equipment, from subsea ROV hydraulic leaks		X		X	X		A	F	2	L	LCS GP	Broadly Acceptable	EPO 17

Description of Source of Impact

Vessel, MODU and ROV Operations

Deck spills can result from spills from stored hydrocarbons/chemicals or equipment. Project vessels typically store hydrocarbon/chemicals in various volumes (20 L, 205 L; up to approximately 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). Helicopter refuelling may also take place within the PAA, on the helipad of the MODU and project vessels.

Chemicals that will be used and may be accidentally released include:

- non process chemicals (maintenance and cleaning chemicals)
- non process hydrocarbons - i.e. hydraulic fluids used in machinery (including cranes, winches, ROVs), small volumes of fuel
- drilling and well fluids.

Non-Process Chemicals

Non-process chemicals, such as wash chemicals, cleaning chemicals, maintenance and solvents, are generally held onboard in low quantities (typically <50 L containers) and are located within chemical cabinets or bunded storage areas on the project vessels and MODU. Non-process chemical spills may result from human error or damage to a chemical container during handling. Spills are generally captured by the drain system and routed to a holding tank for treatment or disposal onshore. In the event that a spill is not contained on deck or within a bunded area, there would be a release to the marine environment of up to 50 L.

Non-Process Hydrocarbons

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.

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Non-process hydrocarbons (hydraulic fluids) are used in hydraulic-powered machinery, such as winches, cranes and ROVs, and are hydrocarbon-based with added chemical component additives. Unplanned discharges are predominantly due to failure of hydraulic hoses or minor leaks from process components, or spills during periodic refuelling of hydraulic hoses. Spills or leaks from hydraulic hoses are usually very small volumes (~1 L) and are typically contained within a bunded or drained area under the equipment mounted on deck. These small on-deck spills are unlikely to reach the marine environment. A burst hydraulic hose on an extended crane could potentially result in hydraulic fluid being sprayed in a fine jet out over the water. However, this would only result in a small volume (~25 L) being released, due to the small capacity of hydraulic hoses.

Subsea spills can result from a loss of containment of fluids from subsea equipment including the BOP or ROVs Historical data indicates subsea spills did not exceed approximately 26 L within Woodside's Drilling function.

The ROV hydraulic fluid is supplied through hoses containing approximately 20 L of fluid. Hydraulic lines to the ROV arms and other tooling may become caught resulting in minor leaks to the marine environment. Small volume hydraulic leaks may occur from equipment operating via hydraulic controls subsea (subsea control fluid).

Hydraulic fluids are medium oils of light to moderate viscosity. They have a relatively rapid spreading rate and will dissipate quickly, particularly in high sea states. Lubricating oils may also be held onboard, typically stored with the non process chemicals and held in low quantities. These hydrocarbons are more viscous, so in the event of an unplanned discharge, the spreading rate of a slick of these oils would be slightly slower.

Contingency Activities

Wireline Operations

Minor leaks during wireline activities with a live well are described to include leaks such as:

- leaks from the lubricator, stuffing box and hose or fitting failure, which are expected to be less than 10 L (0.01 m^3)
- loss of containment – fluids – surface holding tanks
- backloading of raw slop fluids in an IBC
- stuffing box leak/under pressure
- draining of lubricator contents
- excess grease/lubricant leaking from the grease injection head
- wind-blown lubricant dripping from cable/on deck
- lubricant used to lubricate hole.

Woodside's operational experience demonstrates that spills are most likely to originate from hydraulic hoses and have been less than 100 L, with an average volume less than 10 L.

Impact Assessment

Potential impacts to environmental values

Water Quality

Change in Water Quality

Unplanned discharges of non-process chemicals and hydrocarbons may decrease the water quality in the immediate vicinity of the release. Only small volumes (<0.2 m^3) are anticipated, resulting in very short-term impacts to water quality, and limited to the immediate release location.

Given the occasional nature of unplanned chemical discharge, the small volumes, and the offshore location of the PAA, the change to water quality resulting from unplanned discharge of chemicals will not be substantial.

Therefore, the magnitude of any potential impact of a change in water quality is Slight. Receptor sensitivity of water quality is low (low value, open ocean), and therefore the consequence of a release of hydrocarbons/chemicals on water quality is having no lasting effect (F).

Marine Fauna

Injury or Mortality to Marine Fauna

As a result of a change in water quality, further impacts to receptors may occur, which include injury or mortality to marine fauna resulting from exposure to toxins in the released chemicals/hydrocarbons. Given that surface discharges are rapidly dispersed, and subsea discharges (from ROVs) would be of very small volumes, potential impacts would be highly localised and temporary. The magnitude of potential impact to marine fauna is low, which results in a consequence of E based on the high receptor sensitivity.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that other hydrocarbon/chemical spills to the marine environment will result no lasting effect (less than one month); localised impact that is not significant to receptors (e.g. Environment Impact – F).

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Demonstration of ALARP				
Control Considered	**Control Feasibility (F) and Cost/Sacrifice (CS)[66]**	**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.	Requirements for deck drainage and management of oily water would reduce 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 7.3
Marine Order 91 – marine pollution prevention—oil (as relevant to vessel class) requirements, which includes mandatory measures for processing 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 Parts per Million (ppm) prior to discharge. • IMO approved oil filtering equipment shall also have an alarm and an automatic stopping device or be capable of recirculating if 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	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 7.4

[66] Qualitative measure

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hazardous chemical contamination. • There shall be a waste oil storage tank available, to restrict oil discharges. • If 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 onshore. • Valid International Oil Pollution Prevention Certificate.				
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 17.1
Good Practice				
For project activity fluids, periodic chemical reviews are performed.	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 acceptability. Planned discharges are required for safely executing activities; therefore, no reduction in likelihood can occur.	Benefits outweigh cost/sacrifice.	Yes C 8.2
Contractor procedure for managing project 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 floatation devised to allow detection of a leak	F: Yes. CS: Minimal cost. Standard practice for Woodside to review contractor systems prior to performing 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 17.2

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• 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 locked closed when not in use for mud transfers and operated under a PTW.				
Check for the functionality of: • additional SCE (augers and cuttings dryers) • mud tanks • mud tank room • transfer hoses • NWBM base fluid transfer lines • NWBM base fluid transfer station • base fluid storage.	F: Yes. CS: Minimal cost. Standard practice	Reduces the likelihood of an event occurring and reduces the potential consequences (by limiting volume released).	Benefits outweigh cost/sacrifice.	Yes C 16.3
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.	Spill kits would reduce the likelihood of a deck spill from entering the marine environment. The consequence is unchanged.	Benefits outweigh cost/sacrifice.	Yes C 17.3
MODU and PIV have self-containing hydraulic oil drip tray management system.	F: Yes. CS: Minimal cost. Standard practice.	Requirements for self-containing hydraulic oil drip tray management system would reduce the likelihood of contaminants being discharged to the marine environment. No change in consequence would occur.	Benefits outweigh cost/sacrifice.	Yes C 17.4
Spill response procedures e.g. First strike plan, SOPEP and Emergency response plan	F: Yes. CS: Minimal cost. Standard practice.	Will not reduce the likelihood but may reduce the consequence of spill.	Benefits outweigh cost/sacrifice.	Yes Appendix H

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Subsea equipment is 'hard-piped' as far as possible to prevent leaks	F: Yes. CS: Minimal cost. Standard practice.	Reduce likelihood of deck spills	Benefits outweigh cost/sacrifice.	Yes C 17.5
Regular maintenance of umbilical components/subsea equipment and inspection prior to deployment and during subsequent deployment events	F: Yes. CS: Minimal cost. Standard practice.	Reduce likelihood of deck spills	Benefits outweigh cost/sacrifice.	Yes C 17.6
Hoses and fittings carry and appropriate pressure rating	F: Yes. CS: Minimal cost. Standard practice.	Reduce likelihood of deck spills	Benefits outweigh cost/sacrifice.	Yes C 17.7
Personnel controlling the subsea equipment are competent to undertake the activity.	F: Yes. CS: Minimal cost. Standard practice.	Personnel are trained, reducing likelihood of spill events.	Benefits outweigh cost/sacrifice.	Yes C 17.8
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: No. 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, Woodside considers the adopted controls appropriate to manage the impacts and risks of unplanned release of chemicals and hydrocarbons from deck and subsea spills. As no reasonable additional/alternative controls were				

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identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that accidental discharge of chemicals represents a low current risk rating and a risk consequence of no lasting effect. BIAs within the PAA include the flatback turtle internesting, whale shark foraging, pygmy blue whale migration and distribution and wedge-tailed shearwater breeding areas. Relevant recovery plans and conservation advice have been considered during the impact assessment, and the PAP is not considered to be inconsistent with the overall recovery objectives and actions of these recovery plans and conservation advice. The adopted controls are considered consistent with industry legislation, codes and standards, good practice and professional judgement and meet the requirements and expectations of Australian Marine Orders identified during impact assessment.

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 an unplanned discharge of chemicals /hydrocarbons 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 deck and subsea spills to the marine environment inside the PAA greater than a consequence level of E[67] during the PAP.	C 7.3 Refer Section 6.7.4	PS 7.3 Refer Section 6.7.4	MC 7.3.1 Refer Section 6.7.4
	C 7.4 Refer Section 6.7.4	PS 7.4 Refer Section 6.7.4	MC 7.4.1 Refer Section 6.7.4
	C 17.1 Liquid chemical and fuel storage areas are bunded or secondarily contained when they are not being handled/moved temporarily.	PS 17.1 Failure of primary containment in storage areas does not result in loss to the marine environment.	MC 17.1.1 Environmental inspection records confirms all liquid chemicals and fuel are stored in bunded/secondarily contained areas when not being handled/moved temporarily.
	C 8.2 Refer Section 6.7.5	PS 8.2 Refer Section 6.7.5	MC 8.2.1 Refer Section 6.7.5
	C 17.2 Contractor procedure for managing project 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	PS 17.2 Compliance with Contractor procedures to limit accidental loss to the marine environment.	MC 17.2.1 Records demonstrate drilling fluid transfers are performed in accordance with the applicable contractor procedures.

[67] "Slight, short term impacts (<1 year) as in Table 2-3.

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	• 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 locked closed when not in use for mud transfers and operated under a PTW.		
	C 16.3 Refer Section 6.8.5	PS 16.3 Refer Section 6.8.5	MC 16.3.1 Refer Section 6.8.5
	C 17.3 Spill kits positioned in high risk locations around the rig (near potential spill points such as transfer stations).	PS 17.3 Spill kits to be available for use to clean up deck spills.	MC 17.3.1 Environmental inspection records confirms that spill kits are present, maintained, and suitably stocked.
	C 17.4 MODU and PIV have self-containing hydraulic oil drip tray management system.	PS 17.4 To contain any on-deck spills of hydraulic oil.	MC 17.4.1 Environmental inspection records demonstrate MODU and PIV are equipped with self-containing hydraulic oil drip tray management system.
	C 17.5 Subsea equipment is 'hard-piped' as far as possible to prevent leaks	PS 17.5 Hard-piped subsea equipment to be utilised.	MC 17.5.1 Records demonstrate installation of 'hard-piped' subsea equipment
	C 17.6 Regular maintenance of umbilical components/subsea equipment and inspection prior to deployment and during subsequent deployment events	PS 17.6 Compliance with drip tray management system	MC 17.6.1 Records demonstrate compliance with drip tray management system
	C 17.7 Hoses and fittings carry an appropriate pressure rating	PS 17.7 Pressure ratings meet appropriate standards	MC 17.7.1 Records demonstrate pressure ratings
	C 17.8 Personnel controlling the subsea equipment are competent to undertake the activity.	PS 17.8 Induction include training for crew in controlling subsea equipment	MC 17.8.1 Records show subsea equipment control training
For oil spill response outcomes, standards and measurement criteria refer to Appendix H.			

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6.8.7 Unplanned Discharge: Hazardous and Non – Hazardous Solid Waste/Equipment

Context		
Relevant Activities Project Vessels - Section 3.6	***Existing Environment*** Regional Context – Section 4.2	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Accidental loss of hazardous or non-hazardous solid wastes / equipment to the marine environment		X			X		A	F	2	L	LCS GP	Broadly Acceptable	EPO 18

Description of Source of Impact

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 may also be accidentally lost overboard. Equipment that has been recorded as being lost on previous campaigns has primarily been windblown or dropped overboard and has included things such as personal protective equipment and small tools or materials.

These events have occurred during backloading activities, periods of adverse weather and incorrect waste storage.

Impact Assessment

Potential impacts to environmental values

The potential impacts of hazardous or non-hazardous solid waste / 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. This could result in entanglement or ingestion and lead to injury and death of individual animals and changes to aesthetic values. 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 PAA, the types, size and frequency of wastes that could occur, and species present.

Water Quality

Change in 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 expected to be highly localised. Receptor sensitivity is low for water quality, leading to a consequence of having no lasting effect (F).

Seabirds and Migratory Shorebirds, Fish, Marine Reptiles and Marine Mammals

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Injury/Mortality to Fauna

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 (Department of the Environment and Energy (DoEE), 2018). The Threat Abatement Plan for the impacts of marine debris on the vertebrate wildlife of Australia's coasts and oceans (DoEE, 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 (e.g. DoEE, 2018; Commonwealth of Australia, 2017) 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 Recovery Plan for Marine Turtles in Australia (2017–2027).

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.

While the threat abatement plan for impacts of marine debris on vertebrate marine life does not list explicit management actions for non-related industries (Department of Environment, Water, Heritage and the Arts (DEWHA), 2009), management controls will reduce the risk of unplanned discharge of solid waste.

Receptor sensitivity is high for marine fauna, however likelihood and timeframe of impact results in a consequence of having no lasting effect (F).

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, it is considered that the accidental discharge of solid waste described will result in no significant localised impact, with no lasting effect on environmental receptors (i.e. Environment Impact – F).

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[68]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*
Legislation, Codes and Standards				
Marine Order 95 – marine pollution prevention—garbage (as appropriate to vessel class), prescribes matters necessary to give effect to Annex V of MARPOL, which prohibits the discharge of all garbage into the sea, except as provided otherwise.	F: Yes. CS: Minimal cost. Standard practice.	Legislative requirements to be followed reduces the likelihood of an unplanned release. The consequence is unchanged.	Controls based on legislative requirements – must be adopted.	Yes C 7.1
Good Practice				
Global Wells and Seismic Waste Management Plan, which requires: • dedicated space for waste segregation bins and skips provided on the MODU • records of all waste to be disposed, treated or recycled	F: Yes. CS: Minimal cost. Standard practice.	Controls outlined in the management plan will reduce the likelihood of an unplanned release. The consequence is unchanged.	Benefit outweighs cost sacrifice.	Yes C 18.1

[68] Qualitative measure

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• waste streams handled and managed according to their hazard and recyclability class • all non-putrescible waste (excludes all food, greywater or sewage waste) to be transported from the MODU and disposed of onshore.				
Project vessel waste arrangements, which require: • dedicated waste segregation bins • records of all waste to be disposed, treated or recycled • waste streams to 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.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of an unplanned release. The consequence is unchanged.	Benefit outweighs cost sacrifice.	Yes C 18.2
MODU, project vessels, ROV, or crane may be used to attempt recovery of hazardous solid wastes lost overboard. Where safe and practicable, 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, and suitable weather). Any material dropped	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 18.3

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objects/waste that remain in the title will undergo an impact assessment and be added to the inventory.				

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, Woodside considers the adopted controls appropriate to manage the impacts and risks of accidental loss of hazardous or non-hazardous solid wastes/equipment to the marine environment. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks 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 with no lasting effect of localised impacts. Further opportunities to reduce the impacts and risks have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet legislative requirements (Marine Order 95).

The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of these discharges to a level that is broadly acceptable.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 18 No unplanned releases of solid hazardous or non-hazardous waste to the marine environment inside the PAA greater than a consequence level of E69 during the PAP	C 7.1 Refer Section 6.7.4	PS 7.1 Refer Section 6.7.4	MC 7.1.1 Refer Section 6.7.4
	C 18.1 Global Wells and Seismic 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 to be handled and managed according to their hazard and recyclability class. • all non-putrescible waste (excludes all food, greywater or sewage waste)	PS 18.1 Hazardous and non-hazardous waste will be managed in accordance with the Global Wells and Seismic Waste Management Plan.	MC 18.1.1 Records demonstrate compliance against Global Wells and Seismic Waste Management Plan.

[69] "No lasting effect (<1 month)" as in Table 2-3.

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	to be transported from the MODU and disposed of onshore.		
	C 18.2 Project vessel waste management arrangements, which require: dedicated waste segregation bins records of all waste to be disposed, treated or recycled waste streams to 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 18.2 Hazardous and non-hazardous waste will be managed in accordance with the project vessel waste management arrangements.	MC 18.2.1 Records demonstrate compliance against project vessel waste management arrangements.
	C 18.3 MODU/project vessel ROV, crane or project vessel may be used to attempt recovery of solid wastes /equipment 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). • Any material dropped objects / waste that remain in the title will undergo an impact assessment and be added to the inventory.	PS 18.3.1 Any solid waste /equipment dropped to the marine environment will be recovered where safe and practicable to do so.	MC 18.3.1 Incident records detail the recovery attempt consideration and status of any waste /equipment lost to marine environment.
			MC 18.3.2 First Priority records demonstrate outcomes of the safe and practicable evaluation, including an impact assessment for the objects remaining.
		PS 18.3.2 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 18.3.3 Records demonstrate that material items left in title are added to the inventory.

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6.8.8 Physical Presence (Unplanned): Collision with Marine Fauna

Context		
Relevant Activity Project Vessels - Section 3.7	***Existing Environment*** Protected Species – Section 4.6	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Accidental collision between MODU/project vessels and protected marine fauna					X		A	E	1	L	LCS GP	Broadly Acceptable	EPO 19

Description of Source of Impact

Vessel Operations

Activities associated with the PAP will require vessels for drilling activities, subsea installation, contingency activities, support operations and supply/transport. The type and number of vessels in the PAA at any one time, and the duration of presence, will differ depending on the activities being undertaken (Section 3.7,Table 3-3).

Project vessels operating in and around the PAA may present a potential hazard to protected marine fauna, including cetaceans (e.g. pygmy blue whales), whale sharks and marine turtles. Vessel movements can result in collisions between the vessel (hull and propellers) and marine fauna, potentially resulting in superficial injury, serious injury that may affect life functions (e.g. movement and reproduction) and mortality. Factors that contribute to the frequency and severity of impacts due to collision vary greatly due to vessel type, vessel operation (specific activity, speed), physical environment (e.g. water depth), the type of animal potentially present and their behaviours.

Project vessels would typically be stationary or moving at low speeds when supporting the PAP; support vessels typically transit to and from the PAA between two and four trips per week (e.g. to port).

Impact Assessment

Potential impacts to environmental values

Project vessels operating in and around the PAA may present a potential hazard to marine mammals and other protected marine fauna, such as marine turtles. 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 PAA are likely to be travelling <8 knots (and will often be stationary) within the 500 m zone for the MODU and relevant vessels. At times, vessels will be transiting between wells where speed could be up to a maximum of about 15 knots, however these would only be transitory through the area. Therefore, the chance of a vessel collision with protected species resulting in a lethal outcome is considered highly unlikely.

The risk of marine life getting caught in operating thrusters is highly unlikely, given the low presence of individuals, combined with the avoidance behaviour commonly displayed during dynamic positioning operations.

Marine Mammals

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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 PAA. However, a migration and distribution pygmy blue whales BIA overlapping the PAA and individuals may occasionally be present during seasonal migrations (Section 4.6.3). Three species of dolphin were identified that may occur in the PAA. However, most dolphins show preference for coastal habitats over deep offshore waters. This reduces the likelihood of dolphin species being encountered in the PAA and interacting with project vessels.

The risk of lethal injury to a large whale as a result of a vessel strike is estimated to be less than 10% at a speed of 4 knots (Vanderlaan and Taggart, 2007). 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.

Smaller cetaceans, such as dolphins, comprise a lower proportion of vessel collision records (DoEE, 2016), though it is difficult to determine if this is due to a lower collision rate or lower detection rate of incidents. Dolphins often engage in bow riding which may make them more vulnerable to entanglement with propellers or thrusters compared to larger cetaceans.

It is highly unlikely that vessel movement associated with the PAP will have a significant impact on marine mammal populations given: (1) the low presence of transiting individuals; (2) avoidance behaviour commonly displayed by whales; (3) dolphin species preference for coastal habitats; and (4) low operating speed of the support vessels (generally less than eight knots or stationary, unless operating in an emergency). The magnitude of the potential impact to marine mammals is slight, which results in a consequence of E based on the high receptor sensitivity.

Marine Reptiles

The Recovery Plan for Marine Turtles in Australia 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 (Commonwealth of Australia, 2017). Whilst an internesting buffer overlaps the PAA, considering the offshore location, it is expected that the presence of marine turtles would be 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.

It is highly unlikely that vessel movement associated with the PAP will have a significant impact on marine fauna populations, given the low presence of transiting individuals and the low operating speed of the support vessels (generally <8 knots or stationary, unless operating in an emergency). The magnitude of the potential impact to marine reptiles is slight, which results in a consequence of E based on the high receptor sensitivity.

Fish, sharks and rays

Vessel strikes are recognised as a key threat to recovery by the Approved Conservation Advice for whale sharks (TSSC, 2015). Whale sharks are at risk from vessel strikes when feeding at the surface or in shallow waters (where there is limited option to dive). The defined foraging BIA (northward from Ningaloo along the 200 m isobath) overlaps with the PAA, and whale sharks may traverse the PAA between March to November during their migration. Given the duration of activities within PAA and the slow speeds at which project vessels operate, collisions with transiting individual whale sharks are considered highly unlikely.

Smaller fish may also be at risk of injury or mortality from vessels through being caught in thrusters during station keeping operations (i.e. DP). However, this is unlikely given the low presence of individuals, combined with the avoidance behaviour commonly displayed during station keeping operations.

Given the duration of activities in the PAA, the slow speeds at which project vessels operate, and low presence of individuals, the likelihood of a vessel collision with fish, sharks and rays is considered highly unlikely. The magnitude of the potential impact to fish, sharks and rays is slight, which results in a consequence of E based on the high receptor sensitivity.

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 values(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. Environment Impact – E).

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)70***	***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 measures71: Project vessels will not travel faster than six 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 six knots. Vessels will not travel faster than eight knots within 250 m of a whale shark and not allow the vessel to approach closer than 30 m of a whale shark.	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 5.1
Good Practice				
Variation of the timing of the PAP to avoid whale and whale shark migration periods.	F: Not feasible. Schedule of activities to be determined and 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
Key personnel (e.g. master and bridge crew) will be adequately trained to understand and adhere to	F: Yes. CS: Minimal cost. Standard practice.	Personnel are trained, reducing likelihood of a collision.	Benefits outweigh cost/sacrifice.	Yes C 19.1

[70] Qualitative measure

[71]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.

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Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)70***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Part 8 of the EPBC Regulations.				
The use of dedicated MFOs on project vessels for the duration of the PAP 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 as MFOs will monitor for pygmy blue whale presence prior to resupply/support vessel moves alongside the MODU and PIV, additional MFOs would not further reduce the likelihood of an individual being within close proximity of the acoustic source during introduction of sounds related to DP or during operations.	Disproportionate. The cost/sacrifice outweighs the benefit gained.	No
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, Woodside considers the adopted controls appropriate to manage the impacts and risks of potential vessel collision with protected marine fauna. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks 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 significant localised impact with lasting effect. Further opportunities to reduce the impacts and risks 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 potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks 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 20	C 5.1 Refer Section 6.7.3	PS 5.1 Refer Section 6.7.3	MC 5.1.1 Refer Section 6.7.3

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
No vessel strikes with protected marine fauna (whales, whale sharks, turtles) during the PAP.		PS 19.1.1 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 19.1.1 Records demonstrate reporting cetacean ship strike incidents to the National Ship Strike Database.
	C 19.1 Key personnel (e.g. master and bridge crew) will be adequately trained to understand and adhere to Part 8 of the EPBC Regulations.	PS 19.2.1 Induction includes training and understanding of Part 8 of the EPBC Regulations.	MC 19.2.1 Records demonstrate key personnel adequately trained to understand and adhere to Part 8 of the EPBC Regulations.

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6.8.9 Physical Presence (Unplanned): Interaction with Live Infrastructure

Context		
Relevant Activities Project vessels – Section 3.7 Subsea installation Activities - Section 3.11 Drilling Activities - Section 3.10	***Existing Environment*** Socio-economic Environment – Section 4.10	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Interaction with live infrastructure from dropped objects						X	A	E	1	L	LCS GP	Broadly Acceptable	EPO 20
Interaction with live infrastructure from anchor drag						X							

Description of Source of Impact

As detailed in Section 4.10.6, there is existing live subsea infrastructure in the PAA, which includes components of the Julimar Field Production Systems and Chevron's Wheatstone trunkline. During the PAP, activities may be conducted that present a risk of dropped objects or anchor drag over the nearby live infrastructure.

Dropped Objects

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 activities 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). However, there is potential for larger equipment to be dropped during the activity, particularly during recovery of infrastructure from the seabed. The spatial extent in which dropped objects can occur is restricted to the PAA.

Anchor Drag

A moored/ hybrid MODU may be used for drilling the wells, secured on station by an 8 to 12-point mooring system deployed to the seabed, as dictated by the mooring analysis. High energy weather events such as cyclones, occurring while the MODU is on station, can lead to excessive loads on the mooring lines, resulting in failure (either anchor(s) dragging or mooring lines parting). A failure of mooring integrity may lead to the mooring lines and anchors attached to the MODU being trailed across the seabed and over live infrastructure.

For a moored MODU, personnel on-board are typically evacuated during cyclones. Woodside implements a risk-based assessment process to aid in decision making for cyclone evacuations, with the well suspended prior to MODU

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evacuation. Support vessels also demobilise from the PAA during the passage of a cyclone. While the MODU is temporarily abandoned, the position of the MODU is monitored remotely for any deviation. Support vessels and MODU personnel return to the PAA as soon as safe to do so after a cyclone evacuation. Operational experience indicates cyclone evacuations typically last for seven days.

Industry statistics from the North Sea show that a single mooring line failure for MODUs is the most common failure mechanism (33 × 10-4 per line per year), followed by a double mooring line failure (11 × 10-4 per line per year) (Petroleumstilsynet, 2014). Note that single and double mooring line failures do not typically result in the loss of station keeping. If partial or complete mooring failures are sufficient to result in a loss of station keeping, industry experience indicates that MODUs may drift considerable distances from their initial position (Offshore: Risk & Technology Consulting Inc., 2002). Partial mooring failures leading to a loss of station keeping resulted in smaller MODU displacements, due to the remaining anchors dragging along the seabed when compared to complete mooring failures; complete mooring failures resulted in a freely drifting MODU (Offshore: Risk & Technology Consulting Inc., 2002).

NOPSEMA has recorded four cases of anchor drag due to loss of MODU holding station during cyclone activity between 2004 and 2015 (NOPSEMA 2015).

Impact Assessment

Potential impacts to environmental values

Interactions with other marine users

In the unlikely event of an object being dropped on, or anchors dragging over, live infrastructure there is potential impacts to the infrastructure and the Operators of that infrastructure.

Within the PAA, there is the Wheatstone pipeline owned and operated by Chevron and infrastructure associated with the Julimar Field Production System owned by Woodside and in respect of which Chevron provides field management services to Woodside as Operator.

If interactions with live infrastructure were to occur, Woodside would notify the relevant operations team in accordance with the SIMOPS plan. This would trigger responses from the Operator to assess and respond to any damage caused in accordance with the relevant operations EP for the live infrastructure. Under Regulation 56 of the Environment Regulations, a titleholder may refer NOPSEMA to information previously given to NOPSEMA for another purpose under the OPGGS Act, the Environment Regulations or any other regulations made under the Act, to comply with a requirement on the titleholder under the Environment Regulations to give NOPSEMA information or include information in a document. In accordance with Regulation 56, NOPSEMA is referred to the relevant operations EPs[72] submitted by the Operators of the live infrastructure, and accepted by NOPSEMA, for the detail of the Operators' assessment and response in such a scenario. Potential impacts therefore include time and costs associated with inspecting the infrastructure and time and costs associated with any associated repair, which are expected to be slight and short-term in nature.

Potential subsequent loss of containment

In the unlikely event of an object being dropped on, or anchors dragging over, live infrastructure, and in the further unlikely event of a severe interaction with the infrastructure, there is a possibility that live infrastructure could be ruptured releasing hydrocarbons into the marine environment in such a scenario. In accordance with Regulation 56, NOPSEMA is referred to the relevant operations EPs submitted by the Operators of the live infrastructure, and accepted by NOPSEMA, for the detail of potential impacts, receptors and the extent of the environment that may be affected in such a scenario, being:

- Julimar Operations EP, Section 6.7.3 (NOPSEMA Doc A771970, https://docs.nopsema.gov.au/A771970)
- Wheatstone Project Start-up and Operations EP, Section 7.1.3 (NOPSEMA Doc: A853704, https://docs.nopsema.gov.au/A853704).

As detailed in this Section above and below, this EP addresses the risks and impacts (interaction with live infrastructure) that arise from the activities under this EP (interaction from dropped objects and interaction from anchor drag). This EP also contains controls to prevent such an event from occurring that are within the operational control of this EP. As detailed in this Section, the operational control, maintenance and incident response associated with the live infrastructure and/or loss of containment from the live infrastructure is not within the operational control of this EP. As detailed below, the risks and impacts of the activities under this EP are managed to ALARP and an acceptable level by implementing the SIMOPS plan and notifying the relevant Operators in the instance of an interaction with live infrastructure to allow the relevant Operator's detailed response strategies under the relevant operations EPs to be triggered, if required. In the event of a loss of containment caused by an interaction with live infrastructure Woodside will follow direction from the relevant Operator and will respond as per the relevant Operator's requirements. In accordance with Regulation 56, NOPSEMA is referred to the relevant operations EPs submitted by the Operators of

[72] Julimar Operations EP, Section 6.7.3 (NOPSEMA Doc A771970, https://docs.nopsema.gov.au/A771970); Wheatstone Project Start-up and Operations EP, Section 7.1.3 (NOPSEMA Doc: A853704, https://docs.nopsema.gov.au/A853704).

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the live infrastructure, and accepted by NOPSEMA, for the detail of the operational control, maintenance and incident response associated with the live infrastructure and/or loss of containment from the live infrastructure.[73]

Demonstration of ALARP				
Control Considered	***Control Feasibility (F) and Cost/Sacrifice (CS)[74]***	***Benefit in Impact/Risk Reduction***	***Proportionality***	***Control Adopted***
Good Practice				
The MODU/PIV 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.	Reduces the likelihood of an object being dropped during lifts, bulk transfers and cardo loading.	Benefits outweigh cost/sacrifice.	Yes C 20.1
Specifications and requirements for station keeping equipment (mooring systems), require that: • systems are tested and inspected in accordance with API RP 21 • systems have sufficient capability such that a failure of any single component will not cause progressive failure of the remaining anchoring arrangement.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of mooring failure leading to uncontrolled anchor drag.	Benefit outweighs cost sacrifice.	Yes C 20.2
Project-specific Mooring Design Analysis.	F: Yes. CS: Minimal cost. Standard practice.	By ensuring that a mooring analysis report is undertaken, the likelihood of mooring failure occurring is reduced. The mooring	Benefit outweighs cost sacrifice.	Yes C 4.3

[73] Julimar Operations EP, Section 6.7.3 (NOPSEMA Doc A771970, https://docs.nopsema.gov.au/A771970); Wheatstone Project Start-up and Operations EP, Section 7.1.3 (NOPSEMA Doc: A853704, https://docs.nopsema.gov.au/A853704).
[74] Qualitative measure

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		design analysis report specifically considers proximity to live infrastructure and manages potential impacts on that infrastructure accordingly.		
Mooring system is tested to recommended tension as per API RP 2SK.	F: Yes. CS: Minimal cost. Standard practice	Reduces the likelihood of anchor drag.	Benefit outweighs cost sacrifice.	Yes C 20.3
Professional Judgement – Eliminate				
No additional controls identified				
Professional Judgement – Substitute				
No additional controls identified				
Professional Judgement – Engineered Solution				
MODU tracking equipment operational when the MODU unmanned.	F: Yes. CS: Minimal cost. Standard practice.	Although no reduction in consequence would occur, the overall risk is reduced as the location of the MODU would be known at all times and the appropriate response could be deployed in the event of a loss of station keeping.	Benefit outweighs cost sacrifice.	Yes C 20.4
SIMOPS Plan in place when MODU working in vicinity of other facilities, vessels or live infrastructure i.e. during xmas tree installation. SIMOPS Plan will contain information on: • Minimum separation distances • Communications • MODU / vessels / activities involved in SIMOPS • Exclusion zone entry and exit processes • ROV operations • Helicopter operations • Key roles, responsibilities and emergency contacts • PTW arrangements • Incident reporting and investigation • Management of Change	F: Yes. CS: Minimal cost. Standard practice.	SIMOPS Plan contains detail such as communications requirements, exclusion zones and entry/exit requirements and roles and responsibilities – which can help reduce likelihood of interactions with live infrastructure, it also contains notification protocols in the event of an interaction with live infrastructure. The SIMOPS plan also requires notification in the event of an incident or interaction with infrastructure thus triggering response strategies in the relevant operations EPs. The detailed response is in the Ops EP and the implementation of that would be triggered by the SIMOPS plan and Woodside will support the response	Benefits outweigh cost/sacrifice. Control is also Standard Practice.	Yes C 1.10

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		according to the other Operator's requests.		

ALARP Statement

Woodside considers the adopted controls appropriate to manage the risks of a significant dropped object or anchor drag interacting with live infrastructure within the PAA. As no reasonable additional/alternative controls were identified that would further reduce the risks and consequences without disproportionate sacrifice, the risks and consequences are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that interaction with live infrastructure from dropped objects or a loss of station keeping of the MODU represents a low current risk rating and is unlikely to result in a risk consequence greater than slight. The adopted controls are considered industry good 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 of seabed disturbance from dropped objects / anchor drag to an acceptable level.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 20 No interactions with live infrastructure resulting in loss of hydrocarbons to the marine environment during the PAP	C 1.10 Refer to Section 6.7.1	PS 1.10 Refer to Section 6.7.1	MC 1.10.1 Refer to Section 6.7.1
	C 4.3 Refer to Section 6.7.2	PS 4.3 Refer to Section 6.7.2	MC 4.3.1 Refer to Section 6.7.2
	C 20.1 The MODU/PIV 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.	PS 20.1 All lifts conducted in accordance with applicable MODU/ installation vessel work procedures to limit potential for dropped objects.	MC 20.1.1 Records show lifts conducted in accordance with the applicable MODU/ installation vessel work procedures.
	C 20.2 Specifications and requirements for station keeping equipment (mooring systems), require that: • systems are tested and inspected in accordance with API RP 21 • systems have sufficient capability such that a failure of any single component will not cause progressive failure of the remaining anchoring arrangement.	PS 20.2 MODU mooring system tested and in place to ensure no complete mooring failure.	MC 20.2.1 Records demonstrate mooring system tests and inspection.
	C 20.3	PS 20.3	MC 20.3.1

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	Mooring system is tested to recommended tension as per API RP 2SK.	Monitoring compliant with ISO 19901-7:2013	Records confirm mooring system is tested to recommended tension as per API RP 2SK.
	C 20.4 MODU tracking equipment operational when the MODU unmanned.	PS 20.4 Tracking of the MODU is possible when the MODU is unmanned.	MC 20.4.1 Records show the moored MODU has functional tracking equipment for instances when MODU is unmanned.

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6.8.10 Physical Presence (Unplanned): Seabed Disturbance from Dropped Objects and Loss of Station Keeping Leading to Anchor Drag

Context		
Relevant Activities Project Vessels - Section 3.7 Project-Vessel based activities – Section 3.9	***Existing Environment*** Marine Regional Characteristics – Section 4.2	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Dropped objects resulting in the disturbance of benthic habitat	X			X			A	E	1	L	GP PJ	Broadly Acceptable	EPO 21
Loss of station keeping of the MODU leading to anchor drag and the disturbance of benthic habitat	X			X									

Description of Source of Impact

During MODU and project vessel operations, the primary cause for unplanned seabed disturbance is through dropped objects from the MODU or project vessels. Additional unplanned disturbance to the seabed may occur from a loss of station keeping and subsequent anchor drag during MODU operations if a moored MODU is used for the PAP.

Dropped Objects

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 activities 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); however, there is also potential for larger equipment to also be dropped during the activity, particularly during recovery of infrastructure from the seabed. The spatial extent in which dropped objects can occur is restricted to the PAA.

Anchor Drag

A moored/ hybrid MODU may be used for drilling the wells, secured on station by an 8 to 12-point mooring system deployed to the seabed, as dictated by the mooring analysis. High energy weather events such as cyclones, occurring while the MODU is on station, can lead to excessive loads on the mooring lines, resulting in failure (either anchor(s) dragging or mooring lines parting). A failure of mooring integrity may lead to the mooring lines and anchors attached to the MODU being trailed across the seabed. If mooring failure is sufficient, the MODU may move off station, increasing the likelihood of anchor drag across the seafloor.

For a moored MODU, personnel on-board are typically evacuated during cyclones. Woodside implements a risk-based assessment process to aid in decision-making for cyclone evacuations, with the well suspended prior to MODU evacuation. Support vessels also demobilise from the PAA during the passage of a cyclone. While the MODU is temporarily abandoned, the position of the MODU is monitored remotely for any deviation. Support vessels and MODU personnel return to the PAA as soon as safe to do so after a cyclone evacuation. Operational experience indicates cyclone evacuations typically last for seven days.

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Industry statistics from the North Sea show that a single mooring line failure for MODUs is the most common failure mechanism (33 × 10-4 per line per year), followed by a double mooring line failure (11 × 10-4 per line per year) (Petroleumstilsynet, 2014). Note that single and double mooring line failures do not typically result in the loss of station keeping. If partial or complete mooring failures are sufficient to result in a loss of station keeping, industry experience indicates that MODUs may drift considerable distances from their initial position (Offshore: Risk & Technology Consulting Inc., 2002). Partial mooring failures leading to a loss of station keeping resulted in smaller MODU displacements, due to the remaining anchors dragging along the seabed when compared to complete mooring failures; complete mooring failures resulted in a freely drifting MODU (Offshore: Risk & Technology Consulting Inc., 2002).

NOPSEMA has recorded four cases of anchor drag due to loss of MODU holding station during cyclone activity between 2004 and 2015 (NOPSEMA 2015). Seabed disturbance area size from anchor drag will depend on the extent of the drag.

Impact Assessment

Potential impacts to environmental values

In the unlikely event of an object being dropped into the marine environment or failed mooring, potential environmental effects would be limited to minor 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 minor but permanent.

KEFs

The temporary or permanent loss of dropped objects into the marine environment and mooring failure is likely to result in a minor impact only, as the benthic communities associated with the PAA are of low sensitivity and are broadly represented throughout the NWMR. As described in Section 4.7, the Continental Slope Demersal Fish Communities and the Ancient Coastline at 125 m depth contour KEFs overlaps the PAA. Benthic communities in the PAA are representative of the deep water soft sediment habitats reported in the wider region, and is likely to consist of soft sediment seabed habitat, characterised by sparse, widely represented epifauna and infauna (Woodside, 2004; Brewer et al., 2007).

Given the nature and scale of risks and consequences from dropped objects and mooring failure, slight impacts are expected to seabed sensitivities within the PAA. Furthermore, the PAA overlaps a relatively minor proportion of both KEFs (Table 4-16 and Figure 4-10). Further, considering the types, size, scale and frequency of dropped objects that could occur, it is unlikely that a dropped object would have a significant impact on any benthic community.

Any unplanned seabed disturbance within the Ancient Coastline KEF would be relatively small compared to the size of the KEF. There will be no substantial adverse effect on the KEF or the communities within it. On this basis, the magnitude of potential impacts to KEFs from unplanned seabed disturbance during activities is expected to be slight.

Epifauna and Infauna

As a result of a change in water quality and change in habitat, injury or mortality to marine fauna resulting from an increase in turbidity may occur. Given a change to water quality is unlikely, the only receptors that would potentially be at risk of unplanned seabed disturbance are bottom dwelling species including epifauna and infauna. Benthic communities, including epifauna and infauna may be impacted by the dropped objects, or the drag of anchors on the seabed. If not recovered, dropped objects may result in the permanent loss of a small area under the object.

If anchor drag occurs, habitat impact will span the extent of the drag area, leading to a localised change in communities; however, substantial adverse effect is not anticipated, given the sparse marine life that are well represented elsewhere in the region.

Given generally sparse benthic communities in the PAA, no threatened or migratory benthic species or ecological communities were identified, and those epifauna and infauna communities observed are likely to be well represented elsewhere in the region, impacts are expected to be restricted to a localised proportion of epifauna and infauna communities.

Based on the detailed evaluation, the magnitude of potential impacts to epifauna and infauna from unplanned seabed disturbance during activities associated with the PAP is evaluated to be slight. Sensitivity for epifauna and infauna is low, leading to a Negligible (E) risk consequence.

Summary of Potential Impacts to environmental values(s)

Given the adopted controls, the predicted small footprint of a dropped object and the unlikely nature of anchor drag, it is considered that unplanned seabed disturbance will result in slight impacts to a small area of the seabed and a small proportion of the benthic populations. However, no significant impact to environmental receptors and resulting in minor and short-term impacts (i.e. Environment Impact – E).

Demonstration of ALARP

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Control Considered	Control Feasibility (F) and Cost/Sacrifice (CS)[75]	Benefit in Impact/Risk Reduction	Proportionality	Control Adopted
Legislation, Codes and Standards				
No additional controls identified.				
Good Practice				
The MODU/PIV 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 20.1
Specifications and requirements for station keeping equipment (mooring systems), require that: • systems are tested and inspected in accordance with API RP 21 • systems have sufficient capability such that a failure of any single component will not cause progressive failure of the remaining anchoring arrangement.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of mooring failure leading to uncontrolled anchor drag. Should mooring failure occur, no significant reduction in consequence could occur.	Benefit outweighs cost sacrifice.	Yes C 20.2
Project-specific Mooring Design Analysis.	F: Yes. CS: Minimal cost. Standard practice.	By ensuring that a mooring analysis report is undertaken, the likelihood of mooring failure occurring is reduced. Although no reduction in consequence would occur, the overall risk is reduced.	Benefit outweighs cost sacrifice.	Yes C 4.3

[75] Qualitative measure

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Mooring system is tested to recommended tension as per API RP 2SK.	F: Yes. CS: Minimal cost. Standard practice	Reduces the likelihood of anchor drag leading to seabed disturbance.	Benefit outweighs cost sacrifice.	Yes C 20.3
MODU/project vessel ROV, crane or project vessel may be used to attempt recovery of solid wastes /equipment lost overboard. Where safe and practicable, this activity will consider: • risk to personnel to retrieve object • whether the location of the object is in recoverable water depths • objects proximity to subsea infrastructure • ability to recover the object (i.e. Nature of object, lifting equipment or, 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.	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.	Benefit outweighs cost sacrifice.	Yes C 18.3
AMSA/AHS/potentially affected stakeholders (as identified in Section 5) will be notified in the event significant equipment is unable to be recovered. Notification will allow for stakeholder to raise Notice to Mariners if necessary.	F: Yes. CS: Minimal cost. Standard practice.	Occurs after a dropped object event and therefore no change to the likelihood. Will ensure stakeholders are aware of dropped object locations to be avoided when necessary.	Benefit outweighs cost sacrifice.	Yes C 21.1
Professional Judgement – Eliminate				
No additional controls identified				
Professional Judgement – Substitute				
No additional controls identified				
Professional Judgement – Engineered Solution				
MODU tracking equipment operational when the MODU unmanned.	F: Yes. CS: Minimal cost. Standard practice.	Although no reduction in consequence would occur, the overall risk is reduced as the location of the MODU would be known at all times and response times could be improved in the event of a loss of station keeping.	Benefit outweighs cost sacrifice.	Yes C 20.4

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ALARP Statement

On the basis of the environmental risk assessment outcomes and use of the relevant tools appropriate to the decision type, Woodside considers the adopted controls appropriate to manage the impacts and risks of unplanned seabed disturbance. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The impact assessment has determined that disturbance to seabed from dropped objects or a loss of station keeping of the MODU represents a low current risk rating and is unlikely to result in a risk consequence greater than slight. The adopted controls are considered industry good 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 of seabed disturbance from dropped objects / anchor drag to an acceptable level.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 21 No incidents of dropped objects or anchor/chain hold drag to the marine environment inside the PAA greater than a consequence level of D76 during the PAP.	C 20.1 Refer Section 6.8.9	PS 20.1 Refer Section 6.8.9	MC 20.1.1 Refer Section 6.8.9
	C 20.2 Refer Section 6.8.9	PS 20.2 Refer Section 6.8.9	MC 20.2.1 Refer Section 6.8.9
	C 4.3 Refer Section 6.7.2	PS 4.3.1 Refer Section 6.7.2	MC 4.3.1 Refer Section 6.7.2
	C 20.3 Refer Section 6.8.9	PS 20.3 Refer Section 6.8.9	MC 20.3 Refer Section 6.8.9
	C 18.3 Refer Section 6.8.7	PS 18.3.1 Refer Section 6.8.7	MC 18.3.1 Refer Section 6.8.7
			MC 18.3.2 Refer Section 6.8.7
		PS 18.3.2 Refer Section 6.8.7	MC 18.3.3 Refer Section 6.8.7
	C 21.1 AMSA/AHS/potentially affected stakeholders (as identified in Section 5) will be notified in the	PS 21.1 Notification to AMSA/ AHS/ potentially affected stakeholders to prevent	MC 21.1.1 Consultation records demonstrate that AMSA/ AHS/ potentially affected

[76] Minor, short-term impact (1-2 years), as in Table 2-3.

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Environmental Performance Outcomes, Standards and Measurement Criteria			
Outcomes	***Controls***	***Standards***	***Measurement Criteria***
	event significant equipment is unable to be recovered. Notification will allow for stakeholder to raise Notice to Mariners if necessary.	activities interfering with other marine users.	stakeholders have been notified in the event of a significant equipment loss.
	C 20.4 Refer Section 6.8.9	PS 20.4 Refer Section 6.8.9	MC 40.4.1 Refer Section 6.8.9

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6.8.11 Physical Presence (Unplanned): Accidental Introduction and Establishment of Invasive Marine Species

Context		
Relevant Activities Project Vessels - Section 3.7 Project-Vessel based activities – Section 3.9 Subsea Installation Activities - Section 3.11	***Existing Environment*** Marine Regional Characteristics – Section 4.2	***Consultation*** Consultation – Section 5

Impact Evaluation Summary

Source of Impact	***Environmental Value Potentially Impacted***						***Evaluation***						
	Marine Sediment	Water Quality	Air Quality (incl Odour)	Ecosystems/Habitat	Species	Socio-economic	Decision Type	Consequence / Impact	Likelihood	Risk Rating	ALARP Tools	Acceptability	Outcome
Introduction and establishment of invasive marine species (IMS) within the PAA				X	X	X	A	E	0	L	LCS GP PJ	Broadly Acceptable	EPO 22

Description of Source of Impact

Installation of Subsea Infrastructure, and MODU and Vessel Operations

During the PAP, vessels will be transiting to and from the PAA, potentially including vessels mobilising from beyond Australian waters. These project vessels may include the MODU, AHV, installation vessel or general support vessels (Section 3.7).

All vessels are subject to some level of marine fouling whereby organisms attach to the vessel hull. This could particularly occur 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.). 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 PAP, project vessels have the potential to introduce IMS to the PAA through marine fouling (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) during times when vessels need to be alongside each other.

Impact Assessment

Potential impacts to environmental values

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 may have the ability to survive, reproduce and establish founder populations. However, not all NIMS introduced into an area will thrive or cause demonstrable impacts; 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.

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), they may outcompete indigenous species for food, habitat or light and can also interbreed with local species, creating hybrids such that the endemic species is lost. These changes to the local marine environment result in changes to the natural ecosystem.

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

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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.

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 influence 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.

Epifauna and Infauna

Epifauna and infauna are 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. Studies completed within the region indicate that benthic composition in deep-water habitats is generally lower in abundance than shallow water habitats of the region (DEWHA, 2008; Brewer et al., 2007). As described in Section 4.5, A survey of the nearby Balnaves Development seafloor recorded sparse (< 5% cover) epibenthic fauna such as anemones, urchins, sea whips, sea pens feathers stars and glass sponges (RPS, 2011b). Infauna consisted of polychaetes and crustaceans. Benthic communities in the PAA are representative of the wider region.

The relatively deep offshore open waters of the PAA (83 - 258 m) are not conducive to the settlement and establishment of IMS. Furthermore, the PAA is away from shorelines and/or critical habitat. Given these factors, the likelihood of IMS being introduced and establishing viable populations within the PAA or immediate surrounds is considered Remote.

Receptor sensitivity for epifauna and infauna is low, leading to a Negligible (F) risk consequence with no lasting effect to species or communities.

Industry, Shipping, Defence

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 remote likelihood of IMS translocation to, and colonisation of environments within the PAA, 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 impact evaluation, the risk consequence of impacting the functions, interests or activities of other users through introduction and establishment of IMS into the PAA is Slight, given the medium receptor sensitivity.

Summary of Potential Impacts to environmental values(s)

In support of Woodside's assessment of the risks and consequences of IMS introduction associated with the PAP, 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 6-25.

As a result of this assessment, Woodside has presented the highest potential consequence as a Slight (E) and likelihood as Remote (0), resulting in an overall Low risk following the implementation of identified controls.

Table 6-25: Credibility, consequence and likelihood of introducing IMS

IMS Introduction Location	Credibility of Introduction	Consequence of Introduction	Likelihood
Introduced to PAA and establishment on the seafloor or subsea structures	Not Credible The deep offshore open waters of the PAA, away from shorelines and/or critical habitat, more than 50 km from a shoreline and in waters more than 80 m deep are not conducive to the settlement and establishment of IMS.		
Introduced to PAA and establishment on a project vessel.	Credible There is potential for the transfer of marine pests between project vessels within the PAA.	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 PAA from nearshore	Remote (0) Interactions between project vessel will be limited during the PAP, with minimum 500 m safety exclusion zones being adhered to around the MODU and installation vessel, and interactions limited short periods of

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		environments (i.e. greater than 12 nm/50 m water depth). There is therefore no credible environmental risk and the assessment is limited to Woodside's reputation. Reputation – E If IMS were to establish on a project vessel (i.e. MODU, installation vessel, activity project vessels) this could potentially impact the vessel operationally through the fouling of intakes, result in translocation of an IMS into the PAA and, depending on the species, potentially transfer of an IMS to other project 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.	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 PAA.	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 risk assessment 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 IMS risk assessment process) and survive the transport back from the PAA to shore. In the event it was to survive this trip, it would then need to establish a viable population in nearshore waters.		

Demonstration of ALARP

Control Considered	*Control Feasibility (F) and Cost/Sacrifice (CS)*[77]	*Benefit in Impact/Risk Reduction*	*Proportionality*	*Control Adopted*

[77] Qualitative measure

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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.	Reduces the likelihood of transferring marine pests between survey vessels within the PAA. No change in consequence would occur.	Controls based on legislative requirements under the Biosecurity Act 2015 – must be adopted.	Yes C 22.1
Internationally sourced project vessels will manage their biosecurity risk associated with biofouling as specified in the Australian Biofouling Management Requirements.	F: Yes. CS: Minimal cost. Standard practice.	Reduces the likelihood of transfer of marine pests between vessels within the PAA. No change in consequence would occur.	Controls based on legislative requirements under the Biosecurity Act 2015 – must be adopted.	Yes C 22.2
Good Practice				
Woodside's IMS risk assessment process[78] will be applied to the MODU, project vessels and relevant immersible equipment undertaking the PAP. Assessment will consider these risk factors: • For vessels/ MODU: • vessel/MODU/ type • recent IMS inspection and cleaning history, including for internal niches • out-of-water period before mobilisation • age and suitability of antifouling coating at mobilisation date • internal treatment systems and history	F: Yes. CS: Minimal cost. Good practice implemented across all Woodside Operations.	Identifies potential risks and additional controls implemented accordingly. In doing so, the likelihood of transferring marine pests between project vessels within the PAA is reduced. No change in consequence would occur.	Benefits outweigh cost/sacrifice.	Yes C 22.3

[78] Woodside's IMS risk assessment process was developed with regard to the national biofouling management guidelines for the petroleum production and exploration industry and guidelines for the control and management of a ships' biofouling to minimise the transfer of invasive aquatic species (IMO Guidelines, 2011).

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• origin and proposed area of operation • number of stationary/slow speed periods >7 days • region of stationary or slow periods • type of activity – contact with seafloor. • For immersible equipment: • region of deployment since last thorough clean, particularly coastal locations • duration of deployments • duration of time 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.				
Professional Judgement – Eliminate				
No discharge of ballast water during the PAP.	F: No. Ballast water discharges are critical for maintaining vessel stability. Given the	Not assessed, control not feasible.	Not assessed, control not feasible.	No

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	nature of the PAP, 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.			
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 project vessels locally it is not always possible. Availability cannot always be guaranteed when considered competing Oil and Gas activities in the 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.	Sourcing vessels from within Australian 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 PAA 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 PAA; 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 Australian based vessels, consequently this risk is considered not reasonably practicable.	No

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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 13.2) 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 to and resources to areas of greatest concern.	Inspection of all vessels for IMS would reduce the likelihood of IMS being introduced to the PAA. 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 implement achieve an ALARP position.	No

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, Woodside considers the adopted controls appropriate to manage the impacts and risks of IMS introduction. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts and risks are considered ALARP.

Demonstration of Acceptability

Acceptability Statement

The risk assessment has determined that, given the adopted controls, introduction of IMS represent a slight risk rating that has a remote likelihood to result in an environmental consequence greater than a slight, short-term impact on marine communities within the PAA. Further opportunities to reduce the impacts and risks have been investigated above. The adopted controls are considered good oil-field practice/industry best practice and meet Australian legislative requirements, including the Biosecurity Act 2015. The potential impacts and risks are considered broadly acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks of invasive marine species to an acceptable level.

Environmental Performance Outcomes, Standards and Measurement Criteria

Outcomes	*Controls*	*Standards*	*Measurement Criteria*
EPO 22 No introduction and establishment of invasive marine species into the PAA as a result of the PAP.	C 22.1 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 22.1 Prevents the translocation of IMS within the vessel's ballast water from high risk locations to the PAA.	MC 22.1.1 Ballast Water Records System maintained by vessels which verifies compliance against Australian Ballast Water Management Requirements.
	C 22.2 Internationally sourced project vessels will manage their biosecurity risk associated with	PS 22.2.1 Compliance with Australian Biofouling Management Requirements.	MC 22.2.1 Records of implementation of biofouling management measure and pre-arrival reporting.

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	biofouling as specified in the Australian Biofouling Management Requirements.		
	C 22.3 Woodside's IMS risk assessment process[79] will be applied to the MODU, project vessels and relevant immersible equipment undertaking the PAP. Assessment will consider these risk factors: • For vessels/ MODU: • vessel/MODU/ type • recent IMS inspection and cleaning history, including for internal niches • out-of-water period before mobilisation • age and suitability of antifouling coating at mobilisation date • internal treatment systems and history • origin and proposed area of operation • number of stationary/slow speed periods >7 days • region of stationary or slow periods • type of activity – contact with seafloor.	PS 22.3.1 Before entering the PAA, 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 22.2.1 Records of IMS risk assessments maintained for all project vessels and relevant immersible equipment entering the PAA or IMS management area to undertake the PAP.
		PS 22.3.2 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 22.3.2 Records confirm that the IMS risk assessments undertaken by an Environment Adviser or IMS inspector (as relevant).

[79] Woodside's IMS risk assessment process was developed with regard to the national biofouling management guidelines for the petroleum production and exploration industry and guidelines for the control and management of a ships' biofouling to minimise the transfer of invasive aquatic species (IMO Guidelines, 2011).

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	• For immersible equipment: • region of deployment since last thorough clean, particularly coastal locations • duration of deployments • duration of time 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.		

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6.9 Recovery Plan and Threat Abatement Plan Assessment

As described in Section 1.9, 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 PAP 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 2015–2025 (Commonwealth of Australia, 2015a).
- Recovery Plan for the Grey Nurse Shark (Carcharias taurus) 2014 (Commonwealth of Australia, 2014).
- Sawfishes and River Sharks Multispecies Recovery Plan (Commonwealth of Australia, 2015b).
- 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 6-26 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 PAP. For those objectives/action areas applicable to the PAP, 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 6-26 to Table 6-31.

The assessment of potential impacts and risks to pygmy blue whales from underwater noise emissions in Section 6.7.3 has taken into account the definitions of terminology in the CMP, as described in the DCCEEW and NOPSEMA guidance released in September 2021. Similarly, the assessment against relevant actions in the CMP in Table 6-28 has been undertaken in the context of the definitions included in the guidance note.

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Table 6-26: Identification of applicability of recovery plan and threat abatement plan objectives and action areas

EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	***Titleholder***	***PAP***
Marine Turtle Recovery Plan			
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. Adaptively 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
Blue Whale Conservation Management Plan			
Long-term recovery objective: Minimise anthropogenic threats to allow for their conservation status to improve so that 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		

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	***Titleholder***	***PAP***
The spatial and temporal distribution, identification of biologically important areas, 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: Assessing and addressing anthropogenic noise	Y	Y	Y
A.3: Understanding impacts of climate variability and change	Y		
A.4: Minimising vessel collisions	Y	Y	Y
B. Enabling and Measuring Recovery			
B.1: Measuring and monitoring population recovery	Y		
B.2: Investigating population structure	Y		
B.3: Describing spatial and temporal distribution and defining 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 that 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 Objective			
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 and/or illegal) take, throughout its range	Y		
Quantify and reduce the impact of recreational fishing on the grey nurse shark through incidental (accidental and/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

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	***Titleholder***	***PAP***
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	
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 that 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	Y
Understand the scale of impacts from marine plastic and microplastic on key species, ecological communities and locations	Y	Y	
Remove existing marine debris	Y		

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EPBC Act Part 13 Statutory Instrument	Applicable to:		
	Government	***Titleholder***	***PAP***
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		

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Table 6-27: 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 (TAP) 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 and H-WA – no relevant actions	Refer Section 6.8.7 Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to marine turtles.	EPO 18
	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', e.g. nesting habitat, seagrass meadows or coral reefs Priority actions at stock level: G-NWS – ensure that spill risk strategies and response programs include management for turtles and their habitats LH-WA, F-Pil – ensure that spill risk strategies and response programs include management for turtles and their habitats, particularly in reference to slow to recover habitats, e.g. seagrass meadows or corals H-WA – no relevant actions	Refer Sections 6.8.2, 6.8.3, 6.8.4, 6.8.5, 6.8.6 and Appendix H. Not inconsistent assessment: The assessment of accidental release of chemicals / 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 6.8.2, 6.8.3, 6.8.4, 6.8.5, 6.8.6 Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the PAP are present in Appendix H.
		Action: Routine discharges from MODU and project vessels are managed such that marine turtles are not adversely affected by changes in water quality. Priority actions at stock level: G-NWS – as above LH-WA, F-Pil – as above H-WA – no relevant actions	Refer Sections 6.7.4, 6.7.5, 6.7.6, 6.7.7 Not inconsistent assessment: The assessment of routine discharges of chemicals, deck drainage, treated sewerage, putrescible wastes and grey water has considered the potential risks to marine turtles. Individuals transiting the localised area may come into contact with routine discharges, however these are sporadic and	EPO 7, 8, 9, 10

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
			in small quantities, and are unlikely to pose a significant risk.	
	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 and H-WA – manage artificial light from onshore and offshore sources to ensure biologically important behaviours of nesting adults and emerging/dispersing hatchlings can continue	Refer Section 6.7.9 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 could cause localised and temporary behavioural disturbance to isolated transient individuals, which is unlikely to result in displacement of adult turtles from internesting or nesting Habitat Critical.	EPO 12
	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 and H-WA – no relevant actions	Not inconsistent assessment: Woodside contributes to Action Area B1 via its support of the Ningaloo Turtle Program80. Given the offshore location of the PAA, impacts to turtle nesting beaches will not occur.	N/A
	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	Refer Section 6.7.3 Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to flatback and olive ridley turtles. Vessel and seismic acoustic emissions could cause localised and short-term behavioural disturbance to	EPO 5, 6

[80] http://www.ningalooturtles.org.au/media_reports.html

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
		turtle behaviour and biology and extrapolate findings from the North West Shelf stock to other stocks LH-WA, F-Pil – no relevant actions H-WA – investigate mixed stock genetics at foraging grounds	isolated transient individuals, which is unlikely to result in displacement of adult turtles from internesting or nesting Habitat Critical.	
Assessment Summary The Marine Turtle Recovery Plan has been considered during the assessment of impacts and risks, and the PAP is not considered to be inconsistent with the relevant actions of this plan.				

Table 6-28: 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: Assessing and addressing anthropogenic noise	Action 2: Assessing the effect of anthropogenic noise on blue whale behaviour Action 3: Anthropogenic noise in biologically important areas 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 6.7.3 Not inconsistent assessment: The assessment of acoustic emissions has considered the potential impacts to pygmy blue whales.	EPO 5, 6
	Action Area A.4: Minimising 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 6.8.8 Not inconsistent assessment: The assessment of vessel collision with marine fauna has considered the potential risks to pygmy blue whales. If the PAP overlaps with the northern migration, individuals may deviate slightly from migratory route, but will continue on their migration to possible breeding grounds in Indonesian waters. Vessel collisions with pygmy blue whales are highly unlikely to occur, given the very slow vessel speeds and presence of crew trained in marine fauna observations.	EPO 19

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
	Action Area B.3: Describing spatial and temporal distribution and defining biologically important habitat	Action 2: Identify migratory pathways between breeding and feeding grounds Action 3: Assess timing and residency within Biologically Important Areas	Not inconsistent assessment: Woodside contributes to Action Area B3 via its support of targeted research initiatives (e.g. satellite tracking of pygmy blue whale migratory movements[81]).	N/A
Assessment Summary The Blue Whale Conservation Management Plan has been considered during the assessment of impacts and risks, and the PAP is not considered to be inconsistent with the relevant actions of this plan.				

Table 6-29: Table 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	Improve understanding of the threat of pollution and disease to the grey nurse shark	Review and assess the potential threat of introduced species, pathogens and pollutants	Refer Section 6.8.7 Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to grey nurse sharks.	EPO 18
			Refer Sections 6.8.2, 6.8.3, 6.8.4, 6.8.5, 6.8.6 and Appendix H Not inconsistent assessment: The species was identified to potentially occur within the EMBA and therefore the assessment of accidental release of hydrocarbons has considered the potential risks to grey nurse sharks.	Refer Sections 6.8.2, 6.8.3, 6.8.4, 6.8.5, 6.8.6 Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the PAP are present in Appendix H.

[81] 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

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Assessment Summary

The Grey Nurse Shark Recovery Plan has been considered during the assessment of impacts and risks, and the PAP is not considered to be inconsistent with the relevant actions of this plan.

Table 6-30: Table Assessment against relevant actions of 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	Reduce and, where possible, eliminate adverse impacts of habitat degradation and modification on sawfish and river shark species	Identify risks to important sawfish and river shark habitat and measures needed to reduce those risks	Refer Sections 6.8.2, 6.8.3, 6.8.4, 6.8.5, 6.8.6 and Appendix H Not inconsistent assessment: The species was identified to potentially occur within the EMBA and therefore the assessment of accidental release of hydrocarbons has considered the potential risks to sawfish and river shark.	Refer Section 7.10 Detailed oil spill preparedness and response performance outcomes, standards and measurement criteria for the PAP are present in Appendix H
	Reduce and, where possible, eliminate any adverse impacts of marine debris on sawfish and river shark species	Assess the impacts of marine debris including ghost nets, fishing gear and plastics on sawfish and river shark species	Refer Section 6.8.7. Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has considered the potential risks to sawfish and river sharks.	EPO 18
Assessment Summary The Sawfish and River Shark Recovery Plan has been considered during the assessment of impacts and risks, and the PAP is not considered to be inconsistent with the relevant actions of this plan.				

Table 6-31: Assessment against relevant Marine Debris Threat Abatement Plan

Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
Marine Debris TAP	Objective 1: Contribute to long-term prevention of marine debris.	Action 1.02: Limit the amount of single use plastic material lost to the environment in Australia.	Refer Section 6.8.7. Not inconsistent assessment: The assessment of accidental release of solid hazardous and non-hazardous wastes has	EPO 18

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Part 13 Statutory Instrument	Relevant Action Areas/Objectives	Relevant Actions	Evaluation	EPO, Controls and PS
			considered the potential risks to vertebrate wildlife.	
Assessment Summary The Marine Debris TAP has been considered during the assessment of impacts and risks, and the PAP is not considered to be inconsistent with the relevant actions of this plan.				

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6.10 Cultural Features and Heritage Values Assessment

As described in Section 4, the identification of cultural features and heritage values of the environment as well as the social, economic and cultural features important to First Nation's people is integral to understanding the environment and any potential impacts and risks to the environment.

In line with Woodside's First Nations Communities Policy (Woodside 2023), Woodside seeks to avoid damage or disturbance to cultural heritage (including intangible heritage) and, if avoidance is not possible, minimise and mitigate the impacts, in consultation with First Nation communities and Traditional Custodians. Mitigation can include any measure or control aimed at ensuring the viability of the intangible cultural heritage and its intergenerational transmission. This can include reducing impacts and risks to environmental features that are associated with intangible cultural heritage (UNESCO 2003; ICOMOS 2013).

It is important to note that not all topics raised by First Nations groups / individuals through consultation are considered values for the purpose of the cultural features and heritage values impact assessment below. A number of topics were raised in the context of a general interest in environmental management and ecosystem health (i.e., natural environment interest), where the group/individual was seeking further information about potential impacts and risks from the PAP on a receptor. As these interests relate to the maintenance of the natural environment, these are adequately addressed through impact and risk assessments described in Sections 6.7 and 6.8 respectively and not further assessed below.

Aspect	Cultural Features and Heritage Values
Description of source impact/ risk (key aspects)	***Physical presence of vessels*** The PAP involves drilling up to five new production wells, may also involve intervention or workover any of the wells within the PAA if required. The MODU will be present within the PAA for about 60 days per well to drill, 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. Subsea installation vessels will be used to install and cold commission the flowlines and subsea infrastructure. This is expected to take approximately 60 days. Flowlines and subsea infrastructure will remain in place and be operated under the Julimar Operations EP. Safety exclusion zones will be established around the MODU and installation vessels. Refer to Section 6.7.1 for more details. ***Acoustic emissions from vessels*** MODUs, installation vessels and support vessels undertaking the PAP will generate noise both in the air and underwater, due to the operation of thrusters' engines, propeller movement, drilling operations, etc. During drilling operations, the MODU will produce low-intensity continuous sound. In addition, the PAP 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. 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. Refer to Section 6.7.3 for more details. ***Unplanned hydrocarbon release from loss of well containment (basis of EMBA)*** Woodside has identified a well blowout during drilling 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. The 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 highly unlikely event of the worst-case credible spill modelled at the JDP3 location. The EMBA therefore covers a larger area than the area that would be affected during any one single spill

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event. In the event of a spill the EMBA would be much smaller and is intermittent e.g., plume travels away from the release location based on prevailing currents and winds directions.

The EMBA is driven by the distribution of entrained hydrocarbon above ecological thresholds and hence although Islands such as Barrow and Montebello Islands, and mainland coastlines are within the EMBA, these are not expected to be affected unless there is shoreline contact above thresholds. Refer to Section 6.8.2 for more details.

Planned Activity Aspect	*The potential environmental impact from the PAP to species that have a cultural feature or heritage value have been summarised below to provide the context related cumulative impact on the cultural feature or heritage value.*						
	Impact Significance Level						
Environmental impact assessment to marine species	***Marine mammals***	***Marine reptiles***	***Fish***	***Seabirds***	***Coral***	***Seagrass***	***Mangroves***
6.7.3 Routine Acoustic Emissions	Slight (E)	Negligible (F)	Negligible (F)	N/A	N/A	N/A	N/A
6.7.9 Routine Light Emissions: External Lighting on MODU and Project Vessels	N/A	Negligible (F)	Negligible (F)	Slight (E)	N/A	N/A	N/A
Unplanned Activity Aspect	*The potential environmental risk from the PAP to species that have a cultural feature or heritage value have been summarised below to provide the context related cumulative risk on the cultural feature or heritage value.*						
	Risk Rating						
Environmental risk assessment to marine species	***Marine mammals***	***Marine reptiles***	***Fish***	***Seabirds***	***Coral***	***Seagrass***	***Mangroves***
6.8.2 Hydrocarbon Release: Loss of Well Containment	Moderate	Moderate	Moderate	Moderate	High	Moderate	High
6.8.3 Hydrocarbon Release – Vessel Collision	Moderate	Moderate	Moderate	Moderate	Low	Low	Low
6.8.4 Hydrocarbon Release – Bunkering or flare drop out	Low	Low	Low	N/A	N/A	N/A	N/A
6.8.5 Discharge – Project Fluids	Low	Low	Low	Low	N/A	N/A	N/A
6.8.6 Discharge – Deck and Subsea Spills	Low	Low	Low	Low	N/A	N/A	N/A
6.8.7 Discharge – Hazardous and Non-Hazardous Solid Waste / Equipment	Low	Low	Low	Low	N/A	N/A	N/A
6.8.8 Physical Presence (Unplanned) – Interaction with Marine Fauna	Low	Low	Low	N/A	N/A	N/A	N/A

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Impact and Risk Assessment

The PAP has the potential impact cultural features and heritage values through the following ways:

Archaeological heritage:

Places that are identified in the literature for their value as archaeological sites can be assumed to be impacted where there is an impact to the archaeological or scientific values of its tangible elements. This could include damage or disturbance of archaeological material or to the archaeological context.

Intangible cultural heritage:

Songlines: Songlines can become lost, fragmented, or broken when there is a loss of Country or forced removal from Country (Neale and Kelly 2020:30). Physical sites that have been identified as comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. It is noted that oil and gas infrastructure exists in many areas of the North West Shelf, and that songlines are still acknowledged and recognised. It is inferred that if there were to be any impacts to surviving songlines these would be significantly more likely to be described as qualitative (i.e. “weaken” a songline) rather than binary or absolute (i.e. destroy a songline).

Creation/dreaming sites; sacred sites; ancestral beings: Activities that physically alter landscape features may be assumed to potentially impact values of creation/dreaming sites, sacred sites or ancestral beings.

Ceremonial sites: Activities that prevent the performance of ceremony at these sites will directly impact its values.

Cultural obligations to care for Country: Environmental impacts may be assumed to impact rights and obligations to care for Sea Country. Exclusion of Traditional Custodians from Sea Country (e.g., by restricting access) or decision-making processes (e.g., by not conducting ongoing consultation) are other potential sources of impact.

Knowledge of Country/customary law and transfer of knowledge: Direct impact to communities practicing these skills will inherently occur when relevant aspects of the environment disappear, are displaced or suffer a reduction in population. Therefore, the transmission of these skills is expected to be impacted where there are impacts at the species/population level. Limitations on access to sites or disruption/relocation of First Nations communities may have implications for the preservation of First Nations knowledge.

Connection to Country: Where people are displaced or disrupted (e.g., during colonisation) or where there is a loss of technical skills or environmental knowledge this may damage connection to Country (McDonald and Phillips, 2021).

Access to Country: Impacts to access to Country may be classified as temporary (e.g. where exclusion zones exist around activities for safety reasons) or permanent (e.g. where infrastructure obstructs access or navigation). Impacts to access to Country can only occur in areas that were traditionally accessed by Traditional Custodians. As described in Section 4.9 this is anticipated to be focussed on areas adjacent to the coast.

Kinship systems and totemic species: It is assumed that marine species may have kinship/totemic relationships to Traditional Custodians, but it is understood that these relationships do not prohibit people outside of that “skin group” from hunting or eating that same species (Juluwarlu 2004). It is therefore inferred that the management of totemic or kinship species applies at the species/population level and not to individual plants and animals.

Resource collection: Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, marine species (as resources) will be impacted where there is an impact at the species/population level.

Marine ecosystems and species:

Marine ecosystems may hold both cultural and environmental value (see Section 4.9), with cultural and environmental values intrinsically linked (DCCEEW 2023, MAC 2021 as cited in Woodside 2023a). It necessarily follows that an impact to marine ecosystems has the potential to impact cultural features where the impact is detectable within sea country—the seascape which Traditional Custodians view, interact with or hold knowledge of.

Archaeological Heritage

Onshore / intertidal archaeological sites

No coastal areas or islands exist within the PAA. A review of the of DPLH’s Aboriginal Heritage Inquiry System identified 40 Registered Aboriginal Sites and 48 Other Heritage Places in the EMBA. These were mainly comprised of sites at Barrow Island, the Ningaloo coast, the Pilbara and then north to the Kimberly. These locations do exist within the EMBA boundary, however given the EMBA is driven by an unplanned hydrocarbon spill there is no anticipated impact pathway from this activity to onshore archaeological sites above highest astronomical tide (HAT).

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Archaeological sites may exist in intertidal landscapes within the EMBA and may be exposed to hydrocarbon from an unplanned spill, however there is no anticipated impact pathway from the presence of hydrocarbons on archaeological values, as this is not expected to impact the fabric or context of sites on an exposed shoreline site. Impacts to the heritage value of fish traps from hydrocarbons in an unplanned spill may occur indirectly through impacts to fish. However, it is expected that continued use of fish traps beyond their archaeological value will be preserved where fish species and distribution are maintained at a population level. With regard to fish, refer to species specific assessment below for further information, in addition to the impact and risk assessment in Sections 6.7 and 6.8 respectively.

Submerged archaeological sites

No submerged archaeological sites have been identified beyond terrestrial or intertidal areas, with the exception of two sites at Murujuga in Cape Bruguieres channel and Flying Foam Passage (Benjamin et al. 2020; Benjamin et al 2023), which are outside of the EMBA. Nevertheless, there is the potential for submerged archaeological sites on the Ancient Landscape.

Submerged archaeological sites (locations undefined) may exist on the Ancient Landscape within the broader EMBA. However, given the EMBA is driven by an unplanned hydrocarbon spill, it is not expected to impact the seabed or archaeological material on or within it. Therefore, there is no anticipated impact pathway to submerged archaeological sites in the broader EMBA from the PAP.

Rivers, waterholes, tidal channels and seeps

Oceanographic studies indicate that both the open ocean and coastal zone off Western Australia are well-mixed and saline. Submerged former water sources (e.g. river beds) may exist within the EMBA which are archaeologically prospective or culturally significant.

The EMBA is driven by an unplanned hydrocarbon spill, which is not expected to impact the seabed or features on it. As such, there is no anticipated impact pathway from this activity to submerged water sources in the broader EMBA. In the highly unlikely and unmitigated worst case, unplanned hydrocarbons may contact shorelines and receptors such as mangroves, and shoreline habitats. These habitats may contain brackish or fresh water due to runoff from land. Given hydrocarbon characteristics and rapid weathering, an unplanned release is expected to have no lasting effect on any freshwater sources along the shoreline.

General Intangible values

Songlines

Management of intangible cultural heritage can include reducing impacts and risks to environmental features that are associated with intangible cultural heritage (UNESCO 2003; ICOMOS 2013). Impacts to marine plants, animals and other cultural features associated with songlines might impact the intergenerational transmission of knowledge of songlines when individuals can no longer witness or interact with the cultural features tied to songlines on Country. Therefore, managing songlines may require environmental controls protecting species at a population level, including migratory routes. Refer to species specific assessment below for further information, in addition to the impact and risk assessment in Sections 6.7 and 6.8 respectively.

Physical features comprising a component of a songline are important to protect to prevent the fragmenting or breaking apart of songlines and loss of sacred cultural knowledge. Songlines can become lost, fragmented, or broken when there is a loss of Country or impact to culturally important physical features (Neale and Kelly 2020:30). No specific details of songlines within the EMBA have been provided by relevant persons during consultation for this Activity, and no landforms typical of songlines (e.g. mountains, rivers, caves and hills (Higgins 2021)) are anticipated to be impacted by the Activity.

In publicly available literature, Murujuga is acknowledged as a starting point for songlines, including the flying fox songline (MAC 2023a). Precise location of this songline, and features of this songline that might be impacted, are not clearly articulated in the reviewed sources, but it is stated that “the sea is a source of creation for flying foxes” (DEC 2013). Although this does not provide the specificity required to determine the location of the flying fox songline or associated sites. Consultation with MAC and other Traditional custodians has not identified the flying fox songline as overlapping the EMBA, and flying foxes do not occur within the EMBA.

Kearney et al (2023) notes a connection between the Kangaroo songline and a pair of submerged waterholes identified through seabed mapping by the Deep History of Sea Country project, which later found submerged artefacts in Flying Foam passage. Noted that due to the water depth it is not expected that active or former freshwater sources that may connect to the Kangaroo or other songlines would be within the PAA. Consultation with MAC and other Traditional custodians has not identified these songlines as overlapping the EMBA, and these species do not occur within the EMBA.

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In publicly available literature, Murujuga is acknowledged as the starting point for the seven sisters songline (Bainger 2021). Precise location of this songline, and features of this songline that might be impacted, are not clearly articulated in the reviewed sources. Consultation with MAC and other Traditional custodians has not identified the seven sisters songline as overlapping the EMBA.

While the presence of songlines are generally raised in the literature across several relevant communities, no specific details have been identified. The literature review has also identified culturally important features, which are known to be commonly associated with songlines (e.g. marine species and landforms; Section 4.8), and these have been separately assessed. Further assessment of intangible values and marine species are provided below, in addition to the impact and risk assessment in Section 6.7 and 6.8 respectively.

Creation/dreaming sites; sacred sites; ancestral beings

Woodside has undertaken all reasonable steps to identify creation and dreaming sites, and places associated with ancestral beings within the EMBA. No such sites have been identified. Consultation with KAC has identified the presence of totems and Yinta [sites of significance] that is associated with Sea Country but no further detail was specified and consultation has not identified the presence of Yinta as overlapping the EMBA. A review of relevant literature has been undertaken which has identified creation, dreaming and ancestral narratives related to the sea more broadly without confirming where (if anywhere) these overlap the EMBA (see Section 4.9.4.1). These references are of a general nature, and do not identify any features or values requiring specific protection or management from the proposed activities.

Sea serpents or water serpents are common in Aboriginal creation narratives, and several references were identified in the reviewed literature. The majority of these refer to serpents residing within inland rivers or pools outside of the EMBA (Barber and Jackson 2011, Hayes v Western Australia [2008] FCA 1487, Water Corporation 2019, Zaunmayr 2016). In some versions, the serpent originates from the sea or coast and creates the rivers as it heads inland. Barber and Jackson (2011) also recount a story where a freshwater serpent pushes a sea serpent back into the ocean where it presumably continues to reside. This does not provide the specificity required to determine the location of sea serpents within the sea, and it is possible that the ocean as a whole (out to and beyond other continents) should be viewed generally as housing the sea serpent(s). Consultation with Traditional Custodians have not identified activities of this PAP as having an impact on sea serpents. However, by analogy to other water serpent narratives across Australia, possible impact pathways may include interruption of its path by blocking or reducing flows of water, damaging sacred sites such as thalu or rock art sites or depleting water sources. While there is potential for shoreline accumulation of hydrocarbons within the EMBA, relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Appendix H.

No impacts to water flows (either tidal movement or ocean currents) or depletion of water sources are anticipated from this PAP. Features of the landscape with the potential for connection to creation/dreaming stories and ancestral beings are likely within the EMBA on the Ancient Landscape. However, there are no anticipated impact pathways to submerged landscape features within the broader EMBA from the PAP.

Ceremonial sites

All mentions of active ceremonial sites were confined to onshore locations and no direct impacts to onshore ceremonial sites are anticipated from the PAP. However, indirect impacts may occur where ceremonies cannot be performed due to limitations on access, loss of knowledge or impacts to the environment, which are further described below.

Cultural obligations to care for Country

Caring for Country collectively refers to the cultural obligations of individuals and groups, as well as rituals and ceremonies required for the physical and spiritual health of the environment. Lack of access to coastally located cultural sites that carry songlines or remain ceremonially important can impact First Nations people's livelihoods and impact their ability to carry out cultural obligations on Country. While there is potential for shoreline accumulation of hydrocarbons within the EMBA, relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Section 6.8.2.

Knowledge of Country/ customary law and transfer of knowledge

Cultural knowledge about Sea Country/customary law and the intergenerational transmission of knowledge are important values identified through consultation, assessments and the literature review. KAC identified the importance of passing on traditional knowledge to children.

Transfer of knowledge includes continuing traditional practices to pass on practical skills. Direct impact to communities practicing these skills will inherently occur when relevant aspects of the environment disappear, are displaced or suffer a reduction in population—for example traditional fishing methods require the survival of traditional fish resources. Therefore, ensuring the transmission

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of cultural knowledge may require environmental controls protecting species and migratory pathways at a population level. Refer to species specific assessment below for further information, in addition to the impact and risk assessment in Section 6.7 and 6.8 respectively.

Connection to Country

Connection to Country describes the multi-faceted relationship between First Nations people and the landscape, which is envisioned as having personhood and spirit. Connection to Country may be damaged where people are displaced or disrupted (e.g. during colonisation) or where there is a loss of technical skills or environmental knowledge (McDonald and Phillips, 2021). No impacts of this nature are considered to arise from this PAP. Access to Country is discussed below.

Access to Country

Access to Country, including Sea Country, is necessary for the continuation of other values including caring for Country and the transfer of traditional knowledge. Access is also a value in its own right, as a continuation of traditional Sea Country access and use.

Access to areas within the PAA may be limited where exclusion zones are established around vessels for safety purposes. However due to the location offshore this is not expected to impact on Access to Country. Access to Country within the EMBA would be limited to temporary exclusion in areas where there are hydrocarbons present, including shoreline accumulation. However relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Section 6.8.2.

Kinship systems and totemic species

Individuals may have kinship to specific species (Smyth 2008, Juluwarlu 2004) and/or a responsibility to care for species (Muller 2008). These relationships are understood to impose obligations on Traditional Custodians. It is understood that these obligations do not impose restrictions on other people generally, but it is considered that impacts to species at a population level may inhibit Traditional Custodians with kinship relationships' ability to perform their obligations where this results in reduced or displaced populations. It is therefore considered that the management of totemic or kinship species applies at the species/population level and not to individual plants and animals. As such, impacts to individual marine fauna is not expected to impact on the totemic or kinship cultural connection.

Totemic species identified during consultation include whales, fish, stingrays and octopuses. Refer to species specific assessment below for further information, in addition to the impact and risk assessment in Sections 6.7 and 6.8 respectively. In the highly unlikely event of a hydrocarbon spill relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Section 6.8.2.

Resource collection

A suite of marine species have been identified through consultation and literature as important resources, particularly as food sources. For example, Sea Country resources of noted relevance to Thalanyji people which may be present in the vicinity of the Montebello Islands include dugongs, majun (marine turtles), turtle eggs, fish and shellfish. Other resource species include marine mammals, fish, molluscs including bivalves, gastropods and cephalopods and seabirds, sea urchins and mangrove seeds.

In addition to their immediate value as sustenance, the gathering and preparation of these resources are informed by cultural knowledge, and an inability to use these resources may result in a loss of ability to transfer that knowledge to future generations. Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, these communities may be impacted where there is an impact at the species/population level.

As assessed in Section 6.7, impacts from planned activities on the marine environment, including resources important to First Nations people, is expected to be limited to negligible or slight and therefore impacts that result in population effects (e.g., population decline, changes in migration routes, etc) are not expected. Impacts to potential resources within the EMBA, in the highly unlikely event of hydrocarbon spill, are described and risk assessed in Section 6.8.2 and are not expected to result in species / population level impacts. There may be potential impacts to resource collection along the coastlines where there is shoreline accumulation of hydrocarbons. Given hydrocarbon characteristic and rapid weathering an unplanned release is not expected to have a substantial adverse impact resulting in population level changes. Therefore, impacts to resource collection would be limited to temporary exclusion in areas where there are hydrocarbons present, including shoreline accumulation. Further relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Section 7.9.2.1.

Marine Ecosystems and Species

Marine mammals (whale, dolphins, dugongs)

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There are increase ceremonies / rituals for species of animals and plants important to First Nations, to enhance or maintain populations. Thalu are places where these increase ceremonies are performed. All mentions of active ceremonial sites in the reviewed literature were confined to onshore locations, though the values may extend offshore where, for example, the thalu relates to marine species populations. As thalu ceremonies are performed to maintain and increase populations of marine species, it is inferred that management applies at the species/population level and not to individuals. Reviewed literature (Deloitte 2020) also includes information that is marked as information that cannot be copied, reproduced or used without consent. The values described in the literature are environmental in nature, apply to marine mammal behaviours at a population level and are managed through existing environmental controls in Sections 6.7.3 and 6.8.8.

Related intangible cultural heritage may include the transmission of cultural knowledge about whales and whale behaviour, including birthing areas, whale communication and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn 2021). Whale symbology expressed through stories, music, and dance can reflect a group's connections with the sea, as well as marine fauna, which then comprise a group's cultural values (Ardler 2021; Bursill et al. 2007; Cressey 1998). Whales also speak to a broader connection that exists between First Nation people and their surrounding environment. Beyond mythology and symbolism, whales can be connected with various economic and social functions associated with everyday life. Cultural knowledge of whales, whale migration, behaviour and the related marine environment may all be important in ensuring the continuation of these socio-economic functions and other related activities that remain valuable to First Nations people (Fijn 2021). No impacts to communities' ability to perform or transmit stories, music or dance are anticipated from the PAP. Where timing or performance is linked to sighting or engaging with these species, impacts may occur where numbers or migration behaviours are impacted at a population level.

First Nations groups have expressed interest about whale migratory routes and studies. Inter-generational transmission of cultural knowledge (including songlines) relating to marine mammals may be impacted where changes to population or behaviour at a population level results in reduced sightings (e.g. through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO 2003).

As described in the relevant environmental impact assessments in Section 6.7, potential impacts to cetaceans from planned activities are limited to behavioural impact, which may include temporary and localised deviations from migratory pathways for cetaceans. However, no permanent impacts preventing cetaceans from entering or occupying the areas have been identified. These impacts and risks are not considered to be ecologically significant at a population level, and hence are not expected to impact the value of marine mammals, including the transmission of cultural knowledge. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Marine reptiles (turtles, sea snakes, crocodiles)

Turtles and crocodiles have been identified through consultation and existing literature as an important resource, particularly as food sources. Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, these species (as resources) will be impacted where there is an impact at the species/population level.

Intangible cultural heritage may also include the transmission of cultural knowledge about marine reptiles, such as nesting areas, hunting areas and migratory patterns. Cultural knowledge may also be conveyed through stories, such as the turtle being trapped in the sea as a result of its greed for berries as recounted by Capewell (2020). Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn 2021). First Nations groups have expressed an interest regarding turtle monitoring programs and migration patterns. Activities that impact turtle / crocodile populations and their marine environment may have an indirect impact on some Aboriginal communities as this can limit access to cultural sites or deplete hunting areas that would threaten local food security (Dortch et al. 2019, Delisle et al. 2018:251). Inter-generational transmission of cultural knowledge (including songlines) relating to marine reptiles may be impacted where changes to population or behaviour results in reduced sightings (e.g. through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO 2003).

As described in the relevant environmental impact assessments in Sections 6.7 potential impacts to marine reptiles from planned activities are likely to be restricted to temporary behavioural changes, which are not considered to be ecologically significant at a population level, and hence not expected to impact the value of marine reptiles, including the transmission of cultural knowledge or use as a

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resource. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Fish and Cephalopods

Fish and squid have been identified through consultation and existing literature as an important resource, particularly as food sources. Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore these species (as resources) will be impacted where there is an impact at the species/population level.

Through consultation, fish were identified as important agents in the management of the broader ecosystem. It may be assumed that inter-generational transmission of cultural knowledge relating to fish may be impacted where changes to population or behaviour results in reduced sightings (e.g. through population decline). In addition, MIAC (2019) identified whale sharks as a culturally important species associated with stories which describe them as guardians of the sea. This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO 2003). Intangible cultural heritage associated with fish and whale sharks, including inter-generational knowledge regarding fishing techniques and migratory patterns, can be managed by reducing impacts to fish in nearshore marine environments to which this cultural knowledge is intrinsically connected.

The octopus is an important totem to Ngarla People and features in the creation story of Solitary Island. There are increase ceremonies / rituals for species of squid and octopus to enhance or maintain populations. Thalu are places where these increase ceremonies are performed. All mentions of active ceremonial sites in the reviewed literature were confined to onshore locations, though the values may extend offshore where, for example, the thalu relates to marine species populations. As thalu ceremonies are preformed to maintain and increase populations of marine species, it is inferred that management applies at the species/population level and not to individuals.

As described in the relevant environmental impact assessment in Sections 6.7, the potential impacts from planned activities on fish[82] are considered to be localised and with slight, short-term (<1-year) impact potential on species (or lower), but not affecting ecosystem function, physical or biological attributes. Impact potential is not considered to be ecologically significant at a population level. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Seabirds

Seabirds, specifically shags, have been identified through literature as a culturally significant species (Malgana Land and Sea Management et al. 2021), as well as a resource (seabird eggs; Smyth 2007). Direct impact to communities using these resources will inherently occur when the resource disappears, is displaced or suffers a reduction in population. Therefore, these species (as resources) will be impacted where there is an impact at the species/population level. Intangible cultural heritage may also include the transmission of cultural knowledge about seabirds, such as nesting areas, hunting areas and migratory patterns. Such cultural knowledge may be associated with various cultural functions and activities that support the social and economic life of a community (Fijn 2021) Inter-generational transmission of cultural knowledge relating to seabirds may be impacted where changes to population or behaviour results in reduced sightings (e.g. through population decline, changes to migration routes or changes to migration seasonality). This transfer of knowledge may be integral to managing a group's intangible cultural heritage (UNESCO 2003).

As described in the relevant environmental impact assessments in Sections 6.7, the potential impacts from the PAP on seabirds is limited to slight. The potential for temporary behavioural disturbance localised around vessels from light is not expected to result in a substantial adverse effect on species' population, and light emissions will not seriously disrupt the lifecycle of an ecologically significant proportion any migratory bird species. In terms of risk, as described in Section 6.7.9 a change in marine fauna behaviour or injury/mortality to seabirds and migratory shorebirds may occur due to a change in water or sediment quality following an unplanned hydrocarbon release. Given hydrocarbon characteristics, expected rapid weathering to below impact thresholds, and the mobile transient nature of individuals, unplanned hydrocarbon releases are not expected to substantially modify important habitat for migratory species. As such, cultural values and intangible cultural heritage associated with these species are expected to be maintained.

Benthic habitats (coral, seagrass)

Benthic habits are important environments that house marine fauna that may be considered to be culturally important, including corals attracting fish and seagrass providing shelters for fauna, as well as serving as an important habitat for dugongs. Through consultation, no First Nations group identified

[82] Squid and octopus are considered to be impacted through similar impact pathways as fish, and hence the conclusion represented here are considered appropriate for cephalopods.

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benthic habitats as valuable for their ecological values. The reviewed literature similarly did not reveal any new cultural values, features or interests related to benthic habitats for the relevant First Nations groups.

There is no overlap between the PAA and coral / seagrass habitats as water depth is more than 120 m, and no planned impacts to coral / seagrass habitats from the PAP.

In terms of risk, as described in Section 6.8.2, a change in habitat may occur following an unplanned hydrocarbon release. Given hydrocarbon characteristics, rapid weathering, short-term exposure, as well as the response strategies planned to be deployed, an unplanned release may result in localised impacts coral and seagrass habitats. As such, if any new information on the cultural values and intangible cultural heritage associated with benthic habitats arise, they are expected to be maintained.

Shoreline Habitats (mangroves / salt marshes)

Through consultation, First Nations groups identified shoreline habitats as valuable for their ecological values, including mangroves for providing shelter to marine invertebrates, which are identified resources, and potential nursery for turtles. Literature also notes that mangroves are also valued for the flora and fauna they are associated with and support (Commonwealth of Australia 2002) and Smyth (2007) reports that mangrove seeds are used as a resource by Ngarda-Ngarli.

There is no overlap between the PAA and mangrove / slat marsh habitat, and no planned impacts to mangroves from the PAP.

In terms of risk, as described in Section 6.8.2 a change in habitat may occur due to a change in water or sediment quality following an unplanned hydrocarbon release. Given hydrocarbon characteristics, rapid weathering, as well as the response strategies planned to be deployed an unplanned release may result in localised impacts coral and seagrass habitats. As such, cultural values and intangible cultural heritage associated with shoreline habitats are expected to be maintained.

Marine Park / coastal reserves

A number of marine parks and coastal reserves (e.g. Ningaloo Coastal Reserve) are jointly managed with First Nation groups. The groups are responsible for sharing management decisions and also for sharing in the overall responsibility of making sure the marine park fulfils its purpose.

There is no overlap between the PAA and any marine parks.

In terms of risk, as described in Section 6.8.2, shoreline accumulation may occur in some of these marine parks. The relevant cultural authorities will be engaged in the event of a spill that may affect them, as specified in Section 7.9.2.1.

Conclusion

The impact and risk assessment for cultural features and heritage values has determined that the planned activities are unlikely to result in an impact greater than negligible (F) and unplanned activities are assessed to have a residual risk rating of High (or lower).

ALARP Demonstration

As marine ecosystems may hold both cultural and environmental value (see Section 4.9), with cultural and environmental values intrinsically linked, in addition to the specific controls for cultural features and heritage values, the controls and performance standards in section 6.7 and 6.8 will reduce impacts to cultural features and heritage values, including marine species and habitats.

Control considered	Feasibility (F) & Cost/ Sacrifice (Cs)	Benefit in Impact/Risk Reduction	Proportionality	Adopted
Apply a 'living heritage[83] management approach. Woodside	F: Yes CS: Minimal	Implementation of the 'living heritage' approach pays acknowledgement and	Benefits outweigh cost/ sacrifice.	Yes C 23.1

[83] Living heritage supports community and individual identity. Intangible cultural heritage is 'living heritage' that is inherited from ancestors and passed on to their descendants. It is comprised of many influences, including oral traditions, art, social practices, rituals and ceremonies, cultural knowledge and practices. It is transmitted from generation to generation, and evolves in response to the environment. Woodside applies a 'living heritage' approach to its cultural heritage management. This includes ensuring that Traditional Custodians are given voice to identify interests, transmit information and express concerns. Woodside works with Traditional Custodians to support and follow appropriate cultural protocols, including calling to Country, conducting smoking ceremonies (in areas where this custom is appropriate) and undertaking cultural awareness. Woodside will collaborate and provide relevant information it holds to groups such as Heritage Management Committees where they are established.

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	seeks advice and incorporates Traditional Custodian cultural knowledges across our activities. Cultural safety considerations are factored for our workforce and the Traditional Custodian community.		respect to Traditional Custodian communities. It supports the transfer of cultural knowledges and is an effective strategy to manage intangible cultural values.		
	Project inductions to all relevant marine crew, prior to the individual commencing the activity, will include information on cultural features and heritage values, including tangible and intangible cultural heritage.	F: Yes CS: Minimal	Ensures workforce is suitably aware of cultural features and heritage values in the area they are operating.	Benefits outweigh cost/ sacrifice.	Yes C 23.2
	Should it be identified that relevant cultural authorities may be affected in the unlikely event of a spill, Woodside will engage with those parties as appropriate and in alignment with the FSP.	F: Yes CS: Minimal	Engaging with relevant cultural authorities that may be impacted by a spill will allow the Traditional Custodians to identify areas of concern.	Benefits outweigh cost/sacrifice	Yes Adopted, see Appendix H

ALARP Statement	On the basis of the impact and risk 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 potential impacts and risks to cultural features and heritage values. As no reasonable additional/alternative controls were identified that would further reduce the impacts without grossly disproportionate sacrifice, the impacts are considered ALARP.
Acceptability Statement	The impact and risk assessment has determined that, given the adopted controls, planned activities are unlikely to result in an impact greater than negligible and unplanned activities are assessed to have a residual risk rating of moderate (or lower). The PAP and the EMBA are not expected to have a significant impact (e.g. changes in population levels) on MNES including marine fauna with a First Nations connection with, or traditional use in nearshore areas as defined in Section 4.9. While the EMBA may overlap the Ancient Landscape no impacts are predicted as hydrocarbons are expected to remain within the upper water column. Woodside has engaged with Traditional Custodians adjacent to the EMBA to understand the cultural features and heritage values that may occur and potential impacts from the activity. In the event of an unplanned loss of hydrocarbons Woodside has committed to engaging with relevant cultural authorities that may be affect (Appendix H). Further opportunities to reduce the impacts have been investigated above. The potential impacts and risks are considered acceptable if the adopted controls are implemented. Therefore, Woodside considers the adopted controls appropriate to manage the impacts and risks to cultural features and heritage values to a level that is acceptable, if ALARP.

Key Environmental Performance Outcomes, Standards and Measurement Criteria related to Cultural Features and Heritage Values

EPO	***Adopted Control(s)***	***EPS***	***MC***
EPO 23	C 23.1	PS 23.1.1	MC 23.1.1

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No impact to cultural features and heritage values, as stated in Table 4-20, greater than a consequence level of F from the PAP	Apply a 'living heritage management approach. Woodside seeks advice and incorporates Traditional Custodian cultural knowledge across our activities. Cultural safety considerations are factored for our workforce and the Traditional Custodian community.	Woodside will continue to give voice to Traditional Custodians to identify interests, transmit information and express concern.	Records demonstrate Change Management and Management of Knowledge processes have been followed where new controls or management measures identified.
		PS 23.1.2 Woodside will assess and where deemed practicable will implement appropriate cultural protocols where requested by Traditional Custodians.	MC 23.1.2 Records demonstrate Woodside implemented cultural protocols as requested.
	C 23.2 Project inductions to all relevant marine crew, prior to the individual commencing the activity, will include information on cultural features and heritage values, including tangible and intangible cultural heritage.	C 23.2.1 All relevant marine crew have completed Project inductions that include information on cultural values, including tangible and intangible cultural heritage for awareness.	MC 23.2.1 Records demonstrate all relevant marine crew have completed inductions that include cultural material.

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7. IMPLEMENTATION STRATEGY

7.1 Overview

Regulation 22 of the Environment Regulations requires an EP to contain an implementation strategy for the activity. The implementation strategy for the PAP 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 EPOs and standards outlined in this EP are achieved.

Woodside, as Operator, is responsible for ensuring the PAP is managed in accordance with this Implementation Strategy and the WMS (Refer Section 1.8).

7.2 Systems, Practice and Procedures

All operational activities are planned and carried out in accordance with relevant legislation and standards, management measures (i.e. controls) 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 be subject to change during the statutory duration of this EP and is managed through a Change Register and update process.

7.2.1 Assessment of Project Fluids

All chemicals that may be operationally released or discharged to the marine environment by the PAP 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.

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 7-1):

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

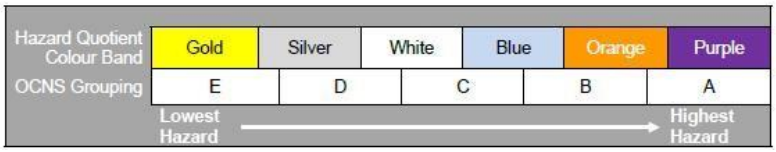

Figure 7-1: OCNS ranking scheme

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

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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.

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 7-1). 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 7-1: 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
Results for sediment toxicity data (ppm)	<10	>10-100	>100-1000	>1000-10,000	>10,000

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

Biodegradation

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

CEFAS categorises 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 align with the categorisation outlined in the DMP Chemical Assessment Guide: Environmental Risk Assessment of Chemicals used in WA Petroleum Activities Guideline.

The following guidance is used by CEFAS:

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- Non-bioaccumulative: Log Pow <3, or BCF ≤100 and molecular weight is ≥700
- Bioaccumulative: Log Pow ≥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.

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.

7.2.2 Woodside IMS risk assessment process

7.2.2.1 Objective and scope

To minimise the risk of introducing IMS as a result of the PAP, all applicable vessels and immersible equipment will be subject to Woodside's IMS risk assessment process (unless exempt as outlined below).

The objective of the risk assessment process is to identify the level of threat a contracted vessel, or immersible equipment poses if no additional risk reduction management measures are implemented. This allows Woodside (and its contractors) to apply management options that are commensurate to the identified level of risk.

In context of the activities specified in Section 3, the IMS risk assessment process does not apply to the following:

- Vessels or immersible equipment that do not plan to enter the IMS Management Area (IMSMA)[84] or PAAs defined in environmental approvals
- 'New build' vessels launched less than 14 days prior to mobilisation
- Vessels or immersible equipment which have been inspected by a suitably qualified IMS inspector who has classified the vessels or immersible equipment as acceptably low risk no more than 14 days prior to mobilisation
- Locally sourced vessels or immersible equipment from within the Pilbara locally sourced zone[85]. Vessels, or immersible equipment are defined as Locally Sourced when the same

[84] MSMA is based on current legal framework and includes all nearshore waters around Australia, extending from the lowest astronomical tide mark to 12 nm from land (including Australian territorial islands). The IMSMA also includes all waters within 12 nm from the 50 metre depth contour outside of the 12 nm boundary (i.e. Submerged reefs and atolls).
[85] The Pilbara Zone includes Port, nearshore and offshore movements between Exmouth and Port Headland (excluding high environmental value areas, World Heritage Areas, Commonwealth Marine Reserve Sanctuary Zones and State Marine Management Areas and Marine Parks).

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supply facilities/port have been used since their last IMS inspection, full hull clean in dry dock or application of antifouling coating (AFC[86]).

7.2.2.2 Risk assessment process

Woodside's IMS risk assessment process was developed with regard to the national biofouling management guidelines for the petroleum production and exploration industry and guidelines for the control and management of a ships' biofouling to minimise the transfer of invasive aquatic species (IMO Guidelines, 2011).

In order to effectively evaluate the potential for vessels and immersible equipment to introduce IMS, a risk assessment process has been developed to score and evaluate the risk posed by each Project vessel, or immersible equipment planning to undertake activities within the IMSMA / PAA. The risk assessment process considers a range of factors, as listed in Table 7-2 and Table 7-3.

The IMS risk assessments will be undertaken by a trained environment adviser who has completed relevant Woodside IMS training or by a qualified and experienced IMS inspector. A QA/QC process is implemented for all Woodside conducted IMS risk assessments where a secondary trained environment adviser verifies the assessment to minimise the risk of misapplication and errors within the risk assessment process.

Table 7-2: Key factors considered as a part of the risk assessment process for vessels

Factors	Details
Vessel type	The risk of IMS infection varies depending on the type of vessel undertaking the activity. A higher risk rating is applied for more complex, slow-moving vessels (e.g., dredges) in comparison to simple vessels (e.g., crew transfer vessel).
Recent IMS inspection and cleaning history, including for internal niches	In the case of biofouling on external hull niches, different risk ratings are applied dependant on whether out-of-water or in-water IMS inspections by qualified IMS inspectors and cleaning (if required) have been undertaken prior to contract commencement. If an IMS inspection (and clean if required) has not been undertaken in the past six months (from the time of contract commencement), the highest risk factor is applied. The risk factor then lessens for vessels as the time between inspection and mobilisation reduces.
Out-of-water period before mobilisation	A risk reduction factor can be applied for vessels that are hauled out and then mobilised as deck cargo or by road during mobilisation, therefore becoming air dried over an extended period. Risk reduction factor increases with exposure time out of water.
Age and suitability of AFC at mobilisation date	AFC manufacturers provide a range of coatings, each designed to avoid premature coating failure if it is correctly applied and matched to the vessel's normal speeds and activity profile (i.e., proportion of time spent stationary or below three knots), and its main operational region (i.e., tropical, sub-tropical temperate). If the AFC type is deemed to be unknown, unsuited or absent, the highest risk value is applied. If the AFC type is suitable the risk factor applied reduces with age since application.
Internal treatment systems	A risk reduction factor applied if the vessel has an internal biological fouling control system in place at the time of assessment, or evidence of manual dosing.
Vessel origin and proposed area of operation	Differing risk ratings are assigned in relation to the climatic relationship between the vessel's origin and the proposed climatic region of the proposed area of operation. Highest risk rating is applied to similar climatic regions.
Number of stationary/slow speed periods >7 days	A risk factor is calculated based on the number of 7 day periods that the vessel has operated at stationary or at low speed (less than three knots) in port or coastal waters which is any waters less than 50 metres deep outside 12 nautical miles from land or any

[86] Vessels and immersible equipment can still be classified as locally sourced even if the AFC application occurred in a different port provided the amount of time between AFC application and departure to the locally sourced area (i.e. period of time in waters <12nm/50m water depth) did not exceed consecutive 7 days or the period of time the vessel or immersible equipment has spent within the locally sourced zone exceeds 1 year (i.e. the risk of introducing a species from a different location has already passed).

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Factors	Details
	waters within 12 nautical miles of land. The greater the number of periods the higher the risk factor applied.
Region of stationary or slow periods	A further multiplier is applied depending on the location of the stationary/slow speed periods. The highest risk rating applied if the stationary or slow speed periods occurred within ports or coastal waters of the same climatic region,
Type of activity – contact with seafloor.	The potential for the introduction of IMS varies on the planned vessel activity taking place. Those activities that come in contact with sediments and thus have the potential to accumulate and harbour IMS in areas such as hoppers (dredges) and spud cans (drilling rigs) are considered to have a greater risk of infection.

Table 7-3: Key factors considered as a part of the risk assessment process for immersible equipment

Factors	Details
Region of deployment since last thorough clean, particularly coastal locations	Climatic region of use since last overhaul, thorough cleaning or prolonged period out of water (>28 day). Highest risk rating is applied to similar climatic regions. Activities occurring in nearshore areas (less than 50 meters deep and/or within 12 nautical miles from land) are given the highest risk rating.
Duration of deployments	Maximum duration of deployment (maximum time in water) since last overhaul or thorough cleaning. The longer the period of immersion the higher the risk rating applied.
Duration of time out of water since last deployment	A further risk reduction factor can be applied for immersible equipment that has been out of the water for an extended period.
Transport conditions during mobilisation	If the equipment is stored in damp conditions then a high risk factor is applied, while if equipment is stored in dry and well ventilated (low humidity) conditions then a low risk factor is applied.
Post-retrieval maintenance regime.	A risk reduction factor is applied if the equipment/item of interest is routinely washed, cleaned, checked and/or dissembled between project sites. While a higher risk rating is applied where no routine cleaning occurs.

Following implementation of the risk assessment process, vessels and/or immersible equipment are classified as one of three risk categories, as defined below.

- ‘Low’– Low risk of introducing IMS of concern and hence no additional management required, or management options have been applied to reduce the risk.
- ‘Uncertain’– Risk of introducing IMS is not apparent and as such the precautionary approach is adopted, and additional management options may be required.
- ‘High’– High risk of introducing IMS means additional management options are required prior to this vessel mobilising to the PAA.

Following the allocation of a ‘low’ risk rating for a vessel or immersible equipment, the information provided by the vessel operator for the purposes of risk assessment must be confirmed prior to mobilisation. For vessels or equipment classified as posing an ‘uncertain’ or ‘high’ theoretical risk, a range of management options are presented to reduce this theoretical risk to acceptable levels and achieve a low-risk status. These management options have been developed with the intention of reducing IMS risk to levels that are as low as reasonably practicable (i.e., ALARP). It is a flexible approach that allows for a range of management actions to be tailored for a specific vessel movement. These will be assessed on a case-by-case basis and may include, but not limited to, the following:

- Inspection (desktop, in-water or dry dock) by a suitably qualified and experienced IMS inspector to verify risk status. Where practicable, the inspection shall occur within seven days (but not more than 14 days) prior to final departure to the PAA.

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- In-water or dry dock cleaning of the hull and other niche areas. This is typically applied where the risk assessment outcome is High risk driven by the age of the AFC on the vessel and its time spent in similar climatic region ports.
- Treatment of vessels internal seawater systems. This is typically applied in isolation for vessels with AFC applied to their hull within the last twelve months and where subsequent assessment through the process achieves a Low risk rating.
- Limiting the duration that the vessel spends within the IMSMA to a maximum of 48 hours (cumulative entries). This is applicable for Uncertain risk vessels only.
- Reject the vessel.

Project vessels and immersible equipment are required to be a low risk of introducing IMS prior to entering the PAA.

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 7-4. Roles and responsibilities for oil spill preparation and response are outlined in Appendix Hand the *Woodside Oil Pollution Emergency Arrangements (Australia)*.

It is the responsibility of all Woodside employees and contractors to implement the Woodside Environment and Biodiversity Policy (Appendix A) in their areas of responsibility and that the personnel are suitably trained and competent in their respective roles.

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Table 7-4: Roles and responsibilities

Title (role)	Environmental Responsibilities
All Personnel	
All offshore-based personnel and onshore support personnel	Understand the Woodside standards and procedures that apply to their area of work. Understand the environmental risks and control measures that apply to their area of work. Carry out assigned activities in accordance with approved procedures and the EP. Follow instructions from relevant supervisor with respect to environmental protection. Cease operations which are deemed to present an unacceptable risk to the environment. Participate in environmental assurance activities and inspections as required. Prompt reporting of environmental hazards/incidents to their supervisor and assist in event investigation. Attend HSE meetings, training and drills when required.
Office-based Personnel	
Woodside Project Manager	Monitor and manage the activity so it is undertaken as per the relevant standards and commitments in this EP. Notify the Woodside Environment Adviser of any scope changes in a timely manner. 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. Ensure MODU and project vessel personnel are given an Environmental Induction as per Section 7.5.2 of this EP at the start of the drilling programs. Confirms controls and performance standards in this EP are actioned, as required, before drilling commences. 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 undertaken 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.

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Title (role)	Environmental Responsibilities
	Ensure installation vessel personnel are given an Environmental Induction as per Section 7.5.2 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 of any scope changes in a timely manner. Confirm that site-based personnel are given an Environmental Induction as per Section 7.5.2 of this EP at the start of the activity. Ensure all chemicals and drill fluids proposed to be discharged are assessed and approved as per the requirements of the EP.
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 the Woodside's Well Site Manager is provided with the resources required to ensure the management measures (i.e. controls, EPOs, EPs and MC) in this EP are undertaken. 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 drill and completions fluid chemical components and other fluids that may be used downhole have been reviewed by the Global Wells and Seismic Environmental Adviser.
Woodside Environmental Adviser	Verify relevant Environmental Approvals for the activities exist prior to 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 undertaken as per the requirements of this EP. Liaise with relevant regulatory authorities as required. Assist in preparation of external regulatory reports required, in line with environmental approval requirements and Woodside incident reporting procedures. Monitor and close out corrective actions (Campaign Action Register (CAR)) identified during environmental monitoring or audits. Provide advice to relevant Woodside personnel and contractors to assist them to understand their environment responsibilities. Liaise with primary 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 PAP.

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Title (role)	Environmental Responsibilities
	Report on consultation. Ongoing liaison and notification as required as per Section 7.9.
Woodside Marine Assurance Superintendent	Conducts relevant audit and inspection to confirm vessels comply with relevant Marine Orders and Woodside Marine Charters Instructions requirements to meet safety, navigation and emergency response requirements.
Woodside CIMT Duty Manager	On receiving notification of an incident, the Woodside CIMT Duty Manager shall: • establish and take control of the IMT and establish an appropriate command structure for the incident • assess 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 (IAP) including setting objectives for action • approve, implement and Manage the IAP • 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 (OIM)	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 undertake 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. Close out of actions is communicated to the Well Site Manager.
Woodside Well Site Manager	Ensure the drilling program is undertaken 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. 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 undertaken.

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Title (role)	Environmental Responsibilities
	Ensure periodic environmental inspections/reviews are completed. Corrective actions from inspections are developed, tracked and closed out in a timely manner.
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 Environmental Performance Outcomes are met and the performance standards detailed in this EP are implemented on the MODU. Confirm actions in the Well Delivery HSE Improvement Plan are undertaken. 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	Waste is managed on the MODU and sent to shore as per the Global Wells and Seismic Waste Management Plan.
Vessel-based Personnel	
Installation Vessel Master Activity Support Vessel 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 undertake the work they have been assigned. Verify SOPEP drills are conducted as per the vessel's schedule. Ensure the vessel Emergency Response Team (ERT) has been given sufficient training to implement the SOPEP. Ensure any environmental incidents or breaches of relevant Environmental Performance Outcomes or performance standards 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. 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 vessel 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.

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Title (role)	Environmental Responsibilities
Contractor Project Manager	Confirm that activities are undertaken 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 undertake 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.
Woodside Site Representative/ Resident Engineer	Ensure activities are undertaken as detailed in this EP. Ensure the management measures made in this EP are implemented on the vessel Ensure environmental incidents or breaches of objectives, standards or criteria outlined in this EP, are reported as per the Woodside Corporate Event Notification Matrix Verify HSE improvement actions identified during the project are implemented where practicable Ensure periodic environmental inspections are completed.

It is the responsibility of all Woodside employees and contractors to implement the Woodside's Corporate Environment and Biodiversity Policy (Appendix A) in their areas of responsibility and that the personnel are suitably trained and competent in their respective roles.

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7.4 Unexpected Finds Procedure

In the event of the discovery of what appears to be Underwater Cultural Heritage (defined as 'any trace of human existence that has a cultural, historical or archaeological character and is located under water'); the following Unexpected Finds Procedure will apply:

- All activities with the potential to impact the suspected Underwater Cultural Heritage must cease immediately. Retain all records of the potential Underwater Cultural Heritage, including any imagery, description and location.
- Person who discovers the heritage object must inform the Activity Supervisor.
- Activity Supervisor must notify Woodside's Principal Heritage Adviser.
- Woodside will specify an appropriate buffer around the potential Underwater Cultural Heritage, taking into consideration the nature and scale of the potential Underwater Cultural Heritage and the activities to be managed.
- No seabed disturbance may occur within the buffer area around the potential Underwater Cultural Heritage until approved by Woodside's Principal Heritage Adviser.
- Woodside's Principal Heritage Adviser must notify a qualified underwater archaeologist and provide all available documentation of the potential Underwater Cultural Heritage.
- If the potential Underwater Cultural Heritage appears to be Aboriginal underwater cultural heritage, Woodside's Principal Heritage Adviser must notify the appropriate Traditional Custodians to determine whether it is a heritage site and if so, how the site should be managed.
- If the potential Underwater Cultural Heritage appears to be a shipwreck or aircraft that has been wrecked for more than 75 years, or is otherwise reportable under Section 40 of the UCH Act, Woodside's Principal Heritage Advisor must notify the Minister responsible for the UCH Act, the DCCEEW underwater archaeology section through the Australasian Underwater Cultural Heritage Database, and the Western Australian Museum.
- If the suspected heritage object includes human remains, Woodside's Principal Heritage Adviser must also notify:
  - The Australian Federal Police (phone: 131 444) of the location of the remains, that the remains are likely to be historic or Aboriginal in origin, and that it may be appropriate that Traditional Custodians and a maritime archaeologist are present during any handling of the remains; and
  - The Office of the Federal Environment Minister in accordance with Section 20 of the ATSIHP Act.
- Work must not recommence in the vicinity of the potential heritage object until Woodside's Principal Heritage Adviser provides written approval. Woodside's Principal Heritage Adviser must only provide written approval once agreed management measures are implemented consistent with approvals and legislation or where the potential Underwater Cultural Heritage is confirmed to not be Underwater Cultural Heritage.

7.5 Training and Competency

7.5.1 Overview

Woodside as part of its contracting process undertakes assessments of a proposed Contractor's environmental management system to determine the level of compliance with the standard

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AS/NZS ISO 14001. This assessment is undertaken for the PAP 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 during inductions is required for all MODU personnel, detailing awareness and compliance with the MODU and project vessel Contractor's environmental policy and environmental management system.

7.5.2 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 PAP induction may cover information about:

- Description of the activity.
- Ecological and socio-economic values of the activity location, including an overview of pygmy blue whales.
- Regulations relevant to the activity.
- Woodside's Environmental Management System –Corporate Environment and Biodiversity 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 MC.
- Incident reporting.

In addition, the inductions will cover the requirement that there will be no recreational fishing from the MODU and / or vessels.

7.5.3 Activities Program Specific Environmental Awareness

Before petroleum activities begin, a pre-activity meeting will be held on-board the MODU and project 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 through 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 which cover all crew. During these meetings, recent environmental incidents are regularly reviewed, and awareness material presented.

7.5.4 Pygmy Blue Whale (PBW) Observation Training

Relevant crew onboard the MODU and installation vessels will undertake PBW observation training prior to commencing activities. Woodside and Contractor personnel will be trained to deliver the PBW training ('train-the-trainer' model). Training materials will be developed in consultation with WEL, to ensure Project specific information is incorporated. The training package will cover:

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- An overview of Project activities and the cetaceans that may be present during these activities
- An overview of the potential impacts and risks to PBW
- An overview of marine megafauna that may be present during activities
- An overview of EP controls and management procedures relevant to PBW presence
- Precautionary approach to identification i.e. assume PBW if positive ID of different species type not possible
- The observation and reporting requirements.

When trained crew are undertaking observations, expectations are that:

- Observation equipment / tools are used as required (i.e. range-finding binoculars, whale ID prompts etc.)
- Escalation process carried out if PBW are identified including alerting bridge crew so that appropriate response can be initiated
- 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 personnel who have completed PBW observation training.

Completion of PBW Observation Training is a minimum requirement for those performing observations relevant to adaptive management measures in this EP.

For any trained crew who haven't conducted PBW observations for greater than 12 months, refresher training is required prior to undertaking the role.

7.5.5 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 performed and identifying minimum training requirements.

7.6 Monitoring, Auditing, Management of Non-conformance and Review

7.6.1 Monitoring

Woodside and its contractors will perform a program of periodic monitoring during the PAP – 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 EPOs, controls, standards and MC in this EP. The tools and systems will collect, as a minimum, the data (evidence) referred to in the MC in Section 6 and Appendix H.

The collection of this data (against the MC) will form part of the permanent record of compliance maintained by Woodside and will form the basis for demonstrating that the EPOs and standards are met, which will be summarised in a series of routine reporting documents.

A key tool that is used throughout the implementation of the EP is Woodside's environmental compliance and action register (ECAR). This is an internal tool that is developed at EP acceptance and is maintained until the EP is closed. The ECAR contains all the commitments, controls, performance standards and measurement criteria from the EP and tracks compliance against each of these items. Prior to mobilisation of a project vessel Woodside confirms the compliance systems that are in place on the vessel and identifies, and records in the ECAR, the specific records that will

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be provided by the vessel contractor during the offshore campaign. This provides Woodside with the opportunity to confirm the records provided during the activity are sufficient for demonstrating compliance against the EP. It also serves as a central depository for compliance information relevant to each PAP.

7.6.1.1 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 recording and submitting 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 overboard discharges to the ocean.
- Monitoring of progress against the Global Wells and Seismic KPIs.
- Internal auditing and assurance program as described in Section 7.6.

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 2.6.3.

7.6.1.2 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 where changes in knowledge prompt a consideration of management of change, this is actioned and documented appropriately.

7.6.2 Auditing

Environmental performance auditing will be performed to:

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- 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.

7.6.2.1 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 environment audits quarterly during the PAP, while the MODU is on location (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.
  - Audit findings relevant to continuous improvement of environmental performance will be tracked through the MODU or vessel compliance action register, a contractor register between the MODU operator or vessel contractor and Woodside.

7.6.2.2 Subsea Scope Activities

The following internal assurance will be performed for the subsea scope activities:

- 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

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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 installation vessels associated with the above scopes will be audited by Woodside. 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 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 7.6.1, and collection of evidence for MC are used to assess EPOs 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 (eCAR).

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 7.6.3.

7.6.2.3 Marine Assurance

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:

- Safety Management System Assessment
- Dynamic Positioning (DP) System Verification
- Vessel Inspections
- Project support for tender review, evaluation and pre/post contract award.

Vessel inspections are used to verify actual levels of compliance with the company's Safety Management System, the overall condition of the vessel and the status of the planned maintenance

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system onboard. Woodside Marine Assurance Specialist will conduct a risk assessment on the vessel to determine the level of assurance applied and the type of vessel inspection required.

Methods of vessel inspection may include, and are not limited to:

- Woodside Marine Vessel Inspection
- OCIMF OVID Inspection
- IMCA CMID Inspection
- Marine Warranty Survey

Upon completion of the marine assurance process, to confirm that identified concerns are addressed appropriately and conditions imposed are managed, the Woodside Marine Assurance Team will issue the vessel a statement of approval. Should a vessel not meet the requirements of the Woodside Marine Offshore Vessel Assurance Process and be rejected, there does exist an opportunity to further scrutinise the proposed vessel.

Where a vessel inspection and/or OVMSA Verification Review is not available and all reasonable efforts based on time and resource availability to complete an 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.

7.6.2.4 Vessel Risk Assessment

Woodside conducts a risk assessment of vessels where either an OVMSA Verification Review and/or vessel inspection cannot be completed. This is not a regular occurrence and is typically used when the requirements of the assurance process are unable to be met or the processes detailed are not applicable to a proposed vessel(s). The Marine Vessel Risk Assessment will be conducted by the Marine Assurance Specialist, where the vessel meets the short term hire prerequisites.

The risk assessment is a semi-quantitative method of determining what further assurance process activity, if any, is required to assure a vessel for a particular task or role. The process compares the level of management control a vessel is subject to against the risk factors associated with the activity or role.

Several factors 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)

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- 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.

7.6.3 Management of Non-conformance

Woodside classifies non-conformances with EPOs and standards in this EP as environmental incidents. Woodside employees and contractors are required to report all environmental incidents, and these are managed as per Woodside's internal event recording, investigation and learning requirements.

An internal computerised database called First Priority is used to record and report these incidents. Details of the event, immediate action taken to control the situation, investigation outcomes and corrective actions to prevent reoccurrence are all recorded. Corrective actions are monitored using First Priority and closed out in a timely manner.

Woodside uses a consequence matrix for classification of environmental incidents, with the significant categories being A, B and C (as detailed in Section 2.3). Detailed investigations are completed for all categories A, B, C and high potential environmental incidents.

7.6.4 Review

7.6.4.1 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, Subsea 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 KPIs (leading and lagging).
- Tools and systems to monitor environmental performance (detailed in Section 7.6.1)
- Lessons learned about implementation tools and throughout each campaign.
- Reviews of oil spill arrangements and testing are performed in accordance with Section 7.10.

7.6.4.2 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.

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- Ongoing communication with MODU operators.
- Formal and informal industry benchmarking.
- Cross asset learnings.
- Engineering and technical authorities discipline communications and sharing.

7.6.4.3 Review of Impacts, Risks and Controls Across the Life of the EP

In the event 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 7.7).

7.7 Management of Change and Revision

7.7.1 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, DCCEEW 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 1.9); and potential new advice from relevant persons and organisations (Section 5), will be managed in accordance with Regulation 39 of the Environment Regulations.

Risk will be assessed in accordance with the environmental risk management methodology (Section 2.6) to determine the significance of any potential new environmental impacts or risks not provided for in this EP. Risk assessment outcomes are reviewed in compliance with Regulation 39 of the Environment Regulations.

Minor changes where a review of the activity and the environmental risks and impacts of the activity do not trigger a requirement for a formal revision under Regulation 39 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.

7.7.2 OPEP Management of Change

Relevant documents from the OPEP will be reviewed in the following circumstances:

- Implementation of improved preparedness measures
- A change in the availability of equipment stockpiles

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- 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 39 to determine if EP, including OPEP, resubmission is required (Refer Section 7.7.1). 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.

7.8 Record Keeping

Compliance records (outlined in MC in Section 6) will be maintained.

Compliance records (outlined in measurement criteria (MC) in Section 6) will be maintained. Many of the measurement criteria listed in this EP refers to "records", in this context Woodside considers "records" to mean any hard or soft copy of information such as data, observations, certifications or photographs that can show a point in time and can be duplicated such that they can be stored in compliance systems and/or provided to internal and external auditors (i.e. NOPSEMA) on request.

Record keeping will be in accordance with Regulation 22(6).

7.9 Reporting

To meet the EPOs and standards outlined in this EP, Woodside reports at a number of levels, as outlined in the next sections.

7.9.1 Routine Reporting (Internal)

7.9.1.1 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.

7.9.1.2 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.

7.9.1.3 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:

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- HSE incidents (including high potential incidents and those related to this EP) and recent activities.
- Corporate KPI targets, which include environmental metrics.
- Outstanding actions as a result of audits or incident investigations.
- Technical high and low lights.

7.9.2 Routine Reporting (External)

7.9.2.1 Ongoing Consultation

In accordance with Regulation 22(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 7-5.

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.

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 7-5. Relevant new information identified during ongoing consultation will be assessed, as appropriate using the EP Management of Knowledge (refer to Section 7.6.1.2) and Management of Change Process (refer to Section 7.7).

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.

Woodside has developed a Program of Ongoing Engagement with Traditional Custodians (Appendix G), directly informed by feedback from Traditional Custodians. It provides a mechanism for ongoing dialogue so that Traditional Custodians can, on an ongoing basis, provide Woodside with feedback relating to the possible consequences of an activity to be carried out under an EP on their functions, interests and activities as they relate to cultural values. Woodside anticipates that the program will enable Woodside to manage any potential uncertainty on the impacts and risks to cultural values which may be identified at any time during Woodside's activities via ongoing dialogue with Traditional Custodians.

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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 7.6.1.2) and Management of Change process (refer to Section 7.7), as appropriate.

The ongoing consultation engagements that Woodside intends to progress for this EP are set out in the table below.

Table 7-5: Ongoing consultation engagements

Report/ Information	Recipient	Purpose	Frequency	Content
Program of Ongoing Engagement with Traditional Custodians (Appendix G)	Relevant cultural authorities	Ongoing engagement.	Ongoing. Progress on the Program will be reported in line with annual sustainability reporting via the Woodside website. Responses to any feedback received by Traditional Custodian groups will be provided by Woodside within four weeks of receipt.	Assessment of cultural values. Any relevant new information on cultural values will be assessed using the EP Management of Knowledge (ref to Section 7.6.1.2) and Management of Change Process (refer to Section 7.7).
Ongoing engagement	Malgana	Ongoing engagement.	Ongoing. Responses will be provided within four weeks of receipt of additional feedback.	As requested during consultation. Engagement is not specific to this activity.
Notification (email)	AHO	As requested by AMSA during consultation.	No less than 4 weeks prior to commencement.	PS 1.5 (Section 6.7.1) Date of activity start.
Updates (email)			As required.	Changes to planned activities
Notification (email)	AMSA	As requested by AMSA during consultation	At least 24-48 hours before operations commence.	PS 1.7 (Section 6.7.1) Date of activity start.
Update (email)			Provide updates to the AHO and JRCC should there be changes to the activity.	Changes to planned activities
Notification (email)	DoD	As requested by DoD during consultation	Five weeks prior to commencement of activities.	PS 1.9 (Section 6.7.1) Date of activity start.
Notification (email)	DMIRS	Good practice	At least 10 days prior to commencement	Activity start date
Notification (email)	AFMA DAFF – Fisheries	As requested during consultation	At least 10 days prior to commencement	PS 1.6 (Section 6.7.1)

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	DPIRD WAFIC CFA Tuna Australia DCCEEW Relevant Commonwealth fishery licence holders (North West Slope and Trawl)	and/or organisation.	and following completion of activities.	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 7.6.1.2) and Management of Change Process (refer to Section 7.7).
Emails/ Meetings	Persons or organisations who provide feedback to Woodside post EP submission.	Identification, assessment and consideration of feedback, claims and/ or objections	As appropriate	Assessment of claims and/ or objections. Relevant new information will be assessed be assessed using the EP Management of Knowledge (ref to Section 7.6.1.2) and Management of Change Process (refer to Section 7.7).

7.9.2.2 Start and End Notifications of the PAP

In accordance with Regulation 54, Woodside will notify NOPSEMA of the commencement of the PAP at least ten days before the activity commences, and will notify NOPSEMA within ten days of completing the activity.

7.9.2.3 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 7-6.

Table 7-6: Routine external reporting requirements

Report	Recipient	Frequency	Content
Monthly Recordable Incident Reports (Appendix E)	NOPSEMA	Monthly, by the 15th of each month.	Details of recordable incidents that have occurred during the PAP for previous month (if applicable).
Environmental Performance Report	NOPSEMA	Annually, with the first report submitted within 12 months of the commencement of the PAP covered by this EP (as per the requirements of Regulation 22(7).	Compliance with EPOs, controls and standards outlined in this EP, in accordance with the Environment Regulations.

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7.9.2.4 End of the Environmental Plan

The EP will end when Woodside notifies NOPSEMA that the PAP has ended and all of the obligations identified in this EP have been completed, and NOPSEMA has accepted the notification, in accordance with Regulation 46 of the Environment Regulations.

7.9.3 Incident Reporting (Internal)

The process for reporting environmental incidents is described in Section 7.9.4 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 HSE Event Reporting and Investigation Procedure and this section of this EP.

7.9.4 Incident Reporting (External) – Reportable and Recordable

7.9.4.1 Reportable Incidents

7.9.4.1.1 Definition

A reportable incident is defined under Regulation 5 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 PAP 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 Section 2.6.3))
- 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 Section 2.6.3).

The environmental risk assessment (Section 6) for the PAP identifies those risks with a potential consequence of C or above on the environment. The incidents that have the potential to cause this level of impact in this EP is a hydrocarbon release from a loss of well integrity (Section 6.8.2).

Any such incidents represent potential events which would be reportable incidents. Incident reporting is performed 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.

7.9.4.1.2 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 (ASAP), 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 (NOPTA) and the Department of the responsible State Minister (DMIRS) ASAP 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 E) which must be submitted to NOPSEMA ASAP, but within three days of the incident or of its detection by Woodside

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- provide a copy of the written report to the NOPTA and DMIRS, within seven days of the written report being provided to NOPSEMA.

AMSA will be notified of oil spill incidents ASAP after their occurrence, and DCCEEW notified if MNES are to be affected by the oil spill incident.

7.9.4.2 Recordable Incidents

Definition

A recordable incident as defined under Regulation 5 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 50(4), no later than 15 days after the end of the calendar month using the NOPSEMA Form – Recordable Environmental Incident Monthly Summary Report (Appendix E) 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.

7.9.4.3 Other External Incident Reporting Requirements

In addition to the notification and reporting of environmental incidents defined under the Environment Regulations and Woodside requirements, Table 7-7 describes the incident reporting requirements that also apply in the PAA.

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Table 7-7: External Incident Reporting Requirements

Event	Responsibility	Notifiable party	Notification requirements	Contact	Contact detail
Any marine incidents during PAP	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 Rescue Coordination Centre (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 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 ASAP 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, ASAP	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 DCCEEW	Phone: 1800 803 772 Email: protected.species@environment.gov.au

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The following activities should also be reported to AMSA via RCC Australia by the Vessel Master:

- 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 Oil Pollution First Strike Plan (Appendix I).

External incident reporting requirements under the Offshore Petroleum and Greenhouse Gas Storage (Safety) Regulations 2009 (Cth), including under Sub-regulation 2.42, notices and reports of dangerous occurrences will be reported to NOPSEMA under the approved activity safety cases.

7.10 Emergency Preparedness and Response

7.10.1 Overview

Under Regulation 22(8), the implementation strategy must contain an Oil Pollution Emergency Plan (OPEP) and provide for updating the OPEP. Regulation 22(9) 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 7-8.

Table 7-8: 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 21(5), (6), 22(2)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix H)
Describes the OPEP	Regulation 22(8)	EP: Woodside's oil pollution emergency plan has the following components: • Woodside Oil Pollution Emergency Arrangements (Australia) • Oil Pollution First Strike Plan (Appendix I) • Oil Spill Preparedness and Response Mitigation Assessment (Appendix H)
Details the arrangements for responding to and monitoring oil pollution (to inform response activities), including control measures	Regulation 22(9)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix H) Oil Pollution First Strike Plan (Appendix I)
Details the arrangements for updating and testing the oil pollution response arrangements	Regulation 22(8), (12), (13), (14)	EP: Section 7.10.5 Oil Spill Preparedness and Response Mitigation Assessment (Appendix H)
Details of provisions for monitoring impacts to the environment from oil pollution and response activities	Regulation 22(10)	Oil Spill Preparedness and Response Mitigation Assessment (Appendix H)

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Content	Environment Regulations Reference	Document/Section Reference
Demonstrates that the oil pollution response arrangements are consistent with the national system for oil pollution preparedness and control	Regulation 22(16)	Oil Pollution Emergency Arrangements (Australia)

7.10.2 Emergency Response Training

Regulation 22(4) requires that the implementation strategy includes measures to ensure that employees and contractors have the appropriate competencies and training. Woodside has conducted a risk-based training needs analysis on positions required for effective oil spill response. Following the mapping of training to Woodside identified competencies, training was then mapped to positions based on their required competencies.

Table 7-9: Minimum levels of competency for key IMT positions

IMT 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, Safety	OSREC CIMT Fundamentals Course (internal course) Participation in L2 oil spill exercise (initial) Participation in L2 oil spill exercise (refresher)
Environment Coordinator	CIMT Fundamentals IMO2 or equivalent spill response specialist level with an OSRO Participation in L2 oil spill exercise (initial) Participation in L2 oil spill exercise (refresh)
Note on competency/equivalency	
In 2018 Woodside undertook a review of incident and crisis systems, processes and tools to assess whether these were fit-for purpose and has rolled out a change to the 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 Incident and Crisis Leaders Development Program (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* (and which is equivalent to IMOIII when combined with Woodside's OSREC course) and ensures broader incident management principles aligned with Australasian Inter-service Incident Management System (AIIMS). The revised CIMT Fundamentals Course is mapped to *PMAOMIR320* (and which is equivalent to IMOII). The blended learning program offers modules aligned to IMOIII, IMOII, IMOI and AMOSC Core Group Training Oil Spill Response Organisation Specialist Level training. OSREC involves the completion of two (2) online AMSA Modules (Introduction to National Plan and Incident management; and Introduction to oil spills) as well as elements of IMOI and IMOII tailored to Woodside specific OSR capabilities. Woodside Learning Services (WLS) are responsible for collating and maintaining personnel training records. The HSP Dashboard reflects the competencies required for each oil spill role (IMT/operational).	

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7.10.3 Emergency Response Preparation

The Corporate Incident Coordinate Centre Management Team (CIMT), based in Woodside's head office in Perth, 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 Leader, supports the site-based Incident Management Team by providing additional support in areas such as operations, logistics, planning, people management and public information (corporate affairs). 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 PAP. The ERP provides procedural guidance specific to the asset 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 OIM 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.

7.10.4 Oil and Other Hazardous Materials Spill

A significant hydrocarbon spill during the proposed PAP 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 Oil Pollution First Strike Plan (Appendix I) which provides tactical response guidance to the activity/area and Appendix H this EP, cover spill response for this PAP.

The Security and Emergency Management Function is responsible for managing Woodside's hydrocarbon 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 Oil Pollution First Strike Plan provides immediate actions required to commence a response (Appendix I).

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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 is intended to work in conjunction with the SOPEPs, if hydrocarbons are released to the marine environment from a vessel.

Woodside has established EPOs, PS and MC to be used for oil spill response during the PAP, as detailed in Appendix H.

7.10.5 Emergency and Spills Response

Woodside categorises incidents and emergencies in relation to response requirements as follows:

7.10.5.1 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.

7.10.5.2 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.

7.10.5.3 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, or livelihood. At Woodside, the Crisis Management Team (CMT) manages the strategic impacts in order to respond to and recover from the threat to the company (material impacts, litigation, legal and commercial, reputation etc.). The CIMT may also be activated as required to manage the operational incident response.

7.10.6 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 7-10. 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 7-10: Testing of response capability

Response Category	Scope	Response Testing Frequency	Response Testing Objective
Level 1 Response	Exercises are MODU/ vessel specific	One Level 1 'First Strike' drill conducted within two weeks of commencing activity. For campaigns with an operational duration of greater	Comprehensive exercises test elements of the Oil Pollution First Strike Plan (Appendix I).

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		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.	Emergency drills are scheduled to test other aspects of the Emergency Response Plan.
Level 2 Response	Exercises are MODU specific	A minimum of one Emergency Management exercise per MODU per campaign [Note: must be conducted within one month of campaign commencing and at least one Level 2 exercise per 6 month hire period].	Testing both the facility IMT response and/or that of the CIMT following handover of incident control. Exercises may include testing of Source Control Response Strategies.
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

7.10.7 Hydrocarbon Spill Response Testing of Arrangements

There are a number of arrangements which, in the event of a spill, will underpin Woodside's ability to implement a response across its petroleum activities. In order to ensure these arrangements are adequately tested, the Capability Development Team within Security and Emergency Management ensures tests are conducted in alignment with the Hydrocarbon Spill Testing of Arrangements Schedule.

Woodside's arrangements for spill response are common across its Australian operating assets and activities to ensure the controls are consistent. The overall objective of testing these arrangements is to ensure that Woodside maintains an ability to respond to a hydrocarbon spill, specifically to:

- Ensure relevant responders, contractors and key personnel understand and practise their assigned roles and responsibilities.
- Test response arrangements and actions to validate response plans.
- Ensure lessons learned are incorporated into Woodside's processes and procedures and improvements are made where required.

If new response arrangements are introduced, or existing arrangements significantly amended, additional testing is undertaken accordingly. If the MODU leaves the field for an extended period, additional testing will be undertaken when it returns to routine operations. 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 7-10, up to eight formal exercises are planned annually, across Woodside, to specifically test arrangements for responding to a hydrocarbon spill to the marine environment.

7.10.7.1 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 International Petroleum Industry Environmental Conservation Association (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.

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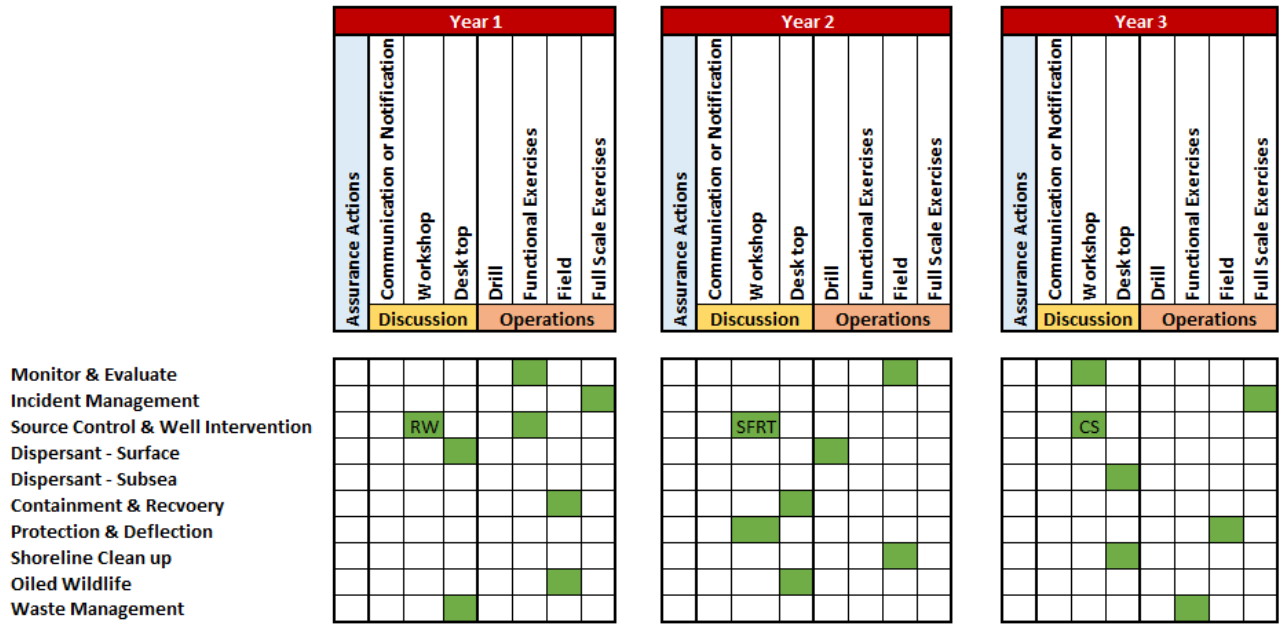

Figure 7-2: Indicative 3-yearly testing of arrangements schedule

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).

7.10.8 Cyclone and Dangerous Weather Preparation

As the timing of some activities associated with the PAP are not yet determined, it is possible drilling and subsea 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 Bureau of Meteorology. 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 PAP, the CCP will be actioned. If required, vessels can transit from the proposed track of the cyclone (severe weather event).

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9. GLOSSARY AND ABBREVIATIONS

9.1 Glossary

Term	Meaning
(the) Regulator	The Government Agency (State or Commonwealth) that is the decision maker for approvals and performs 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 34(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 that 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 that 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 that is used as a starting point for subsequent measurements
dB	Decibel, 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

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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 1 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 that 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	Steel pipe placed in the well as drilling progresses to isolate particular formations or zones, prevent the wall of the well bore formations from caving in, providing pressure integrity as the well is constructed to deeper depths
Drilling fluids	The main functions of drilling fluids are to control formation pressures, remove cuttings from the wellbore, seal permeable formations encountered while drilling, cool and lubricate the drill bit, transmit hydraulic energy to downhole tools and the bit and, maintain wellbore stability
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
EC50	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, that have an internal calcareous skeleton and are 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)
EP	Prepared in accordance with the OPGGS (Environment) Regulations 2023, which must be assessed and accepted by the Designated Authority (NOPSEMA) before any petroleum-related activity can be performed
Environment Regulations	OPGGS (Environment) Regulation 2023
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
Flora	Collectively, the plant life of a particular region

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Term	Meaning
IC50	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 EMS) for controlling and improving a company's environmental performance. An EMS provides a framework for managing environmental responsibilities so 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.
LC50	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 objective is to preserve the marine environment through the complete elimination of pollution by oil and other harmful substances and the minimisation 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 that 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 that 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.
Stereo-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
Zooplankton	Plankton consisting of small animals and the immature stages of larger animals

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9.2 Abbreviations

Abbreviation	Meaning
µm	Micrometer
350A	350 Australia
ABF	Australian Border Force
AFC	Antifouling Coating
AFFF	Aqueous Film Forming Foam
AFMA	Australian Fisheries Management Authority
AHIS	Aboriginal Heritage Inquiry System
AHO	Australian Hydrographic Office
AHV	Anchor Handling Vessels
AIIMS	Australasian Inter-service Incident Management System
AIMS	Australian Institute of Marine Science
AIS	Automatic Identification System
ALARP	As Low As Reasonably Practicable
AMMC	Australian Marine Mammal Centre
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
API	American Petroleum Institute
AEP	Australian Energy Producers
ASAP	As soon as practicable
AS/NZS	Australian/ New Zealand Standards
ATSB	Australian Transport Safety Bureau
AusSAR	Australian Search and Rescue
AUV	Autonomous Underwater Vehicle
AWR	Learmonth Air Weapons Range
BBL	Oil barrel
BC	Bioconcentration
BCF	Bioconcentration Factor
BIA	Biologically Important Area
BoM	Bureau of Meteorology
BOP	Blow-out Preventer
BPT	Ball Penetrometer Test
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
C	Moderate
CALM	Department of Conservation and Land Management
CAR	Campaign Action Register
CCL	Casing Collar Locator

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Abbreviation	Meaning
CCP	Cyclone Contingency Plan
CCWA	Conservation Council of Western Australia
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CFA	Commonwealth Fisheries Association
CH4	Methane
CIMT	Corporate Incident Management Team
CMID	Common Marine Inspection Document
CMP	Conservation Management Plan
CMT	Crisis Management Team
CO	Carbon Monoxide
CO2	Carbon Dioxide
CoA	Commonwealth of Australia
COLREGS	International Regulations for Prevention of Collisions at Sea
CS	Cost/Sacrifice
CSIRO	Commonwealth Scientific and Industrial Research Organisation
Cth	Commonwealth
CV	Company Values
D&C	Drilling & Completions
dB	Decibel
DBCA	Department of Biodiversity, Conservation and Attractions
DDR	Deep Directional Resistivity
DCCEEW	Department of Climate Change, Energy, Environment and Water
DEA	Doctors for the Environment Australia
DEWHA	Department of Environment, Water, Heritage and the Arts
DIIS	Department of Industry Innovation and Science
DISER	Department of Industry, Science, Energy and Resources
DMIRS	Department of Mines, Industry Regulation and Safety
DMP	Department of Mines and Petroleum
DNP	Director of National Parks
DAWE	Department of Agriculture, Water and the Environment
DoD	Department of Defence
DoEE	Department of the Environment and Energy
DoF	Department of Fisheries (now part of DMIRS)
DoT	Department of Transport
DotE	Department of the Environment
DP	Dynamic Positioning
DPIRD	Department of Primary Industries and Regional Development
DPLH	Department of Planning, Lands and Heritage

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Abbreviation	Meaning
DSEWPaC	Department of Sustainability, Environment, Water, Population and Communities
EBSA	Ecologically or Biologically Significant Marine Area
EC50	half maximal effective concentration
EDS	Emergency Disconnect Sequence
EFL	Electrical Flying Lead
EMBA	Environment that May Be Affected
EMS	Environmental Management System
ENVID	Environmental hazard Identification
EP	Environment Plan
EPO	Environmental Performance Outcome
EPS	Environmental Performance Standard
ERM	Environmental Resource Management
ERP	Emergency Response Plans
ERT	Emergency Response Team
ESD	Ecological Sustainable Development
F	Control Feasibility
FARA	Friends of Australian Rock Art. Inc
FEWD	Formation Evaluation While Drilling
FFFP	Film Forming Fluroprotein Foams
FLNG	Floating Liquefied Natural Gas units
FPSO	Floating Production, Storage and Offtake vessel
FPU	Floating Production Unit
FSP	First Strike Plan
FST	Functional Support Team
g/m²	Grams per square metre
GAP	Greenpeace Australia Pacific
GHG	Greenhouse Gas
GP	Good Practice
GR	Gamma Ray
GWA	Goodwyn Alpha
HF	High Frequency
HFC	Hydrofluorocarbons
HFL	Hydraulic Flying Lead
HFO	Heavy Fuel Oil
HOCNF	Harmonised Offshore Chemical Notification Format
HQ	Hazard Quotient
HSE	Health, Safety and Environment
IAP	Incident Action Plan

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Abbreviation	Meaning
IAPP	International Air Pollution Prevention
IBC	Intermediate Bulk Container
IC	Incident Controller
ICLDP	Incident and Crisis Leadership Development Program
IC50	Half maximal inhibitory concentration
IEA	International Energy Agency
IMCA	International Marine Contractors Association
IMCRA	Integrated Marine and Coastal Regionalisation of Australia
IMMR	Inspection, Maintenance, Monitoring, Repair
IMO	International Marine Organisation
IMR	Inspection, Maintenance and Repair
IMS	Invasive Marine Species
IMSMA	Information Management System for Mine Action
IPIECA	International Petroleum Industry Environmental Conservation Association
ISPP	International Sewage Pollution Prevention Certificate
ITF	Indonesian Through Flow
ITOPF	International Tanker Owners Pollution Federation
IUCN	International Union for Conservation of Nature
JDP2	Julimar Development Project Phase 2
JDP3	Julimar Development Project Phase 3
JRCC	Joint Rescue Coordination Centre
JSA	Job Safety Analysis
JULA-P	Julimar Appraisal-Keeper Well
KEF	Key Ecological Feature
kHz	Kilohertz
km	Kilometre
KPI	Key Performance Indicator
L	Litres
LBL	Long Baseline
LC50	Lethal concentration, 50%
LCS	Legislation, Codes and Standards
LF	Low Frequency
LNG	Liquefied Natural Gas
LTGA	Lock the Gate
LWI	Light Well Intervention
MARPOL	International Convention for the Prevention of Pollution from Ships
MBES	Multibeam Echo Sounders
MC	Measurement Criteria

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Abbreviation	Meaning
MDO	Marine Diesel Oil
MEG	Mono-ethylene Glycol
MFO	Marine Fauna Observers
MMSI	Maritime Mobile Service Identity
MNES	Matters of National Environmental Significance
MOC	Management of Change
MODU	Mobile Offshore Drilling Unit
MoU	Mobile Offshore Unit
MPA	Marine Protected Areas
MPRA	Marine Parks and Reserves Authority
MSIN	Maritime Safety Information Notifications
N2O	Nitrous Oxide
NCVA	National Conservation Values Atlas
NIMS	Non-indigenous Marine Species
NLPG	National Light Pollution Guidelines
nm	Nautical mile (1,852 m) a unit of distance on the sea
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOPSEMA	National Offshore Petroleum Safety and Environmental Management Authority
NOPTA	National Offshore Petroleum Titles Administrator
NORM	Naturally Occurring Radioactive Material
NOx	Oxides of Nitrogen
NTM	Notice to Mariners
NWBM	Non Water-Based Mud
NWMR	North-west Marine Region
NWS	North-west Shelf
NWXA	North West Exercise Area
OCNS	Offshore Chemical Notification Scheme
OFL	Optical Flying Lead
OILMAP	Oil Spill Mapping and Analysis Program
OIM	Offshore Installation Manager
OIW	Oil in Water
OOC	Oil on cuttings
OPP	Offshore Project Proposal
OPEP	Oil Pollution Emergency Plan
OPGGS	Offshore Petroleum and Greenhouse Gas Storage
OSPAR	Oslo and Paris Commission for the Convention for the Protection of the Marine Environment of the North-East Atlantic
OSREC	Oil Spill Response Skills Enhancement Course

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Abbreviation	Meaning
OSRL	Oil Spill Response Limited
OSRO	Oil Spill Response Organisation
OVID	Offshore Vessel Inspection Database
OVMSA	Offshore Vessel Safety Management System assessment
PAA	Petroleum Activity Area
PAD	Pump and Dump
PAH	Polyaromatic Hydrocarbon
PAM	Passive Acoustic Monitoring
PBA	Pre-emptive Baseline Areas
PBW	Pygmy Blue Whale
PCPT	Pore Cone Penetration Testing
PFC	Perfluorocarbons
PHB	Hydrated Bentonite Sweeps
PJ	Professional Judgement
PK	Peak Pressure
PLONOR	OSPAR definition of a substance Poses Little Or NO Risk to the environment
PM10	Particulate Matter less than 10 microns
PMST	Protected Matters Search Tool
PPA	Pearl Producers Association
ppb	Parts Per Billion
ppm	Parts Per Million
PS	Performance Standards
PSD	Particle Size Distribution
PSU	Practical Salinity Unit
PTS	Permanent Threshold Shift
PTW	Permit To Work
RCC	Rescue Coordination Centre
RMR	Riserless Mud Recovery
RMS	Root Mean Square
RO	Reverse Osmosis
ROV	Remotely Operated Vehicle
SBP	Sub Bottom Profilers
S-BRUVS	Stereo-baited Remote Underwater Video System
SCE	Solids Control Equipment
SCM	Subsea Control Module
SCERP	Source Control Emergency Response Plan
SEEMP	Ship Energy Efficiency Management Plan
SEL	Sound Exposure Level

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Abbreviation	Meaning
SF6	Sulphur hexafluoride
SFRT	Subsea First Response Toolkit
SIMAP	Spill Impact Mapping and Analysis Program
SIMOPS	Simultaneous Operations
SMPEP	Spill Monitoring Programme Execution Plan
SO2	Sulphur Dioxide
SOLAS	Safety of Life at SEA
SOPEP	Ship Oil Pollution Emergency Plan
SPL	Sound Pressure Level
SSDI	Subsea Dispersant Injection
SSPL	Subsea and Pipeline
SSS	Side Scan Sonars
SV	Societal Values
SW	Southwest
SWMR	South-west Marine Region
TBT	T-bar Penetrometer Test
TSS	Total Suspended Solids
TTS	Temporary Threshold Shift
UHC	Ultimate Holding Capacity
UK	United Kingdom
USBL	Ultra-short baseline
USIT	Ultrasonic Imaging Tool
UTA	Umbilical Termination Assembly
UXO	Unexploded Ordinance
VOC	Volatile Organic Hydrocarbons
WA	Western Australia
WAFIC	Western Australian Fishing Industry Council
WANCSF	Western Australia North Coast Shark Fishery
WBM	Water-Based Mud
WCC	Woodside Communication Centre
WCBD	Well Control Bridging Document
WEL	Woodside Energy Ltd
WIV	Well Intervention Vessel
WLS	Woodside Learning Service
WMS	Woodside Management System
WOMP	Well Operation Management Plan
Woodside	Woodside Energy Ltd
wt/wt	Weight/weight

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Abbreviation	Meaning
XPT	Formation Pressures

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APPENDIX A. WOODSIDE ENVIRONMENT AND RISK MANAGEMENT POLICIES

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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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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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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.

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APPENDIX B. RELEVANT REQUIREMENTS

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The below table refers to Commonwealth Legislation related to the activity

Commonwealth Legislation	Legislation Summary
Aboriginal and Torres Strait Islander Heritage Protection Act 1984	This Act seeks "to preserve and protect places, areas and objects of particular significance" to Aboriginal people. Under the Section 9 and 10 provisions of the Act, the Minister for the Environment may declare significant Aboriginal areas temporarily or permanently protected if they are considered under threat. Similar declarations regarding Aboriginal objects can be made under Section 12. Under Section 22 of the Act, the contravention of any of these declarations is an offence. Additionally, the discovery of any Aboriginal remains must be reported to the Minister under Section 20. Damage or interference with Aboriginal objects or places is not an offence under the ATSIHO Act except within Victoria under Section 21U.
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.

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Commonwealth Legislation	Legislation Summary
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.
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.

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Commonwealth Legislation	Legislation Summary
Offshore Petroleum and Greenhouse Gas Storage Act 2006 Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2023 Offshore Petroleum and Greenhouse Gas Storage (Resource Management and Administration) Regulations 2011 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.
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.
Underwater Cultural Heritage Act 2018 Underwater Cultural Heritage Guidance for Offshore Developments DRAFT Guidelines to Protect Underwater Cultural Heritage.	The Act prescribes penalties for damage to protected Underwater Cultural Heritage without a permit under Section 30 or in contravention of a permit under Section 28. Protected Underwater Cultural Heritage is prescribed in Section 16 to automatically include the remains and associated artefacts of any vessel or aircraft that has been in Australian waters for 75 years, whether known or unknown. This protection is also extended to Underwater Cultural Heritage in Commonwealth waters specified by the Environment Minister under Section 17. Without a

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Commonwealth Legislation	Legislation Summary
	declaration under this section, Aboriginal Underwater Cultural Heritage is not protected under the UCH Act.

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APPENDIX C. EPBC ACT PROTECTED MATTERS SEARCH

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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: 24-Feb-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:	2
National Heritage Places:	2
Wetlands of International Importance (Ramsar	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Area:	2
Listed Threatened Ecological Communities:	None
Listed Threatened Species:	53
Listed Migratory Species:	65

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:	5
Commonwealth Heritage Places:	2
Listed Marine Species:	112
Whales and Other Cetaceans:	32
Critical Habitats:	None
Commonwealth Reserves Terrestrial:	None
Australian Marine Parks:	11
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:	25
Regional Forest Agreements:	None
Nationally Important Wetlands:	1
EPBC Act Referrals:	206
Key Ecological Features (Marine):	6
Biologically Important Areas:	36
Bioregional Assessments:	None
Geological and Bioregional Assessments:	None

Details

Matters of National Environmental Significance

World Heritage Properties [Resource Information]

Name	State	Legal Status
Shark Bay, Western Australia	WA	Declared property
The Ningaloo Coast	WA	Declared property

National Heritage Places [Resource Information]

Name	State	Legal Status
Natural		
Shark Bay, Western Australia	WA	Listed place
The Ningaloo Coast	WA	Listed place

Commonwealth Marine Area [Resource Information]

Approval is required for a proposed activity that is located within the Commonwealth Marine Area which has, will have, or is likely to have a significant impact on the environment. Approval may be required for a proposed action taken outside a Commonwealth Marine Area but which has, may have or is likely to have a significant impact on the environment in the Commonwealth Marine Area.

Feature Name
EEZ and Territorial Sea
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		
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
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
Erythrotriorchis radiatus Red Goshawk [942]	Vulnerable	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
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
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
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

Scientific Name	Threatened Category	Presence Text
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
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 likely 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

Scientific Name	Threatened Category	Presence Text
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 may occur within area
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
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

Scientific Name	Threatened Category	Presence Text
Rhinonicteris aurantia (Pilbara form)		
Pilbara Leaf-nosed Bat [82790]	Vulnerable	Species or species habitat known to occur within area
REPTILE		
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	Species or species habitat known to occur within area
Eretmochelys imbricata		
Hawksbill Turtle [1766]	Vulnerable	Breeding known to 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
Centrophorus zeehaani		
Southern Dogfish, Endeavour Dogfish, Little Gulper Shark [82679]	Conservation Dependent	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 likely to 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 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]		Species or species habitat 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
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat 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
Onychoprion anaethetus Bridled Tern [82845]		Breeding known to occur within area
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons Little Tern [82849]		Species or species habitat may 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
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
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

Scientific Name	Threatened Category	Presence Text
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat 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
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

Scientific Name	Threatened Category	Presence Text
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	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 likely to 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 known 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
Migratory Terrestrial Species		
Hirundo rustica Barn Swallow [662]		Species or species habitat known 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 may occur within area
Migratory Wetlands Species		

Scientific Name	Threatened Category	Presence Text
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 may occur within 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
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

Scientific Name	Threatened Category	Presence Text
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 [50122]	WA
Defence - EXMOUTH VLF TRANSMITTER STATION [50123]	WA
Defence - LEARMONTH - AIR WEAPONS RANGE [50193]	WA
Defence - LEARMONTH RADAR SITE - VLAMING HEAD EXMOUTH [50001]	WA
Unknown	
Commonwealth Land - [52236]	WA

Commonwealth Heritage Places [Resource Information]

Name	State	Status
Natural		
Learmonth Air Weapons Range Facility	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

Scientific Name	Threatened Category	Presence Text
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 overfly marine area
Ardenna carneipes as Puffinus carneipes Flesh-footed Shearwater, Fleshy-footed Shearwater [82404]		Species or species habitat likely to occur within area
Ardenna pacifica as Puffinus pacificus Wedge-tailed Shearwater [84292]		Breeding known to occur within area
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 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
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
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat 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 known 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

Scientific Name	Threatened Category	Presence Text
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
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	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 may 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

Scientific Name	Threatened Category	Presence Text
Phaethon lepturus White-tailed Tropicbird [1014]		Species or species habitat known to occur within area
Phaethon lepturus fulvus Christmas Island White-tailed Tropicbird, Golden Bosunbird [26021]	Endangered	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 as Rostratula benghalensis (sensu lato) Australian Painted Snipe [77037]	Endangered	Species or species habitat likely to occur within area overfly marine area
Sterna dougallii Roseate Tern [817]		Breeding known to occur within area
Sternula albifrons as Sterna albifrons Little Tern [82849]		Species or species habitat may occur within area
Sternula nereis as Sterna nereis Fairy Tern [82949]		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
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
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

Scientific Name	Threatened Category	Presence Text
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
Halicampus grayi Mud Pipefish, Gray's Pipefish [66221]		Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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
Lissocampus fatiloquus Prophet's Pipefish [66250]		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
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		

Scientific Name	Threatened Category	Presence Text
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 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	Species or species habitat 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
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	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
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

Current Scientific Name	Status	Type of Presence
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
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

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 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
[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
Carnarvon Canyon	Habitat Protection Zone (IUCN IV)
Gascoyne	Habitat Protection Zone (IUCN IV)
Gascoyne	Habitat Protection Zone (IUCN IV)
Argo-Rowley Terrace	Multiple Use Zone (IUCN VI)
Gascoyne	Multiple Use Zone (IUCN VI)
Montebello	Multiple Use Zone (IUCN VI)
Shark Bay	Multiple Use Zone (IUCN VI)
Gascoyne	National Park Zone (IUCN II)
Ningaloo	National Park Zone (IUCN II)
Ningaloo	Recreational Use Zone (IUCN IV)
Ningaloo	Recreational Use Zone (IUCN IV)

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 Management Area	WA
Barrow Island	Marine Park	WA
Bessieres Island	Nature Reserve	WA
Boodie, Double Middle Islands	Nature Reserve	WA
Cape Range	National Park	WA
Great Sandy Island	Nature Reserve	WA
Jurabi Coastal Park	5(1)(h) 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
Ningaloo	Marine Park	WA
North Sandy Island	Nature Reserve	WA
Serrurier Island	Nature Reserve	WA
Thevenard Island	Nature Reserve	WA
Unnamed WA37500	5(1)(g) Reserve	WA
Unnamed WA40322	5(1)(h) Reserve	WA
Unnamed WA40828	5(1)(h) Reserve	WA
Unnamed WA41080	5(1)(h) Reserve	WA
Unnamed WA44665	5(1)(h) Reserve	WA

Protected Area Name	Reserve Type	State
Unnamed WA44667	5(1)(h) Reserve	WA

Nationally Important Wetlands [Resource Information]

Wetland Name	State
Cape Range Subterranean Waterways	WA

EPBC Act Referrals [Resource Information]

Title of referral	Reference	Referral Outcome	Assessment Status
Action clearly unacceptable			
Browse to North West Shelf Development, Indian Ocean, WA	2018/8319		Approval
Project Highclere Cable Lay and Operation	2022/09203		Completed
Highlands 3D Marine Seismic Survey	2012/6680	Action Clearly Unacceptable	Completed
Controlled action			
'Van Gogh' Petroleum Field Development	2007/3213	Controlled Action	Post-Approval
Boating Facility	2002/830	Controlled Action	Completed
Construct and operate LNG & domestic gas plant including onshore and offshore facilities - Wheatston	2008/4469	Controlled Action	Post-Approval
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

Title of referral	Reference	Referral Outcome	Assessment Status
Controlled action			
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
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
Mauds Landing Marina	2000/98	Controlled Action	Completed
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

Title of referral	Reference	Referral Outcome	Assessment Status
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
Boating Facility	2002/832	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
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 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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
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
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
North Rankin B gas compression facility	2005/2500	Not Controlled Action	Completed
Pipeline System Modifications Project	2000/3	Not Controlled Action	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action			
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
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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 (Particular Manner)	Post-Approval
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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
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
3D sesmic survey	2006/2781	Not Controlled Action (Particular Manner)	Post-Approval
Acheron Non-Exclusive 2D Seismic Survey	2008/4565	Not Controlled Action (Particular Manner)	Post-Approval
Acheron Non-Exclusive 2D Seismic Survey	2009/4968	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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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 Manner)	Post-Approval
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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
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
Demeter 3D Seismic Survey, off Dampier, WA	2002/900	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
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Exmouth West 2D Marine Seismic Survey	2008/4132	Not Controlled Action (Particular Manner)	Post-Approval
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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular 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
Orcus 3D Marine Seismic Survey in WA-450-P	2010/5723	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
Osprey and Dionysus Marine Seismic Survey	2011/6215	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 Manner)	Post-Approval
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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
Santos Winchester three dimensional seismic survey - WA-323-P & WA-330-P	2011/6107	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
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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
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 Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular Manner)	Post-Approval
Referral decision			
3D Marine Seismic Survey in the offshore northwest Carnarvon Basin	2011/6175	Referral Decision	Completed

Title of referral	Reference	Referral Outcome	Assessment Status
Referral decision			
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
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
Commonwealth waters adjacent to Ningaloo Reef	North-west
Continental Slope Demersal Fish Communities	North-west
Exmouth Plateau	North-west
Glomar Shoals	North-west

Biologically Important Areas

Scientific Name	Behaviour	Presence
Dugong		
Dugong dugon		
Dugong [28]	Breeding	Known to occur

Scientific Name	Behaviour	Presence
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]	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
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]	Nesting	Known to occur
Eretmochelys imbricata Hawksbill Turtle [1766]	Foraging	Known to occur

Scientific Name	Behaviour	Presence
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]	Nesting	Known to occur
Natator depressus Flatback Turtle [59257]	Aggregation	Known to occur
Natator depressus Flatback Turtle [59257]	Foraging	Known to occur
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]	Nesting	Known to occur
Seabirds		
Ardenna pacifica Wedge-tailed Shearwater [84292]	Breeding	Known to occur
Phaethon lepturus White-tailed Tropicbird [1014]	Breeding	Known to occur
Sterna dougallii Roseate Tern [817]	Breeding	Known to occur
Sternula nereis Fairy Tern [82949]	Breeding	Known to occur

Scientific Name	Behaviour	Presence
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		
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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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-Feb-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:	37

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place. Information on the new heritage laws can be found at https://www.dcceew.gov.au/parks-heritage/heritage

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	65
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:	37
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 known 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
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	Species or species habitat may occur within area

Scientific Name	Threatened Category	Presence Text
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
Dermochelys coriacea Leatherback Turtle, Leathery Turtle, Luth [1768]	Endangered	Species or species habitat likely to occur within area

Scientific Name	Threatened Category	Presence Text
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
Pristis clavata Dwarf Sawfish, Queensland Sawfish [68447]	Vulnerable	Species or species habitat known to occur within area

Scientific Name	Threatened Category	Presence Text
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
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
Fregata ariel Lesser Frigatebird, Least Frigatebird [1012]		Species or species habitat likely to occur within area
Macronectes giganteus Southern Giant-Petrel, Southern Giant Petrel [1060]	Endangered	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
[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
[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

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 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

Scientific Name	Threatened Category	Presence Text
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
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

Scientific Name	Threatened Category	Presence Text
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
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

Scientific Name	Threatened Category	Presence Text
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
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

Scientific Name	Threatened Category	Presence Text
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
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

Current Scientific Name	Status	Type of Presence
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
Orcaella heinsohni as Orcaella brevirostris 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
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 may occur within area

Current Scientific Name	Status	Type of Presence
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
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			
Construction and operation of an unmanned sea platform and connecting pipeline to Varanus Island for	2004/1703	Not Controlled Action	Completed
Development of Halyard Field off the west coast of WA	2010/5611	Not Controlled Action	Completed
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
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	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	
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
Harmony 3D Marine Seismic Survey	2012/6699	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

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
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
Pomodoro 3D Marine Seismic Survey in WA-426-P and WA-427-P	2010/5472	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
Triton 3D Marine Seismic Survey, WA-2-R and WA-3-R	2006/2609	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 Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2008/4134	Not Controlled Action (Particular Manner)	Post-Approval
Wheatstone Iago Appraisal Well Drilling	2007/3941	Not Controlled Action (Particular	Post-Approval

Title of referral	Reference	Referral Outcome	Assessment Status
Not controlled action (particular manner)			
		Manner)	

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
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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APPENDIX D. DEPARTMENT OF PLANNING, LANDS AND HERITAGE ABORIGINAL HERITAGE INQUIRY SEARCH

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Aboriginal Heritage Inquiry System

List of Other Heritage Places

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Search Criteria

48 Other Heritage Places in Shapefile - Consultation EMBA

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Coordinate Accuracy

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- **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.
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  - **Male Access Only:** Only *males* can view restricted information.
  - **Female Access Only:** *Only* females can view restricted information.

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
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 DPL	773421mE 7500769mN Zone 49 [Reliable]	P07441
883	BARROW ISLAND 01	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	334950mE 7692667mN Zone 50 [Reliable]	P07291
884	BARROW ISLAND 02	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	331673mE 7691987mN Zone 50 [Reliable]	P07292
885	BARROW ISLAND 03	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	326224mE 7689495mN Zone 50 [Reliable]	P07293
886	BARROW ISLAND 04	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	325227mE 7694610mN Zone 50 [Reliable]	P07294
887	BARROW ISLAND 05	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	337202mE 7710824mN Zone 50 [Unreliable]	P07296
889	BARROW ISLAND 07	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	337957mE 7709368mN Zone 50 [Reliable]	P07297
890	BARROW ISLAND 08	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	326487mE 7695727mN Zone 50 [Reliable]	P07298
891	BARROW ISLAND 09	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	326270mE 7691185mN Zone 50 [Reliable]	P07299
892	BARROW ISLAND 10	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	331892mE 7691082mN Zone 50 [Reliable]	P07300
893	BARROW ISLAND 11	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	326145mE 7695108mN Zone 50 [Reliable]	P07301

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894	BARROW ISLAND 12	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	326347mE 7699332mN Zone 50 [Reliable]	P07302
6783	28 MILE CREEK NORTH 2	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	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 DPL	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 DPL	792442mE 7533369mN Zone 49 [Reliable]	P06154
7302	CAMP 17 CREEK ROCKSHELTERS	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	800042mE 7555249mN Zone 49 [Unreliable]	P05648
8951	BARROW ISLAND	No	No	No Gender Restrictions	Stored Data / Not a Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	335137mE 7705156mN Zone 50 [Unreliable]	P03542
11403	THEVENARD ISLAND	No	No	No Gender Restrictions	Stored Data / Not a Site	Midden / Scatter	*Registered Knowledge Holder names available from DPL	292638mE 7625655mN Zone 50 [Unreliable]	P00753
11801	COASTAL MIDDEN, 5 MILE	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	195638mE 7582655mN Zone 50 [Unreliable]	P00345
22943	Flacourt Bay 01	No	No	No Gender Restrictions	Lodged	Rockshelter	*Registered Knowledge Holder names available from DPL	331540mE 7705613mN Zone 50 [Reliable]	
29549	Boodie Soak	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	333058mE 7702494mN Zone 50 [Reliable]	
31762	Site 1	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	332664mE 7694168mN Zone 50 [Reliable]	

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
31763	Site 2	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	332528mE 7694213mN Zone 50 [Reliable]	
36199	Boodie Cave	No	No		Lodged	Artefacts / Scatter, Rockshelter	*Registered Knowledge Holder names available from DPL	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 DPL	332623mE 7707495mN Zone 50 [Reliable]	
36234	South End structures, Barrow Island.	No	No		Lodged	Historical, Man-Made Structure	*Registered Knowledge Holder names available from DPL	326057mE 7689365mN Zone 50 [Unreliable]	
36261	G-13-S0001	No	No		Lodged	Quarry	*Registered Knowledge Holder names available from DPL	329032mE 7702259mN Zone 50 [Reliable]	
36262	H-24-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	330962mE 7691480mN Zone 50 [Reliable]	
36263	H-24-S0002	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	330959mE 7691251mN Zone 50 [Reliable]	
36264	I-23-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	331260mE 7692010mN Zone 50 [Reliable]	
36265	I-23-S0002	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	331643mE 7692090mN Zone 50 [Reliable]	
36266	I-24-S0003	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	331552mE 7691950mN Zone 50 [Reliable]	
36267	J-23-S0001	No	No		Lodged	Grinding Patches / Grooves	*Registered Knowledge Holder names available from DPL	332215mE 7692570mN Zone 50 [Reliable]	
36268	J-23-S0002	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	332208mE 7692431mN Zone 50 [Reliable]	

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36269	J-23-S0003	No	No		Lodged	Modified Tree	*Registered Knowledge Holder names available from DPL	332193mE 7692286mN Zone 50 [Reliable]	
36270	M-03-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	335996mE 7712066mN Zone 50 [Reliable]	
36271	N-02-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	336855mE 7713004mN Zone 50 [Reliable]	
36272	O-02-S0002	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	337100mE 7713272mN Zone 50 [Reliable]	
36273	O-05-S0003	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	337727mE 7710822mN Zone 50 [Reliable]	
36344	N-05-S0002	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	336939mE 7710736mN Zone 50 [Reliable]	
36345	N-05-S0001	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	336843mE 7710714mN Zone 50 [Reliable]	
36346	O-05-S0001	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	337454mE 7710996mN Zone 50 [Reliable]	
36347	O-05-S0002	No	No	No Gender Restrictions	Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	337763mE 7710918mN Zone 50 [Reliable]	
36348	P-04-S0001	No	No		Lodged	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	338193mE 7711023mN Zone 50 [Reliable]	
38763	Wapet Shell Midden	No	No		Stored Data / Not a Site	Shell	*Registered Knowledge Holder names available from DPL	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 DPL	804815mE 7536655mN Zone 49 [Reliable]	

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40 Registered Aboriginal Sites in Shapefile - Consultation EMBA

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628	CAMP THIRTEEN BURIAL	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	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 DPL	348188mE 7741053mN Zone 50 [Reliable]	P07287
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 DPL	348289mE 7741005mN Zone 50 [Reliable]	P07286
6754	OSPREY BAY 6	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	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 DPL	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 DPL	794942mE 7544549mN Zone 49 [Reliable]	P06168
6760	BLOODWOOD CREEK SHORELINE	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	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 DPL	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 DPL	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 DPL	799042mE 7555649mN Zone 49 [Unreliable]	P06175

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6765	CAMP 17 NORTH MIDDENS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	799042mE 7555849mN Zone 49 [Unreliable]	P06176
6782	28 MILE CREEK NORTH 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	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 DPL	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 DPL	797242mE 7547449mN Zone 49 [Reliable]	P06145
6793	ROAD ALIGNMENT 1	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	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 DPL	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 DPL	791542mE 7530449mN Zone 49 [Reliable]	P06155
6800	OYSTER STACKS MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	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 DPL	792742mE 7538149mN Zone 49 [Reliable]	P06160

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6803	OSPREY BAY 2	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	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 DPL	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 DPL	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 DPL	785143mE 7445149mN Zone 49 [Unreliable]	P06132
7126	MESA CAMP	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	798442mE 7554749mN Zone 49 [Unreliable]	P05792
7206	WEALJUGOO MIDDEN.	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter, Camp, Hunting Place	*Registered Knowledge Holder names available from DPL	776584mE 7504740mN Zone 49 [Reliable]	P05710
7254	SANDY BAY NORTH	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	793442mE 7539949mN Zone 49 [Reliable]	P05652
7298	YARDIE CREEK ROCKSHELTERS	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	790635mE 7529704mN Zone 49 [Reliable]	P05644
7300	MANDU MANDU CK ROCKSHELTERS	Yes	Yes	No Gender Restrictions	Registered Site	Artefacts / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	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 DPL	798642mE 7554249mN Zone 49 [Reliable]	P05649

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

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ID	Name	File Restricted	Boundary Restricted	Restrictions	Status	Type	Knowledge Holders	Coordinate	Legacy ID
7304	PILGRAMUNNA BAY MIDDEN	No	No	No Gender Restrictions	Registered Site	Artefacts / Scatter, Midden / Scatter	*Registered Knowledge Holder names available from DPL	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 DPL	804142mE 7568149mN Zone 49 [Reliable]	P05651
10381	VLAMING HEAD	Yes	Yes	No Gender Restrictions	Registered Site	Ceremonial, Mythological	*Registered Knowledge Holder names available from DPL	Not available when location is restricted	P01799
17193	Ningaloo Station	No	No	No Gender Restrictions	Registered Site	Skeletal Material / Burial	*Registered Knowledge Holder names available from DPL	775891mE 7489149mN Zone 49 [Unreliable]	

Aboriginal Heritage Inquiry System

List of Other Heritage Places

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Search Criteria

No Other Heritage Places in Shapefile - JDP3_OA_update08022023

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.

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Coordinate Accuracy

Coordinates (Easting/Northing metres) are based on the GDA 94 Datum. Accuracy is shown as a code in brackets following the coordinates.

Aboriginal Heritage Inquiry System

List of Registered Aboriginal Sites

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Search Criteria

No Registered Aboriginal Sites in Shapefile - JDP3_OA_update08022023

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APPENDIX E. NOPSEMA REPORTING FORMS

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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/N-03000-FM0831-Report-of-an-Accident-Dangerous-Occurrence-or-Environmental-Incident-Rev-8-Jan-2015-MS-Word-2010.docx

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APPENDIX F. CONSULTATION

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Appendix F

Julimar Development Project Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan

- **Table 1: Assessment of Relevance**
- **Consultation Activities**
- **Table 2: Consultation Report with Relevant Persons or Organisations**
- **Table 3: Engagement Report with Persons or Organisations Assessed as Not Relevant**
- **Record of Consultation**

Date: May 2024

Revision: 2

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APPENDIX F

RELEVANCY ASSESSMENT

Assessment of Relevant Persons for the Proposed Activity

The result of Woodside's assessment of relevant persons in accordance with regulation 25 of the Environment Regulations is outlined below at **Table 1** and **Table 2**.

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

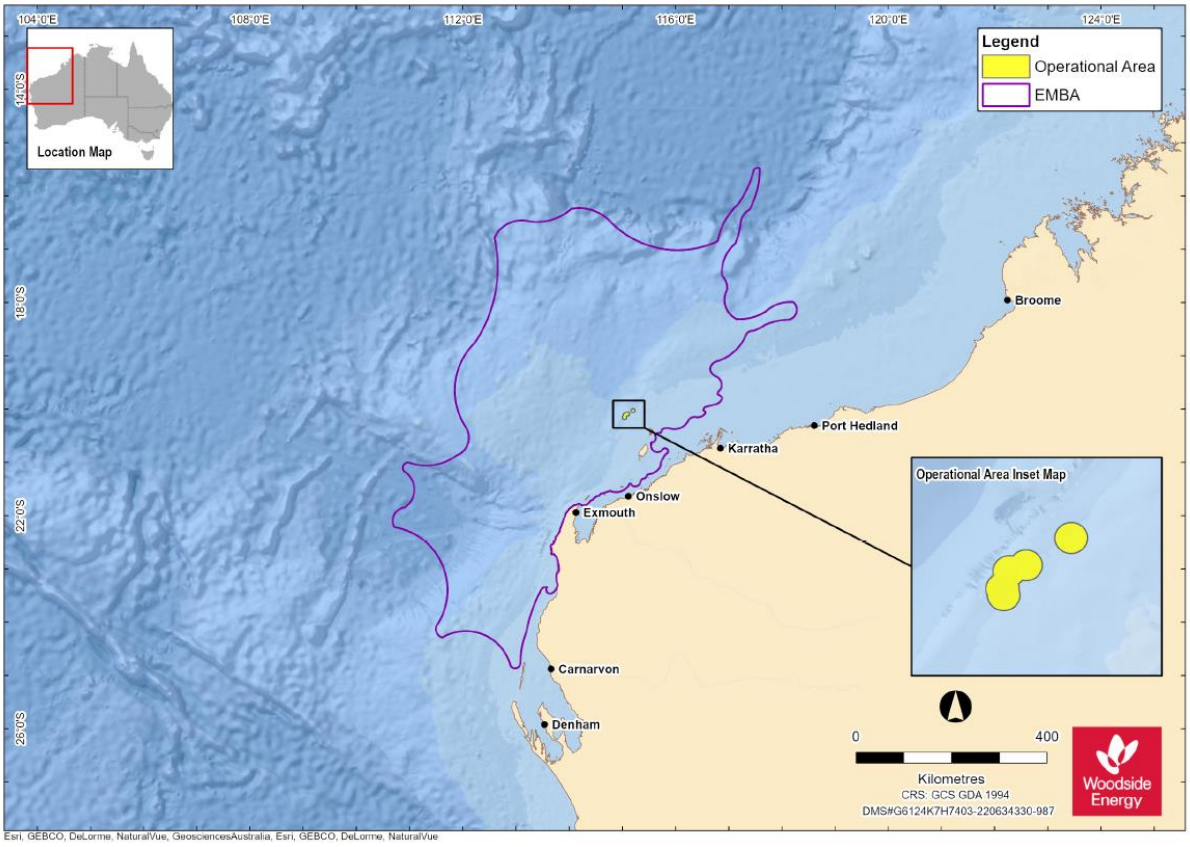

Figure 1: Operational Area and EMBA for this EP**.**

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Table 1: Assessment of relevance

Person or Organisation	Summary of 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 25(1)(a) of the Environment Regulations. ABF's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes
Australian Fisheries Management Authority (AFMA)	Responsible for managing Commonwealth fisheries	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. The North West Slope and Trawl Fishery is active in the Operational Area and EMBA, and the Western Deepwater Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. AFMA's functions may be relevant to the activity as North West Slope and Trawl Fishery is active in the Operational Area and EMBA, and the Western Deepwater 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 25(1)(a) of the Environment Regulations. AHO's responsibilities may be relevant to the activity as there are proposed vessel activities.	Yes

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Person or Organisation	Summary of 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 25(1)(a) of the Environment Regulations. 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 25(1)(a) of the Environment Regulations. AMSA – Marine Pollution's responsibilities may be relevant to the activity as the proposed activity has a hydrocarbon spill risk which may require AMSA response in Commonwealth waters.	Yes
Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries	Responsible for implementing Commonwealth policies and programs to support agriculture, fishery, food and forestry industries	Woodside has applied its methodology for 'Government departments / agencies – marine' under regulation 25(1)(a) of the Environment Regulations. The North West Slope and Trawl Fishery is active in the Operational Area and EMBA, and the Western Deepwater Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. DAFF Fisheries' responsibilities may be relevant to the activity as North West Slope and Trawl Fishery is active in the Operational Area and EMBA, and the Western Deepwater 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 25(1)(a) of the Environment Regulations. DoD's responsibilities may be relevant to the activity as defence training areas lie within the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Department of Primary Industries and Regional Development (DPIRD)	Responsible for managing State fisheries	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(b) of the Environment Regulations. The Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, 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 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery Land Hermit Crab Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne Demersal Scalefish Fishery, West Coast Rock Lobster Fishery, Nickol Bay Prawn Managed Fishery, Shark Bay Crab Managed Fishery, Shark Bay Prawn Managed Fishery, Shark Bay Scallop Managed Fishery, Pilbara Trawl Fishery, Pilbara Trap Fishery and Pilbara Line Fishery have been active in the EMBA within the last 5 years. DPIRD's responsibilities may be relevant to the activity as the government department responsible for State fisheries.	Yes
Department of Transport (DoT)	Legislated responsibility for oil pollution response in State waters	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(b) of the Environment Regulations. The proposed activity has a hydrocarbon spill risk, which may require DoT response in State waters.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 – environment' under regulation 25(1)(b) of the Environment Regulations. There are known Maritime Cultural Heritage overlapping the EMBA.	Yes
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 25(1)(d) of the Environment Regulations. There are known shipwrecks overlapping the EMBA which the Western Australian Museum may be responsible for.	Yes
Pilbara Ports Authority	Responsible for the operation of the Port of Dampier.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(b) of the Environment Regulations. The proposed activity does not have the potential to impact Pilbara Ports Authority's functions, interests or activities as the EMBA does not overlap the Pilbara Ports Authority's area of responsibility.	No
Commonwealth and WA State Government Departments or Agencies – Environment			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)	DAFF administers, implements and enforces the Biosecurity Act 2015. The Department requests to be consulted where an activity has the potential to transfer marine pests. 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. The Department requests to be consulted where an activity involves the movement of aircraft or vessels between Australia and offshore petroleum activities either inside or outside Australian territory.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. DAFF – Biosecurity's responsibilities may be relevant to the proposed activities in the EMBA in the prevention of introduced marine species.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Department of Climate Change, Energy, the Environment and Water (DCCEEW)	Responsible for implementing Commonwealth policies and programs to support climate change, sustainable energy use, water resources, the environment and our heritage. 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 25(1)(a) of the Environment Regulations. DCCEEW's 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

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Director of National Parks (DNP)	Responsible for the management of Commonwealth parks and conservation zones.	Woodside has applied its methodology for 'Government departments / agencies – environment' under regulation 25(1)(a) of the Environment Regulations. 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
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 25(1)(a) of the Environment Regulations. The NCWHAC's responsibilities may be relevant to the activity as the EMBA overlaps the Ningaloo Marine Park.	Yes
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 25(1)(b) of the Environment Regulations. The DBCA's responsibilities may be relevant to the activity as the 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)	Department of relevant Commonwealth Minister.	Required to be consulted under regulation 25(1)(a) of the Environment Regulations.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS) (formerly DMIRS)	Department of relevant State Minister	Required to be consulted under regulation 25(1)(c) of the Environment Regulations.	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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. 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).	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Western Deepwater Trawl Fishery	Commonwealth commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery does not overlap the Operational Area. The fishery overlaps 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 25(1)(d) of the Environment Regulations. Although the fishery overlaps the Operational Area and EMBA, it has not been active in the Operational Area or EMBA within the last 5 years. 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 25(1)(d) of the Environment Regulations. 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.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Commonwealth Fisheries Association (CFA)	Represents the interests of commercial fishers with licences in Commonwealth waters	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The North West Slope and Trawl Fishery is active in the Operational Area and EMBA, and the Western Deepwater Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA. CFA's functions may be relevant to the activity as North West Slope and Trawl Fishery is active in the Operational Area and EMBA, and the Western Deepwater Trawl Fishery and Western Tuna and Billfish Fishery are active in the EMBA.	Yes
Australian Southern Bluefin Tuna Industry Association (ASBTIA)	Represents the interests of the Southern Bluefin Tuna Fishery and Western Skipjack Fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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 in the EP 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. Woodside chose to contact ASBTIA at its discretion in line with Section 5.3.7.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. 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
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 25(1)(d) of the Environment Regulations. The Pearl Oyster Managed Fishery has been assessed as not relevant to the proposed activity. As the peak representative body for the Pearl Oyster Managed Fishery, the PPA has also been assessed as not relevant.	No
State Commercial fisheries and representative bodies			
Marine Aquarium Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. 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 2 and 3)	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. Area 2 of the fishery overlaps the Operational Area and has been active in the Operational Area within the last 5 year. Area 2 and 3 of the fishery overlap the EMBA and have been active in the EMBA within the last 5 years.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Pilbara Crab Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No
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 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Specimen Shell Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No
Abalone Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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 there to be a potential for interaction with this fishery given it is a dive and wade fishery with distribution to 5 m depth for Roe's abalone and 40 m depth for greenlip / brownlip abalone (DOF, 2011).	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Pearl Oyster Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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 there to be a potential for interaction with this fishery given fishing methods and location for species fished by licence holders (fishing effort is mostly focussed in shallow coastal waters of 10-15 m depth, with a maximum depth of 35 m) (Lulofs rt al. 2002).	No
Land Hermit Crab Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Onslow Prawn Managed Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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 Sea Cucumber Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and 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 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Gascoyne Demersal Scalefish Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	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 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	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 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No
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 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. 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 Area within the last 5 years but may have been active in the EMBA within the last 5 years. Further, Woodside has received advice from DPIRD that no contact details are available for this fishery.	No
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 25(1)(d) of the Environment Regulations. 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. Further, the fishery has not been an active fishery since 2008/09 (DPIRD).	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Demersal Scalefish Fishery: Pilbara Trawl Fishery Pilbara Trap Fishery Pilbara Line Fishery	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	No
	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.	Yes
	State commercial fishery	Woodside has applied its methodology for 'Commercial fisheries (Commonwealth and State) and peak representative bodies' under regulation 25(1)(d) of the Environment Regulations. The fishery overlaps the Operational Area and EMBA and has been active in the Operational Area and EMBA within the last 5 years.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. The Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, 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 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Land Hermit Crab Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne Demersal Scalefish Fishery, West Coast Rock Lobster Fishery, Nickol Bay Prawn Managed Fishery, Shark Bay Crab Managed Fishery, Shark Bay Prawn Managed Fishery, Shark Bay Scallop Managed Fishery, Pilbara Trawl Fishery, Pilbara Trap Fishery and Pilbara Line 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. Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting fisheries that are assessed as having a potential for interaction in the Operational Area directly. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario.	Yes

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Person or Organisation	Summary of 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 25(1)(d) of the Environment Regulations. The Western Rock Lobster Managed Fishery is active within the EMBA. The Western Rock Lobster Council's functions may be relevant to the activity as the Western Rock Lobster Managed Fishery is active in the EMBA. However, based on WAFIC's advice, Woodside does not need to consult fisheries in the EMBA. As per WAFIC's Commercial Fishing Consultation Framework for the Offshore Oil and Gas Sector and Consultation Approach for Unplanned Events, consultation with State fisheries relevant to the EMBA of the proposed activity would be undertaken only in the event of an unplanned emergency scenario. Woodside chose to contact Western Rock Lobster Managed Fishery at its discretion in line with Section 5.3.7 of the EP.	No
Recreational marine users and representative bodies			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. Andro Maritime Services Australia, Aquatic Adventure Exmouth, Birds Eye View, Blue Horizon Charters, Blue Lightning Charters,Cape Immersion Tours, Coastal Adventure Tours, Coral Bay Ecotours, Cruise Ningaloo, Dampier Island Tourism, Dive Ningaloo, Evolution Fishing Charters, Exmouth Adventure Co., Exmouth Dive Centre, Exmouth Fly Fishing, Exmouth Game Fishing Club, Indian Chief Charters, Innkeeper Sport Fishing Charter, Kings Ningaloo Reef Tours, Live Ningaloo, Mahi Fishing Charters, Montebello Island Safaris, Ningaloo Aviation, Ningaloo Blue, Ningaloo Coral Bay Boats, Ningaloo Discovery, Ningaloo Ecology Cruises, Ningaloo Fly Fishing, Ningaloo Marine Interaction, Ningaloo Reef Dive, Ningaloo Reef to Range Tours, Ningaloo Safari Tours, Ningaloo Sportfishing Charters, Ningaloo Whaleshark n Dive, Ningaloo Whaleshark Swim, Ocean Eco Adventures, On Strike Charters, Peak Sportfishing Charters, Pelican Charters, Sail Ningaloo, Sea Force Charters, Set the Hook, The Mobile Observatory, Three Islands, Top Gun Charters, Ultimate WaterSports, Venture Ningaloo, View Ningaloo, Warrior Princess Charters, Yardi Creek Boat Tours. 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

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. Silverado Charters Pty Ltd, Reel Force Charters Pty Ltd, D & N Nominees Pty Ltd, Lyons Family Super Pty Ltd, Seafresh Holdings Pty Ltd, Eco-Abrolhos Pty Ltd, C Emery Fishing Pty Ltd, On Strike Charters (Wa) Pty Ltd, Melkit Pty Ltd, Maritime Engineering Services Pty Ltd, G. C. Bass Nominees Pty Ltd, Brefjen Nominees Pty Ltd, W.A Maritime Investments Pty Ltd, Blue Juice Tours Pty Ltd, Surefire Marine Services Pty Ltd, Makalee Pty Ltd, L & S Family Holdings Pty Ltd, Bondall Pty Ltd, Kw Marine Pty Ltd, Sharkbay Charters Pty Ltd, Bluecity Enterprises Pty Ltd, Jostan Holdings Pty Ltd, Monkey Mia Yacht Charters Pty Ltd, On Strike Charters (Wa) Pty Ltd, Rainfield Pty Ltd, Monster Sportfishing Adventures Pty Ltd, Lulamanzi Investments Pty Ltd, Millennial Charters Pty Ltd, Chapel Nominees Pty Ltd, Regalchoice Holdings Pty Ltd, Fawesome Expeditions Pty Ltd, On Strike Charters (Wa) Pty Ltd, The Great Escape Charter Company Pty Ltd, Aoa International Pty Ltd, Fire Tiger Pty Ltd. 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

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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 25(1)(d) of the Environment Regulations. Willie Creek Pearl Farm Pty Ltd, Super Yachts Perth Pty Ltd, Silverado Charters Pty Ltd, Bloor Street Investments Pty Ltd, Lugger Enterprises Pty Ltd, Eco-Abrolhos Pty Ltd, C Emery Fishing Pty Ltd, Discovery Holiday Parks Pty Limited, Kimberley Marine Pty Ltd, Coral Princess Cruises (Nq) Pty Ltd, Marine Agents Australia Pty Ltd, Maritime Engineering Services Pty Ltd, G. C. Bass Nominees Pty Ltd, Coastway Investments Pty Ltd, Kcc Group Pty Ltd, Cm Ventures Pty Ltd, Lombadina Aboriginal Corporation, Australian Port And Marine Services Pty Ltd, Hartley Motorcycles Pty Ltd, Humbug Fishing Pty Ltd, Brefjen Nominees Pty Ltd, Melkit Pty Ltd, W.A Maritime Investments Pty Ltd, Blue Juice Tours Pty Ltd, Kw Marine Pty Ltd, L & S Family Holdings Pty Ltd, Bondall Pty Ltd, Lake Argyle Cruises Pty Ltd, Sealife Charters Pty Ltd, Mal Miles Adventures Pty Ltd, Mackerel Islands Pty Ltd, Diversity Charter Company Wa Pty Ltd, Split Tide Pty Ltd, Broome Tours Pty Ltd, North Star Cruises Australia Pty Ltd, Charter Express Pty Ltd, Sea 2 Pty Ltd, Hotel And Resort Investments Pty Ltd, L & S Family Holdings Pty Ltd, Down The Line Charters Pty Ltd, Kingfisher Island Resort Pty Ltd, Rstg Pty Limited, Sealife Charters Pty Ltd, Coral Princess Cruises (Nq) Pty Ltd, Kimberley Quest Adventures Pty Ltd, Monster Sportfishing Adventures Pty Ltd, Ocean Charters Pty Ltd, Lulamanzi Investments Pty Ltd, Millennial Charters Pty Ltd, Chapel Nominees Pty Ltd, Fawesome Expeditions Pty Ltd, The Great Escape Charter Company Pty Ltd, Aoa International Pty Ltd, Kimberley Getaway Cruises Pty Ltd, King Sound Resort Hotel Pty. 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 25(1)(d) of the Environment Regulations. Nickol Bay Sport Fishing Club, Archipelago Adventures, Hampton Harbour Boat & Sailing Club, King Bay Game Fishing Club, Marine Rescue Dampier, Port Walcott	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
		Volunteer Marine Rescue, Port Walcott Yacht Club, Reef Seeker Charters, West Pilbara Volunteer Sea Search and Rescue Group. 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.	
Recfishwest	Represents the interests of recreational fishers in WA.	Woodside has applied its methodology for 'Recreational marine users and representative bodies' under regulation 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Chevron Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Carnarvon Energy	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Osaka Gas Gorgon	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Vermillion Oil & Gas Australia	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Finder No 16	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Bounty Oil and Gas	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
KATO Energy / KATO Corowa	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Longreach Capital Investments / Beagle No. 1 Pty Ltd	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
JX Nippon O&G Exploration (Australia)	Titleholder or Operator	Woodside has applied its methodology for 'Titleholders and Operators' under regulation 25(1)(d) of the Environment Regulations. Titleholder or Operator's permit areas overlaps the EMBA.	Yes
Peak Industry Representative bodies			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Australian Energy Producers (AEP) *(formerly 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 25(1)(d) of the Environment Regulations. AEP's responsibilities are identified as having an intersect with Woodside's planned activities in the EMBA.	Yes
Traditional Custodians			
Murujuga Aboriginal Corporation (MAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The EMBA does not overlap and is not coastally adjacent to a native title claim, determination or ILUA held by MAC. The EMBA does not overlap the Murujuga National Park. Under regulation 25(1)(e) of the Environment Regulations, Woodside, at its discretion, chose to assess MAC as a relevant person. 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 nomination of the Murujuga Cultural Landscape.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The EMBA overlaps the Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim/determination area, which the Baiyungu, Thalanyji and Yinggarda people are party to. The NTGAC and YAC are the Registered Native Title Body Corporates holding native title on behalf of the Baiyungu, Thalanyji and Yinggarda people. The NTGAC is also party, with the WA State Government, to the Ningaloo Conservation Estate Indigenous Land Use Agreement (the ILUA), which overlaps the EMBA. The NTGAC is responsible for the joint management of the inner Ningaloo Marine Park (State Waters), the Cape Range National Park and new conservation areas extending along the Ningaloo Coast, which runs in parallel to the outer Ningaloo Marine Park in Commonwealth waters. The NTGAC is also party to the Gnarloo ILUA which is coastally adjacent to the EMBA. The 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

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Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The Thalanyji native title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, which BTAC is the Registered Native Title Body Corporate for. BTAC is also party to the Macedon ILUA which is coastally adjacent to the EMBA.	Yes
Yinggarda Aboriginal Corporation (YAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The EMBA overlaps the Gnulli, Gnulli #2 and Gnulli #3 - Yinggarda, Baiyungu and Thalanyji People native title claim/determination area, which the Baiyungu, Thalanyji and Yinggarda people are party to. The NTGAC and YAC are the Registered Native Title Body Corporates holding native title on behalf of the Baiyungu, Thalanyji and Yinggarda people. The YAC is party to the Brickhouse and Yinggarda Aboriginal Corporation ILUA and the Quobba – Yinggarda Pastoral ILUA, which are coastally adjacent to the EMBA. The Yinggarda Aboriginal Corporations nominated representative is Gumala Aboriginal Corporation.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Kariyarra Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The Kariyarra native title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, which the Kariyarra Aboriginal Corporation is the Registered Native Title Body Corporate for. The Kariyarra Aboriginal Corporation is also party to the Kariyarra and State ILUA, which is coastally adjacent to the EMBA.	Yes
Wirrawandi Aboriginal Corporation (WAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The EMBA overlaps the Yaburara & Mardudhunera People native title claim, which WAC is the Registered Native Title Body Corporate for. WAC is party to the KM & YM Indigenous Land Use Agreement 2018, Cape Preston Project Deed (YM Mardie ILUA) and Cape Preston West Export Facility which are coastally adjacent to the EMBA.	Yes
Robe River Kuruma Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The Robe River Kuruma Aboriginal Corporation is party to the KM & YM Indigenous Land Use Agreement 2018 and RTIO Kuruma Marthudunera People ILUA, which is coastally adjacent to the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Ngarluma Aboriginal Corporation (NAC)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The Ngarluma People native title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, which NAC is the Registered Native Title Body Corporate for. The Ngarluma/Yindjibarndi People native title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Body Corporates for. NAC is also party to the RTIO Ngarluma ILUA (Body Corporate Agreement) and Anketell Port, Infrastructure Corridor and Industrial Estates Agreement, which are coastally adjacent to the EMBA.	Yes
Yindjibarndi Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The Ngarluma/Yindjibarndi People native title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, which NAC and the Yindjibarndi Aboriginal Corporation are the Registered Native Title Body Corporates for.	Yes
Wanparta Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The Ngarla and Ngarla #2 (Determination Area A) native title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, which the Wanparta Aboriginal Corporation is the Registered Native Title Body Corporate for. The Wanparta Aboriginal Corporation is also party to the Ngarla Pastoral ILUA, which is coastally adjacent to the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Malgana Aboriginal Corporation	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. The Malgana Part A native title claim does not overlap the EMBA. The claim is coastally adjacent to the EMBA, which the Malgana Aboriginal Corporation is the Registered Native Title Body Corporate for.	Yes
Native Title Representative Bodies			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Yamatji Marlpa Aboriginal Corporation (YMAC)	Native Title Representative Body	Woodside has applied its methodology for 'Traditional Custodians' under regulation 25(1)(d) of the Environment Regulations. 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 rights and interests of an Indigenous Community but exist to assist native title claimants and holders. YMAC is identified in Commonwealth and State Marine Park Management Plans which overlap the EMBA as the Native Title Representative Body. The NTGAC and YAC's nominated representative is 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. 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 as the NTGAC and YAC's nominated representative.	Yes
Self-identified First Nations groups			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Ngarluma Yindjibarndi Foundation Ltd (NYFL)	Representative Aboriginal Corporation	Woodside has applied its methodology for 'Traditional Custodians and Nominated Representative Corporations' under regulation 25(1)(d) of the Environment Regulations. The Ngarluma and Yindjibarndi People, the NWS JVs and Woodside entered into an agreement on 22 December 1998 (Agreement). NYFL was subsequently incorporated under the terms of the Agreement to act as trustee for the trust established to benefit the Ngarluma and Yindjibarndi People and the Roebourne Aboriginal Community. Subsequent to that, the Ngarluma people settled their native title claim and established their nominated representative corporation, the Ngarluma Aboriginal Corporation (PBC); and the Yindjibarndi people settled their native title claim and established their nominated representative corporation, the Yindjibarndi Aboriginal Corporation (PBC). The Ngarluma Aboriginal Corporation and the Yindjibarndi Aboriginal Corporation are the appropriate representative bodies for consultation in relation to cultural interests. NYFL's functions may be relevant to the proposed activity in relation to its functions under the Agreement.	Yes
Local government and community representative groups or organisations			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Shire of Exmouth	Local government governed by the Local Government Act 1995 representing the suburbs and localities of Exmouth, Learmonth and North West Cape.	Woodside has applied its methodology for 'Local government and community representative groups or organisations' under regulation 25(1)(d) of the Environment Regulations. The Shire of Exmouth's area of responsibility overlaps the EMBA.	Yes
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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. The City of Karratha's area of responsibility overlaps the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. The Town of Port Hedland's area of responsibility overlaps the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Exmouth Community Liaison Group (CLG)	The Exmouth CLG 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 25(1)(d) of the Environment Regulations. Members are 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 CLG's area of responsibility under its terms of reference overlaps the EMBA.	Yes

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Karratha Community Liaison Group	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 25(1)(d) of the Environment Regulations. The KLG's area of responsibility under its terms of reference does not overlap the EMBA. Members are 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 **NYFL and MAC were consulted directly as described above.* Under regulation 25(1)(e) of the Environment Regulations, 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 25(1)(d) of the Environment Regulations. The Onslow Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes

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Person or Organisation	Summary of 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 25(1)(d) of the Environment Regulations. 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 25(1)(d) of the Environment Regulations. The Carnarvon Chamber of Commerce and Industry's interests have the potential to be impacted by the proposed activities.	Yes
Other non-government groups or organisations			
Australian Conservation Foundation (ACF)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations 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 of the EP). Woodside chose to contact ACF at its discretion in line with Section 5.3.7 of the EP.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Australian Marine Conservation Society (AMCS)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine ACF'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 of the EP). Woodside chose to contact AMCS at its discretion in line with Section 5.3.7 of the EP.	No
Conservation Council of Western Australia (CCWA)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine CCWA's relevance for the proposed activity. 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 of the EP). Woodside chose to contact CCWA at its discretion in line with Section 5.3.7 of the EP.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Greenpeace Australia Pacific (GAP)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine GAP's relevance for the proposed activity. 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 of the EP). Woodside chose to contact GAP at its discretion in line with Section 5.3.7 of the EP.	No
350 Australia (350A)	Non-government organisation	Woodside has applied its methodology for 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine 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 of the EP). Woodside chose to contact 350A at its discretion in line with Section 5.3.7 of the EP.	No
Research institutes and local conservation groups or organisations			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
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 25(1)(d) of the Environment Regulations 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 25(1)(d) of the Environment Regulations 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 25(1)(d) of the Environment Regulations 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 5.3.7 of the EP.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Western Australian Marine Science Institution (WAMSI)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine UWA Ocean Institute's relevance for the proposed activity. There is no known research being undertaken by the WAMSI that intersects within the EMBA. Woodside chose to contact WAMSI at its discretion in line with Section 5.3.7 of the EP.	No
Commonwealth Scientific and Industrial Research Organisation (CSIRO)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine UWA Ocean Institute's relevance for the proposed activity. There is no known research being undertaken by the CSIRO that intersects within the EMBA. Woodside chose to contact CSIRO at its discretion in line with Section 5.3.7 of the EP.	No

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Australian Institute of Marine Science (AIMS)	Research institute	Woodside has applied its methodology for 'Research institutes and local conservation groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine UWA Ocean Institute's relevance for the proposed activity. There is no known research being undertaken by the AIMS that intersects within the EMBA. Woodside chose to contact AIMS at its discretion in line with Section 5.3.7 of the EP.	No
Other			

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Person or Organisation	Summary of functions, interests or activities	Assessment of relevance	Relevant person
Save Our Songlines (SOS) and/ or individuals [name redacted] and/ or [name redacted]	Representatives of non-government organisation Save Our Songlines and/ or individuals [name redacted] and/ or [name redacted]	Woodside has applied its methodology for 'Traditional Custodians and nominated representative corporations' and 'Other non-government groups or organisations' under regulation 25(1)(d) of the Environment Regulations to determine Save Our Songlines (SOS) and/ or [name redacted] and/ or [name redacted] relevance for the proposed activity. Save Our Songlines and/ or [name redacted] and/ or [name redacted] stated interest is to stop or pause Scarborough gas and to stop new industry on the Burrup; and oppose planned expansion of the Burrup Hub industry by Woodside, Perdaman and Yara. In addition, their stated interests also include the protection of Murujuga rock art. This scope of the activity under this EP does not fall within their stated interests (see **Section 6.6.6** in the EP). Save Our Songlines and/ or [name redacted] and/ or [name redacted] have not identified for this activity despite opportunity to do so.	No

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CONSULTATION ACTIVITIES

Julimar Development Project Phase 3 (JDP3) Drilling and Subsea Installation EP Consultation Activities

Woodside has been conducting extensive consultation with relevant persons and other parties for this EP since May 2023 when consultation commenced with interested and affected stakeholders as part of a planned, integrated and consistent approach to stakeholder engagement for Woodside's proposed opportunities. A broad consultation process has been undertaken with relevant persons for the JDP3 Drilling and Subsea Installation EP. Consultation aims to be inclusive, transparent, voluntary, respectful and two-way. Consultation was undertaken by email, letter, phone call and/or meeting.

- Woodside advertised the planned activities proposed for this EP in national, state and relevant local newspapers including The Australian, The West Australian, Pilbara News, Midwest Times and North West Telegraph (26 April 2023) (see **Record of Consultation, reference 1.51**). 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** of the EP), which included details such as an activity overview, maps, a summary of key risks and/or impacts and management measures (**Record of Consultation, reference 1.52**).
- Since the commencement of the initial consultation period (April 2023), the stakeholder Consultation Information Sheet has been available on Woodside's website (**Record of Consultation, reference 1.52**). The Woodside Consultation 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 (**Record of Consultation, reference 1.6**). This information included maps and additional information relevant to the specific category of persons. The relevant persons had a 30-day period in which to provide feedback.
- Where appropriate, Woodside conducted phone calls and meetings with relevant persons.
- Where appropriate, targeted follow-up emails were sent to relevant persons who had not provided a response prior to the close of the target feedback period.
- Woodside considered relevant person record of consultation and assessed the merits and relevance of objections and claims about the potential adverse impact of the proposed

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activity set out in the EP, in accordance with the intended outcome of consultation (see **Section 5.2** of the EP).

- Consultation activities undertaken with relevant persons are summarised at **Table 2**.
- Engagement undertaken with persons or organisations Woodside assessed as not relevant but chose to contact (see **Section 5.3.4** of the EP) or self-identified and Woodside assessed as not relevant are summarised at **Table 3**.
- From May to September 2023, Woodside commenced geotargeted sponsored social media campaigns (**Record of Consultation, reference 2.33**) to various local government authorities 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

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and advised persons or organisations on how they can find out about Woodside's proposed activities by visiting Woodside's website.

Platform	Geotargeted Reach	Post Dates	Impact
Facebook	**Regional**: Users 18+ located within 80kms of Carnarvon, Denham, Exmouth, Onslow, Port Hedland, and Karratha	22 August 2023 – 11 September 2023	**Reach**: 240,329 **Frequency**: 3.02 **Impressions**: 726,563 **Clicks**: 1941 **Click Through Rates%**: 0.27%
Instagram	**Regional**: Users 18+ located within 80kms of Carnarvon, Denham, Exmouth, Onslow, Port Hedland, and Karratha	22 August 2023 – 11 September 2023	**Reach**: 114,372 **Frequency**: 2.53 **Impressions**: 288,810 **Clicks**: 257 **Click Through Rates%**: 0.09%

- From June 2023, Woodside held a number of Community information sessions where this EP's Consultation Information Sheets were available and discussed. See tables in **Record of Consultation, reference 2.34, 2.35** and **2.37**.

Date (2023)	Location	Event (if applicable)
17 June	Exmouth	PHI Helicopters Community Open Day
22 June	Roebourne	
28 and 29 June	Karratha	
19 July	Roebourne	
5 and 6 August	Karratha	FeNaCING
18 August	Onslow	Passion of the Pilbara Festival
18, 19 and 20 September	Karratha, Port Hedland and Roebourne	Community Consultation Roadshow
10 and 11 October	Karratha	Pilbara Summit 2023
16 and 17 October	Carnarvon and Denham	Community Consultation Roadshow
23 October	Exmouth	Community Consultation Roadshow

Traditional Custodian Specific Consultation

In addition to the approaches above including community information sessions, additional activities were undertaken with relevant Traditional Custodians, which were specifically designed to provide for effective engagement with Traditional Custodians and so that information was provided in a form that was readily accessible and appropriate (**Section 5.5**)

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Consultation undertaken specifically with Traditional Custodians for this Environment Plan includes:

- 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
  - Summary Consultation Information Sheet, developed and reviewed by Indigenous representatives in collaboration with technical experts to ensure content is appropriate to the intended recipients, was provided to relevant Traditional Custodian groups (**Record of Consultation, reference 1.53**). 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 (**Record of Consultation, reference 1.52**) and Summary Consultation Information Sheets (**Record of Consultation, reference 1.53**)
  - 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 (**Record of Consultation, reference 2.33**) 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 campaign reached around 106,500 people and was viewed close to a million times to date across various regions as shown in **Record of Consultation, reference 2.33**.
  - These social media posts were developed with input from Indigenous representatives. Social media is a highly effective means to engage Indigenous

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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.

Woodside has employed a diverse range of techniques to allow relevant persons to become aware of the proposed activity and how it may affect their functions, activities or interests, and to understand their ability to provide feedback. The combination of PBC 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.

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Table 2: Consultation Report with Relevant Persons or Organisations

Commonwealth and WA State Government Departments or Agencies – Marine		
Australian Border Force (ABF)		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with ABF for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Consultation Information provided to ABF on 1 May 2023 based on their functions, interests or activities. • Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback. • Woodside has sent follow up emails seeking feedback on the proposed activities. • Woodside has provided the ABF with the opportunity to provide feedback over a 12 month period. **Summary of consultation provided and record of consultation:** • On 1 May 2023, Woodside emailed ABF advising of the proposed activity (Record of Consultation, reference 1.1) and provided a Consultation Information Sheet. • On 30 May 2023, Woodside emailed ABF following up on the proposed activity (Record of Consultation, reference 2.4) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received, after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	Woodside has addressed maritime security-related issues in Section 6 of this EP based on previous offshore activities. Woodside considers the measures and controls in the EP address ABF's functions, interests or activities. No additional measures or controls are required.
Australian Fisheries Management Authority (AFMA)		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AFMA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: • Consultation Information Sheet publicly available on the Woodside website since April 2023.		

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- Consultation Information provided to AFMA on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has addressed and responded to AFMA over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed AFMA advising of the proposed activity (Record of Consultation, reference 1.8) and provided a Consultation Information Sheet.
- **(1)** On 25 May 2023, AFMA emailed Woodside advising they had no specific comments on the proposal and noted, if Woodside had not already done so, to engage directly with relevant fishing stakeholders, including CFA and the Northern Prawn Fishery, to determine any direct impacts or concerns they may have with the proposal.
- On 9 June 2023, Woodside replied to AFMA thanking them for its feedback and confirming that Woodside had provided consultation information to the CFA. Woodside noted however, with respect to AFMA's advice that Woodside should provide consultation information to Northern Prawn Fishery, that the management area is 1,028 km from the JDP3 EMBA. Woodside advised it does not consider there to be a potential for interaction with the fishery and has not consulted it.
- **(2)** On 9 June 2023, AFMA advised that there is cross over between concession holders in the Northern Prawn Fishery and the Northwest Slope Trawl Fishery, and noted the CFA will also alert them of the work so should be ok.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
(1) AFMA has requested Woodside consult with relevant fishing stakeholders, including CFA and the Northern Prawn Fishery. **(2)** AFMA noted that there was cross over between concession holders in the Northern Prawn Fishery and the Northwest Slope Trawl Fishery, and the CFA will also alert them. Whilst feedback has been received, there were no objections or claims.	**(1)** Woodside has addressed AFMA's request to consult with Northern Prawn Fishery and noted that the management area is 1,028 km from the JDP3 EMBA. As such, Woodside advised it did not consider there to be a potential for interaction with the fishery and has not consulted it. **(2)** Woodside has consulted 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 further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	**(1,2)** Woodside has assessed the potential for interaction with Commonwealth fisheries in Section 4.10 of this EP. **(1,2)** Woodside will provide notifications to AFMA, DAFF - Fisheries, CFA Tuna Australia and relevant individual Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Australian Hydrographic Office (AHO)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AHO for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to AHO on 1 May 2023 based on their functions, interests or activities.

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- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has addressed and responded to AHO over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed AHO advising of the proposed activity (Record of Consultation, reference 1.6) and provided a Consultation Information Sheet and shipping lane map (Record of Consultation, reference 1.5).
- **(1)** On 2 May 2023, AHO emailed Woodside and acknowledged receipt of the data supplied and it will be updated in Navigational Charting products.
- On 30 May 2023, Woodside sent a reminder email to AHO advising of the proposed activity (Record of Consultation, reference 2.9) and provided a Consultation Information Sheet and shipping lane map.
- **(1)** On 30 May 2023, the AHO responded acknowledging receipt of Woodside's email.
- On 4 September 2023, Woodside emailed AHO informing it that in accordance with feedback provided by AMSA for this EP, Woodside confirms it will:
- Notify the AHO no less than 4 weeks before operations commence in order to promulgate a Notice to Mariners.
- Provide an update to the AHO on any material changes to planned activities.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) AHO responded and acknowledged receipt of Woodside's consultation email. Whilst feedback has been received, there were no objections or claims.	**(1)** Woodside notes that AHO has acknowledged receipt of consultation information. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	**(1)** Not required. Woodside will notify the AHO no less than four working weeks before activities commence, as referenced as a PS 1.5 in this EP. Woodside considers the measures and controls in the EP are appropriate. No additional measures or controls are required.

Australian Maritime Safety Authority (AMSA) - Marine Safety

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AMSA – Marine Safety for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to AMSA – Marine Safety on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has addressed and responded to AMSA – Marine Safety over a 12 month period.

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Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed AMSA – Marine Safety advising of the proposed activity (Record of Consultation, reference 1.6) and provided a Consultation Information Sheet and shipping lane map (Record of Consultation, reference 1.55).
- **(1)** On 8 May AMSA – Marine Safety emailed Woodside requesting for notifications to AMSA's Rescue Centre (ARC) 24-48 hours before operations commence. AMSA also requested that AHO be contacted no less than four working weeks before operations commence.
- On 30 May 2023, Woodside sent a reminder email to AMSA – Marine Safety advising of the proposed activity (Record of Consultation, reference 2.9) and provided a Consultation Information Sheet and shipping lane map.
- **(2)** On 30 May 2023, AMSA – Marine Safety emailed Woodside about notification requirements to the Joint Rescue Coordination Centre (JRCC) at least 24-48 hours before operations commence and vessel collision avoidance measures.
- On 15 June 2023, Woodside emailed AMSA - Marine Safety to thank them for their feedback and confirmed notifications would be sent to AHO, AMSA and AMSA's JCCC. Woodside also responded to vessel collision avoidance measures.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
AMSA has provided feedback and requested that: **(1)** AMSA's Rescue Centre (ARC) and Joint Rescue Coordination Centre (JRCC) be notified at least 24–48 hours before operations commence; **(1)** the AHO be contacted no less than four working weeks before operations commence for the promulgation of related notices to mariners; **(2)** all vessels exhibit appropriate lights and shapes to reflect the nature of operations; and **(2)** all vessels comply with the International Rule for Preventing Collisions at Sea. Whilst feedback has been received, there were no objections or claims.	Woodside has addressed AMSA – Marine Safety's requests and proposed updated notification protocols given ongoing nature of activities during the life of the EP. **(1)** Woodside will notify: • AMSA's JRCC where vessel activities are undertaken for more than three weeks at a time in the Operational Area • Notification at least 24-48 hours before activity commencement • Notify AHO with details relevant to the operations, to enable them to generate a temporary Maritime Safety Information Notifications (MSIN) and temporary Notice to Mariners (NTM) for activities to be undertaken for more than three weeks at a time in the Operational Area **(2)** Woodside confirmed 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. Woodside engages in ongoing consultation throughout the life of an EP. Woodside notes that further feedback may be received as part of ongoing consultation. Should further feedback be received, it will be assessed and,	**(1)** Woodside will notify AMSA's Response Centre (ARC) at least 24–48 hours before operations commence for each survey, as referenced as PS 1.7 in this EP. **(1)** Woodside will notify the AHO no less than four working weeks before operations commence, as referenced as a PS 1.5 in this EP. **(2)** The EP contains a number of controls that address AMSA's feedback on lighting and compliance with the international rule for preventing collisions at sea, specifically safety zones are established (temporarily around the MODU and permanently around the facility), vessels are required to comply with marine orders and the facility's collision prevention system will be implemented. Woodside considers the measures and controls in the EP are appropriate. No additional measures or controls are required.

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	where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	

Australian Maritime Safety Authority (AMSA) – Marine Pollution

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AMSA – Marine Pollution for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to AMSA – Marine Pollution on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided AMSA – Marine Pollution with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed AMSA – Marine Pollution and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.7).
- On 30 May 2023, Woodside sent a reminder email to AMSA – Marine Pollution advising of the proposed activity (Record of Consultation, reference 2.10) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	Woodside has addressed oil pollution planning and response at Appendix H. No additional measures or controls are required.

Department of Agriculture, Fisheries and Forestry (DAFF) – Fisheries

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DAFF - Fisheries for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.

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- Consultation Information provided to DAFF – Fisheries and Biosecurity on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided DAFF – Fisheries and Biosecurity with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DAFF – Fisheries and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.16).
- **(1)** On 9 May 2023, DAFF – Fisheries emailed Woodside advising of the requirement to manage biosecurity risk to conveyances, drawing attention to the requirements under the Biosecurity Control Act 2015, and the mechanism for exemption under the Biosecurity (Exposed Conveyances – Exceptions from Biosecurity Control) Determination 2016. DAFF also outlined specified timeframes for pre-arrival reporting using the Maritime and Aircraft Reporting System (MARS), and for submission of the supplied "Questionnaire for Biosecurity Exemptions for Biosecurity Control Determination".
- On 21 June 2023, Woodside responded to DAFF – Fisheries and advised that it recognises the requirements notes the specified timeframes and for submission of the supplied questionnaire. Woodside also advised it will not be the operator of the survey vessels described in the EP.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) DAFF provided feedback about biosecurity risk management, reporting and submission requirements. Whilst feedback has been received, there were no objections or claims.	**(1)** Woodside has addressed DAFF's feedback noting its requirements for biosecurity risk management and reporting and submission requirements. Woodside has consulted AFMA, DAFF - Fisheries, CFA 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 7.8 of this EP).	**(1)** 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 6.8.11 of the EP). Woodside has assessed the potential for interaction with Commonwealth fisheries in Section 4.10.1 of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA Tuna Australia and relevant individual Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area prior to the

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		commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Department of Defence (DoD)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DoD for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to DoD on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the DoD with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DoD and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.18).
- On 30 May 2023, Woodside sent a reminder email to DoD advising of the proposed activity (Record of Consultation, reference 2.16) and provided a Consultation Information Sheet.
- On 5 July 2023, DoD emailed Woodside advising that:
    - **(1)** The activity areas are located within Defence training area and restricted airspace.
    - (**2**) Unexploded ordnance (UXO) that may be present on and in the seafloor, and that Woodside must inform itself as to the risks associated with conducting activities in that area, with the Commonwealth of Australia taking no responsibility for reporting the UXO in the area, identifying or removing UXO from the area, or any loss or damage suffered or incurred by Woodside or any third party arising out of, or directly related to, UXO in the area.
    - (**3**) DoD requested Woodside's continued liaison with the Australian Hydrographic Service/Office (AHO) for Notices to Mariners (NOTMAR) and to ensure the AHO is notified > three weeks prior to the commencement of activities.
- On 24 October 2023, Woodside emailed DoD thanking them for their feedback.
    - Woodside noted the DoD's advice on the location of the operational area being within Defence training area and restricted airspace.
    - Woodside also noted the advice with respect to the location, identification, removal, or damage to equipment from unexploded ordinances (UXOs).
    - Woodside confirmed it notes the requirement and contact details provided by the Department of Defence to engage with Australian Hydrographic Service for Notices to Mariners.
    - Woodside has already engaged AHO for this activity and is included in Woodside's activity notification protocols. Woodside will notify the AHO four weeks prior to commencement of activities.

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Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
DoD provided feedback on: **(1)** The location of exercise areas and restricted airspace. **(2)** The risk of unexploded ordnance (UXO) in the area. **(3)** The need for Woodside to continue liaison with AHO and ensure AHO is notified three weeks prior to the actual commencement of activities.	Woodside assessed DoD's feedback and confirmed: **(1)** It had noted DoD's advice on the location of activity areas within an exercise area and restricted airspace. **(2)** It had noted the DoD's advice with respect to the risk, location, identification, removal or damage from UXO. **(3)** Woodside will notify the AHO, at its request, four weeks prior to the commencement of activities (PS 1.5 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 7.8 of this EP).	**(1)** Not required. **(2)** Not required. **(3)** Woodside will notify the AHO no less than four working weeks before operations commence as referenced as PS 1.5 in this EP. Notifying the AHO provides DoD with information of the PAP through maritime safety information. Woodside considers the measures and controls in the EP are appropriate. No additional measures or controls are required.
Department of Primary Industries and Regional Development (DPIRD)		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DPIRD for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Consultation Information provided to DPIRD on 1 May 2023 based on their functions, interests or activities. • Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback. • Woodside has sent follow up emails seeking feedback on the proposed activities. • Woodside has provided DPIRD with the opportunity to provide feedback over a 12 month period. **Summary of consultation provided and record of consultation:** • On 1 May 2023, Woodside emailed DPIRD and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.3). • On 30 May 2023, Woodside emailed DPIRD following up on the proposed activity (Record of Consultation, reference 2.6) and provided a Consultation Information Sheet. • **(1)** On 6 June 2023, DPIRD emailed Woodside to advise they had no comments on the EP at this stage. • On 8 June 2023, Woodside emailed DPIRD to thank them for their response.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**

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(1) DPIRD advised they had no comments. Whilst feedback has been received, there were no objections or claims.	**(1**) Woodside notes that DPIRD has advised it has no comments on the EP at this stage Woodside has consulted 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 7.8 of this EP).	**(1)** Not required. Woodside has assessed the relevancy of State fisheries in Section 4.10.1 of this EP. Woodside will provide notifications to DPIRD and WAFIC prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Department of Transport (DoT)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DoT for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to DoT on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the DoT with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DoT and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.1).
- On 30 May 2023, Woodside emailed DoT following up on the proposed activity (Record of Consultation, reference 2.4) and provided a Consultation Information Sheet.
- On 24 July 2023, Woodside emailed DoT inviting it to comment on the activity and provided a copy of the Oil Pollution First Strike Plan.
- **(1)** On 30 August 2023, DoT emailed Woodside to advise that it had reviewed the materials sent and it does not have any comment on the proposed activities.
- On 4 September 2023, Woodside emailed DoT thanking them for the confirmation email.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
(1) DoT advised that it had reviewed the materials sent and had no comment on the proposed activities.	**(1)** Woodside notes that DoT has advised it has no comments on the proposed 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	**(1)** Not required. No additional measures or controls are required.

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Whilst feedback has been received, there were no objections or claims.	assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	

Department of Planning, Lands and Heritage (DPLH)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DPLH for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to DPLH on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the DPLH with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DPLH and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.21).
- **(1)** On 16 May 2023, DPLH emailed Woodside and advised it does not have comments on the proposed activities.
- On 18 May 2023, Woodside emailed DPLH to thank them for their feedback.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) DPLH advised it had no comments on the proposed activities. Whilst feedback has been received, there were no objections or claims.	**(1)** Woodside notes that DPLH has advised it has no comments on the proposed 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 7.8 of this EP).	**(1)** Not required. 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 4.9.6 of this EP). 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 6.8.2**,** Section 6.8.3, Section 6.8.4 and Section 6.8.5 of this EP. No additional measures or controls are required.

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Western Australian Museum

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with WA Museum for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to the WA Museum on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the WA Museum with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed WA Museum and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.34) and a list of State Shipwrecks (Record of Consultation, reference 1.54).
- On 30 May 2023, Woodside emailed WA Museum following up on the proposed activity (Record of Consultation, reference 2.17) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Commonwealth and WA State Government Departments or Agencies – Environment

Department of Agriculture, Fisheries and Forestry (DAFF) – Biosecurity (marine pests, vessels, aircraft and personnel)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DAFF - Biosecurity for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to DAFF - Biosecurity on 1 May 2023 based on their function, interest and activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the DAFF - Biosecurity with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

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- On 1 May 2023, Woodside emailed DAFF - Biosecurity and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.17).
- On 30 October 2023, Woodside emailed DAFF - Biosecurity following up on the proposed activity (Record of Consultation, reference 2.32) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	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 4.8 of the EP). 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 6.8.2**,** Section 6.8.3, Section 6.8.4 and Section 6.8.5 of the EP. 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 4.9.6 of the EP). 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 6.8.11 of the EP). No additional measures or controls are required.

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

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DCCEEW for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to DCCEEW on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided DCCEEW with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DCCEEW and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.19).
- On 24 May 2023, DCCEEW emailed Woodside to provide feedback on this EP and another EP.
    - **(1)** DCCEEW recommended that any proponent who is planning to undertake activities in the offshore environment should engage a suitably qualified and experienced maritime or underwater archaeologist for advice on how to mitigate risks associated with protected underwater cultural heritage (UCH).
    - **(2)** DCCEEW recommended undertaking a Desktop UCH Assessment to identify known and potential UCH resource in the environment that may be impacted by and activity and to propose a forward work program for additional UCH Impact Assessment if required. The department outlined the expected components of a detailed assessment program.
    - **(3)** The department requested that Woodside involve the Underwater Cultural Heritage team in its ongoing consultation processes in relation to activities that have the potential to impact UCH.
    - DCCEEW outlined a summary of relevant legislative requirements and additional considerations relevant to proponents.
- On 30 May 2023, Woodside sent a reminder email to DCCEEW advising of the proposed activity (Record of Consultation, reference 2.15) and provided a Consultation Information Sheet.
- On 5 June 2023, DCCEEW emailed Woodside in response to the follow up email and provided a copy of their email dated 24 May 2023.
- On 17 July 2023, Woodside emailed DCCEEW thanking the department for its feedback on the EPs.
    - Woodside confirmed it is aware of the legislative requirements of the *Underwater Cultural Heritage Act 2018* (Cth), as well as the Department of Climate Change, Energy, the Environment and Water's (DCCEEW) Draft Guidelines for Working in the Near and Offshore Environment to Protect Underwater Cultural Heritage, and Underwater Cultural Heritage (UCH) Guidance for Offshore Developments.
    - Woodside confirmed it has engaged a qualified and experienced maritime archaeologist to complete a desktop review of the potential for First Nations and non-First Nations UCH.
    - Woodside advised it consults with relevant Traditional Owners in the course of preparing Environment Plans, and also engages in ongoing consultation subsequent to the approval of Environment Plans.

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- Regarding DCCEEW's note that DCCEEW acknowledges "the potential for First Nations cultural heritage remains to occur within Australian waters up to depths of approximately 130-140 meters. Woodside commented that its understanding from studying existing literature, including relating to the discoveries referred to in DCCEEW's feedback (e.g., in Benjamin et al., 2020), is that the potential for evidence of human occupation may extend to depths of 125 to 130m.
- Woodside advised it has not reviewed documentary evidence confirming occupation of the continental shelf to depths of 140m. Consequently, as noted above, Woodside has instructed its maritime archaeologist to review the ancient coastline to a depth of approximately 130m (not 140m).
- In line with DCCEEW's request to be included in ongoing consultation processes, Woodside confirmed it would be willing to provide the UCH team with start and end of activity notifications for the EP.
- Woodside confirmed that as outlined in DCCEEW's Draft Guidelines for Working in the Near and Offshore Environment to Protect Underwater Cultural Heritage, suspected underwater cultural heritage sites identified during the archaeological review will be reported to the Australasian Underwater Cultural Heritage Database (AUCHD) within 21 days of the discovery.

- On 19 July 2023, DCCEEW emailed Woodside and confirmed that the approach to risk mitigation and compliance with the UCH Act requirements Woodside has described aligns with the advice DCCEEW has provided. DCCEEW requested for Woodside to consult with its team as needed on these and other activities.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
DCCEEW provided feedback to Woodside on: **(1, 2)** Underwater cultural heritage risk mitigation, compliance with the UCH Act and UCH desktop assessment requirements. **(3)** Involving DCCEEW's UCH team in the consultation process for activities that have the potential to impact UCH.	Woodside has addressed DCCEEW's feedback by: **(1,2)** Confirming its knowledge of the DCCEEW Draft Guidelines for Working in the Near and Offshore Environment to Protect Underwater Cultural Heritage, an UCH Guidance for Offshore Developments. Woodside has engaged a qualified maritime archaeologist to complete a desktop review the potential for First Nations and non-First Nations UCH. **(3)** Woodside confirmed it would be willing to provide the UCH team with start and end of activity notifications for the 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 7.8 of this EP).	**(1,2)** The EP 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 4.9.6 and Section 6.7). 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 Sections 6.8.3- 6.8.5 the EP**.** **(3)** Woodside has implemented a consultation program to advise relevant persons of the PAP and provide opportunity to raise objections or claims, as referenced as PS 1.7 in this EP. Woodside considers the measures and controls in the EP are appropriate. No additional measures or controls are required.
Director of National Parks (DNP)		

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DNP for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to DNP on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the DNP with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DNP and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.20).
- On 23 May 2023, DNP emailed Woodside:
    - **(1)** DNP notes that the activity does not overlap any Australian Marine Parks. Therefore, **(2)** there are no authorisation requirements from the DNP.
    - **(3)** DNP requested an update should the operation change and overlap the Montebello Marine Park.
    - **(4)** 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 affected)
        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 25 October 2023, Woodside emailed DNP and thanked it for the feedback with respect to JDP3 Drilling and Subsea. Woodside noted DNP's:
    - confirmation that planned activities do not overlap any Australian Marine Parks (AMPs)
    - there are no authorisation requirements from the DNP at this time
    - there are no claims or objections at this time.
    - Woodside confirmed that it would 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 record of consultation.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
DNP responded and:	Woodside has addressed the DNP's feedback including:	**(1,2,3,4)** Not required. Woodside considers the measures and controls in the EP are appropriate.

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(1) Confirmed that the activity does not overlap any Australian Marine Parks. **(2)** No authorisation is required for this activity. **(3)** Requested an update should the operational area change. **(4)** Requested notification to be provided to the 24 hour Marine Compliance Duty Officer. Whilst feedback has been received, there were no objections or claims.	• **(1)** Confirmed no activities are planned to overlap any Australian Marine Parks. • **(2)** Noted there are no authorisation requirements from the DNP at this time. • **(3,4)** Woodside will contact DNP if details regarding the activity change and result in a new impact to the marine park and notify the Marine Compliance Duty Officer within 24 hours. 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 7.8 of this EP).	No additional measures or controls are required.

Ningaloo Coast World Heritage Advisory Committee (NCWHAC)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with NCWHAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to NCWHAC on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the NCWHAC with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed NCWHAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.2).
- On 30 May 2023, Woodside emailed NCWHAC following up on the proposed activity (Record of Consultation, reference 2.5) and provided a Consultation Information Sheet.

`Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be	No additional measures or controls are required.

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	assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	

Department of Biodiversity, Conservation and Attractions (DBCA)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DBCA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to DBCA on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the DBCA with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DBCA and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.1).
- On 29 May 2023, DBCA emailed Woodside and responded with several points:
    - **(1)** There are a number of ecologically important areas including marine parks and island conservation reserves in the vicinity of the proposed activity and within the area of the EMBA that have the potential to be affected by a hydrocarbon release. DBCA would like to have the confidence that Woodside has established appropriate baseline survey data on the current state of the areas supporting important ecological values and any current contamination if present within the area of potential impact of hydrocarbon releases.
    - **(2)** DBCA advised it undertakes monitoring in marine parks and reserves and publishes monitoring reports which are available on the department's website.

      Woodside should be aware that this monitoring is targeted to inform DBCA's values and objectives relating to marine park management and is not necessarily suitable to provide all baseline information required for oil spill risk assessment and management planning.

      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.
    - **(3)** DBCA recommended Woodside refer to the Commonwealth Department of Agriculture, Water and the Environment's *National Light Pollution Guidelines for Wildlife Including Marine Turtles, Seabirds and Migratory Shorebirds* as a best-practice industry standard for managing potential impacts of light pollution on marine fauna.
    - **(4)** DBCA requested that in the event of a hydrocarbon release, Woodside is to notify DBCA's Pilbara regional office.
    - **(5)** DBCA recommended Woodside refer to the Department of Transport's emergency management arrangements for marine oil pollution incidents in State waters.
- On 30 October 2023, Woodside emailed DBCA thanking the department for its feedback on the EP.
    - Woodside confirmed that areas of ecological importance in the proximity of the EP Operational Areas will not be impacted by planned activities.
    - Woodside confirmed assessment of potential management and mitigation measures has been considered in the EP and relevant controls adopted to reduce the impact to as low as reasonably practicable.

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- Woodside outlined that in accordance with Regulation 12(3) and 13(3) of the Environment Regulations 2009 of the Commonwealth Offshore Petroleum and Greenhouse Gas Storage Act, when describing the existing environment in EPs, Woodside includes details of the particular values and sensitivities of the environment within and in proximity to operational areas and the Environment that maybe affected (EMBA) for impact assessment and risk evaluation.
- Woodside confirmed it maintains knowledge and an understanding of areas of ecological importance within and adjacent to operational areas and therefore within the EMBA.
- An information system to track current existing environment knowledge is regularly updated and covers: EPBC Act Matters of National Ecological Significance (MNES) including threatened and migratory listed species, the WA Biodiversity Conservation Act – threatened and priority fauna list, the Part 13 Instruments, i.e., threatened species recovery plans and conservation advice, protected areas and information on the habitats and associated fish and benthic communities. Woodside also confirmed the sources of information.
- Woodside advised it is also committed to sharing knowledge and contributes to the Index of Marine Surveys for Assessment (IMSA) hosted by the Department of Water and Environmental Regulation (WA) and supported by WAMSI.
- Woodside confirmed its 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 shared information about the ten SMPs including standard operating procedures such as targeted environmental monitoring programs and associated processes.
  The ten SMPs address a range of receptors most vulnerable to the impacts of a hydrocarbon release.
  Woodside confirmed it maintains a baselines studies database based on Woodside commissioned studies, scientific publications, and publicly available study reports. The database includes documentation of baseline for: Muiron Islands Marine Management Area, Ningaloo Marine Park, Barrow Island Marine Management Area and Thevenard Island Nature Reserve.

- In regard to National Light Pollution Guidelines, Woodside confirmed that the lighting associated with activity vessels is required as a priority for safe operation.

  Woodside has considered the Commonwealth Department of Climate Change, Energy, the Environment and Water's National Light Pollution Guidelines for Wildlife with respect to vessel activities.

- Regarding incidents and emergency response, Woodside confirmed:

  Woodside's Oil Pollution First Strike Plan for this activity includes a commitment that DBCA will be notified via phone call as soon as practicable in the event of a hydrocarbon release.
  Woodside advised this plan describes the incident management structure, notification and reporting requirements, the Operational Area, activity specific credible spill scenarios, and the hydrocarbon spill response strategies available for the protection of priority receptors.
  Links are included to a suite of existing Operational Plans and Tactical Response Plans (TRPs) to commence the mobilisation of response resources immediately.
  Woodside has incorporated the DBCA Pilbara regional office telephone number as part of the notifications as listed in the Oil Pollution First Strike Plan.
  Woodside notes that DBCA will not implement an oiled wildlife management response on behalf of a petroleum operator.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
DBCA provided feedback relating to:	Woodside has addressed the DBCA's feedback, including:	**(1,2,3,4,5)** Not required.

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(1) Ecologically important areas including the marine parks located in the vicinity of the proposed operations (i.e., Montebello Islands Marine Park) and requested Woodside to establish appropriate baseline survey data on the current state of areas. **(2)** DBCA encourages Woodside to acquire the necessary information to implement a Before-After, Control-Impact (BACI) framework. **(3)** Acoustic monitoring and artificial light controls for overnight operations **(4)** DBCA also provided an 'Incidents and Emergency Response' and requested Woodside to contact their Pilbara regional office in the event of a hydrocarbon release. **(5)** DBCA recommended Woodside refer to the Department of Transport's emergency management arrangements for marine oil pollution incidents in State waters. Whilst feedback has been received, there were no objections or claims.	**(1)** Confirmed areas of ecological importance in the proximity of the Environment Plan Operational Area will not be impacted. **(1)** Woodside maintains a baselines studies database. **(2)** Demonstrated that Woodside's information system to track current existing environment knowledge is regularly updated and covers topics of interest to the DBCA. **(3)** Confirmed lighting associated with the activity considers the National Light Pollution Guidelines and the impact assessment determined that impacts of lighting are ALARP. **(4)** Confirmed the oil spill SMP will provide for a quantitative assessment of the overall environmental impacts in the event of an unplanned hydrocarbon release. **(4)** DBCA will be notified via phone call as soon as practicable in the event of a hydrocarbon release. **(5)** DBCA recommended Woodside refer to the Department of Transport's emergency management arrangements for marine oil pollution incidents in State waters. Woodside engages in ongoing consultation throughout the life of an EP. Should further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	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)		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DISR for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Consultation Information provided to DISR on 1 May 2023 based on their functions, interests or activities.		

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- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the DISR with the opportunity to provide feedback over a 10 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DISR and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.1).
- On 30 May 2023, Woodside emailed DISR following up on the proposed activity (Record of Consultation, reference 2.4) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

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

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with DEMIRS for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to DEMIRS on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the DEMIRS with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed DMIRS and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.1).
- On 30 May 2023, Woodside emailed DMIRS following up on the proposed activity (Record of Consultation, reference 2.4) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan

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No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.
Commonwealth Commercial fisheries and representative bodies		
North West Slope and Trawl Fishery		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with North West Slope and Trawl Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Consultation Information provided to North West Slope and Trawl Fishery on 1 May 2023 based on their functions, interests or activities. • Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback. • Woodside has sent follow up emails seeking feedback on the proposed activities. • Woodside has provided the North West Slope and Trawl Fishery with the opportunity to provide feedback over a 10 month period. **Summary of consultation provided and record of consultation:** • On 1 May 2023, Woodside emailed North West Slope and Trawl Fishery individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.11). • On 30 May 2023, Woodside sent a follow up email to North West Slope and Trawl Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.12) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside has consulted AFMA, DAFF - Fisheries, CFA 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 7.8 of this EP).	Woodside has assessed the relevancy of Commonwealth fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA and relevant individual Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.
Western Deepwater Trawl Fishery		

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Western Deepwater Trawl Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Western Deepwater Trawl Fishery on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Western Deepwater Trawl Fishery with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Western Deepwater Trawl Fishery individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.11).
- On 30 May 2023, Woodside sent a follow up email to Western Deepwater Trawl Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.12) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted AFMA, DAFF - Fisheries, CFA 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 7.8 of this EP).	Woodside has assessed the relevancy of Commonwealth fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA and relevant individual Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Western Tuna and Billfish Fishery

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Western Tuna and Billfish Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Western Tuna and Billfish Fishery on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.

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- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Western Tuna and Billfish Fishery with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Western Tuna and Billfish Fishery individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.11).
- On 30 May 2023, Woodside sent a follow up email to Western Tuna and Billfish Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.12) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted AFMA, DAFF - Fisheries, CFA, 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 7.8 of this EP).	Woodside has assessed the relevancy of Commonwealth fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA and relevant individual Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Commonwealth Fisheries Association (CFA)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with CFA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to CFA on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the CFA with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed CFA and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.11).

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- On 30 May 2023, Woodside sent a follow up email to CFA advising of the proposed activity (Record of Consultation, reference 2.12) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted AFMA, DAFF – Fisheries, CFA 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 7.8 of this EP).	Woodside has assessed the relevancy of Commonwealth fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to AFMA, DAFF – Fisheries, CFA and relevant individual Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Tuna Australia

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Tuna Australia for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Tuna Australia on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Tuna Australia with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Tuna Australia and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.11).
- On 1 May 2023, Tuna Australia emailed Woodside, providing 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

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  - **(1)** 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.
  - **(2)** The position that Tuna Australia considers itself a 'relevant person' consistent with NOPSEMA guidelines.
  - **(3)** 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.
  - **(4)** 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.
  - **(5)** 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 17 May 2023, Woodside thanked Tuna Australia for its industry position statement and stated:
  - The level of feedback provided by an organisation, if any, is at the person or organisation's discretion. Woodside did not expect organisations to provide reports or engage consultants to provide feedback.
  - Woodside was open to suggestions to make consultation more manageable.
  - Woodside was happy to meet with Tuna Australia to provide an overview of its proposed activities, how EPs were developed and the extensive controls in place to reduce impacts to ALARP and acceptable. Woodside further advised the aim was to provide an efficient, simple way to obtain feedback and assist in understanding Woodside's activities so Tuna Australia's input could be considered in the development of EPs.

- On 17 May 2023, Tuna Australia wrote to NOPSEMA (copied Woodside) regarding Woodside's position on engagement with Tuna Australia as the lead representative organisation and relevant person for concession holders In the Western Tuna and Billfish Fishery (WTBF). Tuna Australia stated:
  - **(6)** Energy companies who executed service agreements with Tuna Australia ensured all WTBF and Eastern Tuna and Billfish Fishery concession holders were consulted on EPs and record of consultation were provided in a report. This process was efficient and met consultation requirements.
  - It was unfortunate Woodside did not appreciate the nature of fishing and were more content to receive information to support their EPs free of charge which was not consistent with Woodside's company values.
  - Not all energy companies wanted to keep sponging off the community that wished to assist them. Tuna Australia had sound relationships with many energy companies who recognised Tuna Australia as a relevant person and had executed service agreements. In exchange Tuna Australia consulted with concession holders and provided informed, up to date commentary and information consistent with Tuna Australia's industry position statement.
  - The WTBF fishing zone had been in place for a long time before the start of energy exploration in the marine environment. Tuna Australia was pleased that many energy companies respected this history. Woodside however failed to recognise that the WTBF was even a relevant person. For example, the WTBF was not listed as a relevant fishery in another Woodside EP.
  - WTBF concession holders were concerned with developments in their fishing zone and had comments and questions on EPs and proposals.

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  - Tuna Australia requested NOPSEMA stipulated that all EP submissions received formal advice from Tuna Australia.

- 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 Australia on 30 May 2023, which Woodside committed to.

The summary above demonstrates that consultation for the purpose of regulation 25 of the Environment Regulations is complete however, as per Woodside's commitment to ongoing consultation, engagement has continued as summarised below :

Ongoing consultation:

- On 2 June 2023, Woodside made a follow up phone call to Tuna Australia and left a voicemail covering the following:
  - Woodside called Tuna Australia on 2 June 2023 to follow up on 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 6 June 2023, Tuna Australia returned Woodside's call regarding an opportunity to meet to discuss a more strategic approach to consultation.
- On 8 June 2023, Tuna Australia returned Woodside's call and asked Woodside to call back on 14 June 2023.
- On 14 June 2023, Woodside returned Tuna Australia's phone call and left a message for Tuna Australia to call back.
- On 20 June 2023, Woodside and Tuna Australia held a meeting to discuss Tuna Australia's Industry Position Statement.
  - Woodside provided an overview of its activities and explained how recent case law and NOPSEMA guidance had resulted in Woodside undertaking consultation on the widest potential 'EMBA'
  - Tuna Australia agreed to share with Woodside the name of any of the Offshore Sectors' titleholders that have entered into Tuna Australia's service agreement to date.
  - **(7)** Tuna Australia also agreed to provide more detail on how Tuna Australia will distribute consultation materials to its membership/licence holders and the format of any report arising from the data collected.
  - Woodside committed to review Tuna Australia's Service Agreement.

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- On 26 June 2023, Woodside emailed Tuna Australia following the meeting held on 20 June 2023 and recapped what was discussed.
    - Woodside thanked Tuna Australia for its time and stated it looked forward to continuing to work with Tuna Australia.
    - Woodside directed Tuna Australia to contact the Woodside Feedback inbox for any further information.
- On 30 June 2023, Tuna Australia's CEO responded to Woodside's email of 26 June 2023. Tuna Australia:
    - Noted outcomes of the recent case law focussed on stakeholder engagement and ensuring energy companies meet regulatory requirements and NOPSEMA guidelines.
    - Requested Woodside send the recent case law.
    - Reached out to energy companies who have executed a services agreement with Tuna Australia and asked whether Tuna Australia could inform Woodside about their working relationship. Beach Energy confirmed it was happy for Tuna Australia to share its details.
    - Advised how it contacts concession holders and what it provides to them.
    - **(7)** Provided a Tuna Australia contact who manages engagement with energy companies to progress a service agreement with Tuna Australia.
- On 17 July 2023, Woodside emailed Tuna Australia and confirmed:
    - Woodside's legal team had reviewed the Tuna Australia document and requested some minor changes to be made.
    - Woodside asked Tuna Australia if a marked up version of the Service Agreement would be the simplest way for Tuna Australia to review.
    - Woodside attached a Supplier Questionnaire as part of its due diligence process and asked Tuna Australia to complete the form.
- On 18 July 2023, Tuna Australia emailed Woodside and confirmed:
    - Woodside should send a marked up version of the Service Agreement for Tuna Australia to review.
    - Tuna Australia would fill out the Supplier Questionnaire and return in the next couple of days.
- On 18 July 2023, Woodside emailed Tuna Australia and sent a marked up version of the Service Agreement for Tuna Australia to review.
- On 19 July 2023, Tuna Australia emailed Woodside and thanked it for sending through edit's to Tuna Australia's services agreement and commented:
    - **(8)**Tuna Australia does not want any changes made to Schedule 2 of their Service Agreement and if Woodside has requirements outside of what Tuna Australia provides, then this will need to be discussed, agreed, and costed accordingly.
    - **(8)**Tuna Australia would like further details on the Annual service for the Woodside Master Existing document including the rationale for the payment proposed.
    - **(8)**Tuna Australia does not agree to a fixed price for the above bodies of work. Tuna Australia wants clarification on what the Annual service entails, and how the fixed priced value was arrived at.
    - **(8)**Regarding the fixed fee for delivery of a specific consultation service, Tuna Australia need to remain flexible to clients' needs and discuss additional works should they be required. Tuna Australia says it specified in the schedule that it would never proceed with more work or charge more money without approval and this should suffice for Woodside.
    - **(8)**Tuna Australia does not agree on the current terms which have been changed in Item 2 of Schedule 1 and says it seeks a two year agreement as per the agreement template.
- On 2 August 2023, Woodside emailed Tuna Australia, thanked them for their response re the Service Agreement and advised that Woodside's legal team will review and Woodside will revert as soon as possible. Woodside asked Tuna Australia to please complete the Supplier Questionnaire which was sent on 17 July 2023.
- On 3 August 2023, Tuna Australia replied, apologised for the delay and sent the completed Supplier Questionnaire to Woodside.

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- On 8 August 2023, Tuna Australia responded in regards to another EP stating that as per its recent discussions with Woodside, Tuna Australia could consult on the EP once it had a services agreement in place.
- On 23 August 2023, Tuna Australia emailed Woodside following up on Woodside's consultation requirements with the tuna longline industry regarding another EP. Tuna Australia asked for clarity on whether Woodside was planning to engage Tuna Australia to consult on behalf of the tuna longline industry on this and other upcoming EPs that Woodside was seeking feedback on.
- On 30 August 2023, Woodside emailed Tuna Australia and advised that Tuna Australia's feedback on the Service Agreement had been considered. . Woodside asked for clarity on whether Tuna Australia would accept a section on ethical business practices. Once this had been accepted, Woodside could work through Tuna Australia's other points.
- **(8)**On 4 September 2023, Tuna Australia emailed Woodside and advised that it had seen these anti bribery and corruption clauses included in the vendor registration process of other energy companies but had not seen it proposed inside an agreement before. Tuna Australia advised it was not against including them in the agreement, but asked if it was the best place for it.
- On 6 November 2023, Tuna Australia emailed Woodside regarding another EP and stated:
    - **(9)** It was prepared to assist Woodside to ensure a separate EP was comprehensive and extended to all relevant persons, and that Woodside was aware the AFMA webpage requesting concession owners and holders to be contacted was out of date.
    - **(10)** The proponent must address planned fishing effort and development of the fishery, and focussing on historical fishing effort as the basis for validating the EP was a flawed assessment.
    - **(11)** It was concerned recent consultation by energy companies had involved accessing mailing lists sourced from AFMA or elsewhere and some contact lists were outdated, inaccurate and not fit-for-purpose as they did not contact the required target audience, while Tuna Australia's database was up to date, accurate and actively managed and reviewed.
    - **(12)** It had offered to assist energy companies to genuinely and comprehensively meet consultation and reporting requirements and its view was that consultation not conducted through its services was highly likely to be incomplete.
    - **(13)** Tuna Australia could not support the other EP proposal as it believed Woodside had fallen short of genuine and comprehensive consultation.
    - **(14)** Woodside should advise if it wished to progress with a services agreement and work collaboratively.
- On 22 November 2023, Woodside responded thanking Tuna Australia for its email on a separate EP and advised:
    - As Tuna Australia was aware, offshore proponents consult relevant persons under the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009.
    - Woodside's consultation process identified relevant persons and provided them sufficient information and a reasonable period to make an informed assessment of the possible consequences of the proposed activity on their functions, interests and activities.
    - Woodside obtained contact details of individual Commonwealth fishing statutory fishing rights and fishing permit holders so that consultation was consistent with the Regulations. As noted on its website, AFMA's expectation was that petroleum operators consulted with fishing operators about all activities and projects which may affect day-to-day fishing activities.
    - In addition to consulting individual licence holders, Woodside consulted relevant fishing industry associations and representative bodies such as Tuna Australia and Commonwealth Fisheries Association, and referred to the AFMA website to help inform which associations and bodies were relevant.
    - While the management area for the Western Tuna and Billfish Fishery overlapped the Operational Area for the other EP, based on AFMA data, no recent fishing effort had occurred within the Operational Area for at least the past 10 years. Despite this, Woodside chose to consult licence holders in this fishery.
    - The Offshore Environment Regulations did not require entry into service agreements in order to meet EP consultation requirements.
    - Woodside has met its consultation obligations under the Regulations and given Tuna Australia sufficient time and information to provide input.

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- On 5 December 2023, Tuna Australia responded and thanked Woodside for its advice. Tuna Australia noted:
    - **(15)** It was concerned Woodside was electing to cherry-pick on how to meet statutory requirements, for example by focussing on fishing effort and disregarding important information in the OPGGS Act 2006 and Regulations.
    - **(16)** To progress consultation, it wished to pause the process while it took advice.
    - **(12)** It could assist Woodside to develop an EP that was significantly improved and met regulatory requirements.
- On 20 December 2023, Woodside responded and thanked Tuna Australia for its response. Woodside advised:
    - Woodside met its legislative and regulatory requirements in the development and implementation of an EP.
    - Woodside would continue to consult Tuna Australia and individual Commonwealth licence holders for proposed activities where relevant and as appropriate.
    - Consultation was voluntary and Tuna Australia could decide whether it wished to engage in the process or not.
- On 21 December 2023, Tuna Australia responded and thanked Woodside for its response. Tuna Australia noted:
    - **(7,9,13)** The OPGGS Act 2006 clearly stated that when developing an EP, the proponent must demonstrate they could "carry on those activities in a manner that does not interfere with navigation, fishing or the conservation of the resources of the sea and seabed". It had provided its industry position statement and, as mentioned previously, it was prepared to provide services to Woodside to ensure the EP met legislative and regulatory requirements. Tuna Australia would ensure thorough and comprehensive consultation on the proposed EP to ensure activities did not have an adverse impact on the fishery and marine environment, and without this advice, any EP submitted to NOPSEMA would be incomplete, inadequate and would not meet regulatory requirements.
    - **(17)** Tuna Australia would welcome comment from NOPSEMA on the content required in an EP to meet regulatory requirements when considering potential impacts on Australian tuna fisheries, especially in the context of knowing that Tuna Australia can comprehensively provide this information through a services agreement and Woodside has chosen not to engage.
    - **(14)** Tuna Australia was now breaking for the festive season but urged Woodside to consider whether it would like to enter a services agreement and to advise accordingly in the week starting 8 January 2024.
- On 5 February 2024, Tuna Australia emailed Woodside regarding another EP and provided feedback on Woodside's approach to consultation. It noted:
    - **(9)** Woodside had decided that rather than developing an ongoing working relationship with Tuna Australia, it would contact all tuna concession owners and holders by accessing the AFMA database.
    - **(18)** There were many AFMA permit registers depending on the fishery and the permit register changed regularly as entitlements were sold and traded. This meant Woodside would need to request a new permit register every time it submitted an EP or a variation to an EP. Woodside would need to reference when it sourced the permit registry to ensure NOPSEMA was assured the list was not outdated.
    - **(19)** After reviewing the FMA 1991 Act and Regulations, Tuna Australia believed Woodside had been provided permit register contact details in error. It was following up on the use of industry data with AFMA and had not ruled out legally challenging the provision of industry data sourced via AFMA.
- On 19 February 2024, Woodside responded to Tuna Australia and advised:
    - Woodside was willing to have a working relationship, however it noted Tuna Australia's position was to only do this via a fee-for-service agreement.
    - Woodside had previously engaged with Tuna Australia on a draft agreement; however it was not willing to make amendments to the draft agreement proposed by Woodside.
    - Outside a fee-for-service agreement, Woodside was willing to explore options on how best to consult Tuna Australia and licence holders.

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- As previously advised, Tuna Australia obtained contact details of individual Commonwealth statutory fishing rights and fishing permit holders so consultation was consistent with the Regulations. Consultation with fishery operators met the expectation of AFMA that petroleum operators consulted with fishing operators about all activities and projects which might affect day-to-day fishing activities.
- Woodside regularly updated contact details of individual licence holders to facilitate consultation.
- Woodside noted Tuna Australia was engaging with AFMA on the provision of permit register contact details under the *Fisheries Management Act 1991*, and Regulations.

- On 19 February 2024, Tuna Australia responded and advised:
  - **(8)** The offer it previously received from Woodside to charter a report on fisheries was insulting.
  - **(7,12)** It could reach out to all tuna concession owners and holders relevant to proposed EPs ensuring improved outcomes to meet regulatory requirements. Other energy companies had executed a services agreement with Tuna Australia and were pleased with the engagement and detailed advice.
  - **(7,14)** It had proposed a simple process ensuring Woodside met consultation obligations while not placing disproportionate burden on other sectors, and if Woodside would like an updated services agreement, it should let Tuna Australia know.
- On 7 March 2024, Woodside responded and thanked Tuna Australia for its response and asked for the proposed updated services agreement. Woodside advised that it would like to ensure relevant clauses were appropriately considered including those on ethical business practices.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
Tuna Australia responded, providing Woodside their position statement for engaging with energy companies and: **(1)** recommended Woodside consults ABSTIA. **(2)** noted that Tuna Australia is relevant for this EP. **(3)** requested to be contacted if activities have a potential impact on vessel navigation. **(4)** requested a map of activity location. **(5)** recommended the implementation of a service agreement. **(6)** Energy companies who executed	Woodside addressed the feedback and: **(1)** Woodside consulted ABSTIA as demonstrated above **(2, 6)** 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 these areas as: • No recent fishing effort has occurred within or nearby to the Operational Area. • 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). 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. **(3)** To manage potential interactions, Woodside has the following controls in place with regard to the Petroleum Activities Program (PAP) of this EP:	(**1,2,3,4,5,6**) Not required. **(9)** Woodside has assessed the potential for interaction with Commonwealth managed commercial fisheries in Section 4.10.1 of this EP and identified relevant persons in Appendix F, Table 1 of this EP in accordance with regulation 25(1) of the Environment Regulations. **(7, 8, 10, 11, 12, 14, 15, 16,17, 18, 19)** Not required. **(13)** Woodside considers that Tuna Australia has been given sufficient information and a reasonable period in which to make an informed assessment of the possible consequences of the activity on its functions, interests or activities, as described in Section 5.4 of this EP. Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on Tuna Australia's functions, interests or activities.

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service agreements with Tuna Australia ensured all WTBF and Eastern Tuna and Billfish Fishery concession holders were consulted on EPs and record of consultation were provided in a report. **(7)** Provided feedback it could no longer coordinate consultation with offshore energy activities on behalf of its members without a services agreement in place. Tuna Australia advised other energy companies had entered into the agreement. **(8)** In response to minor proposed amendments from Woodside to the service agreement, Tuna Australia did not want changes made to Schedule 2; requested further details on the annual service including rationale for the payment proposed; did not agree to a fixed price; and did not agree on the current terms which had been changed in Item 2 of Schedule 1 and sought a two-year agreement. Tuna Australia also advised it was not against including anti-bribery and corruption clauses in the agreement but asked if it was the best place for it. **(10)** Focusing on historical fishing effort was a flawed assessment. **(11)** It had concerns about energy companies sourcing mailing lists from AFMA or elsewhere as some contact lists were outdated, inaccurate and not fit-for-purpose, compared to Tuna Australia's database which was up to date and accurate.	• 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: • 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 highlight localised and not expected to impact any commercial fisheries in the area. • Seabed disturbance will managed by undertaking project specific mooring design analysis, to reduce the risk of anchor drag leading to seabed disturbance. • Acoustic emissions from vessels in field and survey equipment will be managed by complying with regulatory requirements (e.g. EPBC Regulations 2000 – Part 8 Division 8.1). **(4)** The location of activities is referenced in the Consultation Information Sheet provided on 1 May 2023. **(5, 6)** The consultation regulations do not require entry into service agreements in order to engage in consultation or for an EP to be complete. Woodside respects that, for a relevant person, consultation is voluntary. Woodside advised Tuna Australia the level of feedback provided by an organisation, if any, was at the person or organisation's discretion, and Woodside was open to suggestions from Tuna Australia on ways to improve efficiency and simplicity for feedback. **(8)** Woodside requested clarity on whether Tuna Australia would accept Section 15: Ethical Business Practices. Woodside advised Tuna Australia if the amendment was accepted, Woodside could work through Tuna Australia's other points regarding the service agreement.	No additional measures or controls are required.

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(12) It was offering to assist energy companies to genuinely and comprehensively meet consultation and reporting requirements. **(13)** It could not support the EP proposal as it believed Woodside had fallen short of genuine and comprehensive consultation. **(14)** Woodside should advise Tuna Australia if it wished to progress with a services agreement and work collaboratively. **(15)** It was concerned Woodside was electing to cherry-pick on how to meet statutory requirements. **(16)** To progress consultation, it wished to pause the process to obtain advice. **(17)** It welcomed comment from NOPSEMA on the content required for an EP to meet regulatory requirements. **(18)** There were many AFMA permit registers depending on the fishery and the permit register changed regularly as entitlements were sold and traded. **(19)** It had reviewed the FMA 1991 Act and Regulations and believed Woodside had been provided permit register contact details in error and was following up on the use of industry data with AFMA. Whilst feedback has been received, there were no objections or claims.	**(9)** Woodside has developed a methodology for identifying relevant persons, in accordance with regulation 25of the Environment Regulations that is consistent with NOPSEMA's guideline. Woodside advised Tuna Australia that Woodside's consultation process identified relevant persons and provided them with sufficient information and a reasonable period in which to provide feedback. **(10)** Woodside determined, and advised Tuna Australia, that although the Western Tuna and Billfish Fishery management area overlapped the Operational Area, there had been no fishing effort in the Operational Area for at least the past 10 years. Despite this, Woodside chose to consult licence holders in the fishery. **(11)** Woodside obtains contact details of Commonwealth statutory fishing rights and fishing permit holders so that consultation is consistent with the Regulations, as per the expectation from AFMA that petroleum operators consulted with fishing operators about all activities and projects which may affect day-to-day fishing activities. **(12)** Woodside has developed a methodology for identifying relevant persons, in accordance with regulation 25of the Environment Regulations that is consistent with NOPSEMA's guideline. Woodside advised Tuna Australia that in addition to consulting individual licence holders, Woodside consulted relevant fishing industry associations and representative bodies such as Tuna Australia and the Commonwealth Fisheries Association. Woodside also consulted DAFF – Fisheries for this EP. **(13)** Woodside considers it has met its consultation obligations under the Environment Regulations and given Tuna Australia sufficient time and information to obtain input and to assist Woodside to confirm current measures or identify additional measures. **(14)** Woodside noted, and advised Tuna Australia, that the Offshore Environment Regulations did not require entry into service agreements in order to meet EP consultation requirements. **(15)** Woodside considers it has met its legislative and regulatory requirements in the development and implementation of an EP. **(16)** Woodside noted Tuna Australia's wish to pause the consultation process and advised it would continue to consult Tuna Australia and Commonwealth licence holders for proposed activities where relevant and as appropriate, and that consultation was voluntary and Tuna Australia could decide whether it wished to engage in the process or not.	

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	(17) Woodside noted that Tuna Australia welcomed comment from NOPSEMA on the content required for an EP to meet regulatory requirements. **(18)** Woodside advised Tuna Australia that it regularly updated contact details of individual licence holders to facilitate consultation. **(19)** Woodside noted Tuna Australia was engaging AFMA on the provision of permit register contact details under the *Fisheries Management Act 1991*, and Regulations. 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. Woodside has consulted AFMA, DAFF - Fisheries, CFA, 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 further feedback be received, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	

State Commercial fisheries and representative bodies

Marine Aquarium Managed Fishery

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Marine Aquarium Managed Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Marine Aquarium Managed Fishery on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent a follow letter seeking feedback on the proposed activities.
- Woodside has provided the Marine Aquarium Managed Fishery with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 28 April 2023, Woodside sent a letter to the Marine Aquarium Managed Fishery individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.12).

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- On 30 May 2023, Woodside sent a follow up letter to the Marine Aquarium Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.30) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted 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 7.8 of this EP).	Woodside has assessed the relevancy of State fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to DPIRD and WAFIC prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Mackerel Managed Fishery (Area 2)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Mackerel Managed Fishery (Area 2) for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Mackerel Managed Fishery (Area 2 and 3) on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent a follow up letter seeking feedback on the proposed activities.
- Woodside has provided the Mackerel Managed Fishery (Area 2 and 3) with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 28 April 2023, Woodside sent a letter to the Mackerel Managed Fishery (Area 2) individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.12).
- On 30 May 2023, Woodside sent a follow up letter to the Mackerel Managed Fishery (Area 2) individual licence holders advising of the proposed activity (Record of Consultation, reference 2.30) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted DPIRD, WAFIC and individual relevant licence holders.	Woodside has assessed the relevancy of State fisheries issues in Section 4.10.1 of this EP.

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	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 7.8 of this EP).	Woodside will provide notifications to DPIRD and WAFIC prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.
Onslow Prawn Managed Fishery (Area 1 and 2)		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Onslow Prawn Managed Fishery (Area 1 and 2) for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Consultation Information provided to Onslow Prawn Managed Fishery (Area 1 and 2) on 1 May 2023 based on their functions, interests or activities. • Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback. • Woodside has sent follow up emails seeking feedback on the proposed activities. • Woodside has provided the Onslow Prawn Managed Fishery (Area 1 and 2) with the opportunity to provide feedback over a 12 month period. **Summary of consultation provided and record of consultation:** • On 1 May 2023, Woodside sent a letter to Onslow Prawn Managed Fishery individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.12). • On 30 May 2023, Woodside sent a follow up letter to Onslow Prawn Managed Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.30) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside has consulted 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 7.8 of this EP).	Woodside has assessed the relevancy of State fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to DPIRD and WAFIC prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.
Western Australian Sea Cucumber Fishery		

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Western Australian Sea Cucumber Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Western Australian Sea Cucumber Fishery on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Western Australian Sea Cucumber Fishery with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside sent a letter to the Western Australian Sea Cucumber Fishery individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.12).
- On 30 May 2023, Woodside sent a follow up letter to the Western Australian Sea Cucumber Fishery individual licence holders advising of the proposed activity (Record of Consultation, reference 2.30) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted 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 7.8 of this EP).	Woodside has assessed the relevancy of State fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to DPIRD and WAFIC prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Pilbara Trap Fishery

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Pilbara Trap Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Pilbara Trap Fishery on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Pilbara Trap Fishery with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

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- On 1 May 2023, Woodside emailed Pilbara Trap Fishery individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.9).
- On 30 May 2023, Woodside emailed Pilbara Trap Fishery individual licence holders following up on the proposed activity (Record of Consultation, reference 2.8) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted 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 7.8 of this EP).	Woodside has assessed the relevancy of State fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to DPIRD and WAFIC prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Pilbara Line Fishery

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Pilbara Line Fishery for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Pilbara Line Fishery on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Pilbara Line Fishery with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Pilbara Line Fishery individual licence holders and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.9).
- On 30 May 2023, Woodside emailed Pilbara Line Fishery individual licence holders following up on the proposed activity (Record of Consultation, reference 2.8) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan

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No feedback, objections or claims received despite follow up.	Woodside has consulted 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 7.8 of this EP).	Woodside has assessed the relevancy of State fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to DPIRD and WAFIC prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

Western Australian Fishing Industry Council (WAFIC)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with WAFIC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to WAFIC on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the WAFIC with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed WAFIC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.10).
- 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.
- On 30 May 2023, Woodside sent a reminder email to WAFIC advising of the proposed activity (Record of Consultation, reference 2.11) and provided a Consultation Information Sheet.
- On 27 June 2023, Woodside emailed WAFIC about an ongoing discussion that Woodside had committed to providing WAFIC with a consolidated email outlining all the EPs Woodside is currently consulting WAFIC on for ease of feedback. Woodside suggested a 1.5 hour meeting at Woodside offices to run through the following EPs:
    - JDP3 Drilling and Subsea Installation EP (JDP3 EP)
    - Goodwyn Alpha (GWA) Geophysical and Geotechnical EP (GWA GP/GT EP)
    - Angel Facility Operations EP (Angel EP)
    - Macedon Operations Commonwealth and State EPs (Macedon EPs)

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The summary above demonstrates that consultation for the purpose of regulation 25 is complete however, as per Woodside's commitment to ongoing consultation, engagement has continued as summarised below:

Ongoing consultation:

- On 24 May 2023, WAFIC emailed Woodside to ask whether Woodside was planning to develop and implement a compensation framework Fishers' engagement. WAFIC also suggested a different consulting approach with WAFIC and commercial fishers may need to be adopted as WAFIC had limited resources and other oil and gas proponents utilising WAFIC's fee-for-service model for EPs would be prioritised.
- **(1)** On 25 July 2023, WAFIC's sent a letter to Woodside to register significant frustration with regard to Woodside pursuing detailed record of consultation to EPs or Decommissioning Proposals. WAFIC noted:
    - Since start of 2023, it has received more than 60 emails seeking feedback for activities proposed by Woodside;
    - Each email places workload pressures on WAFIC, an organisation without sufficient resources to meet the deadlines required;
    - It has a number of other oil and gas titleholders operating in WA waters seeking similar feedback for their projects;
    - WAFIC requests Woodside to review its current consultation methodology for engagement with WAFIC.
- On 16 August 2023, Woodside emailed WAFIC and confirmed a meeting for 28 August 2023. Woodside also provided an outline of existing EP consultation and upcoming in the coming weeks not related to this EP.
- On 25 August 2023, Woodside replied to the letter from WAFIC and noted:
    - Woodside's consultation is designed to ensure that relevant persons are identified and given sufficient information and a reasonable period to make an informed assessment of the possible consequences of the proposed activity.
    - Woodside is keen to meet with WAFIC and to ensure Woodside's consultation with WAFIC and the commercial fishing sector achieves this outcome.
    - Woodside thanked WAFIC for sharing concerns and appreciated opportunity to discuss these matters further and will be in touch to organise a suitable meeting date.
- On 28 August 2023, Woodside met with WAFIC to discuss consultation on Environment Plans:
    - **(1)** WAFIC noted the high level of consultation currently being experienced and resourcing requirements. It noted it needs to prioritise consultation and has provided guidance to offshore proponents.
    - Woodside discussed relevant persons consultation and acknowledged the high level of consultation to meet regulatory requirements and case law.
    - WAFIC noted the importance of genuine consultation and building a relationship with the commercial fishing sector.
    - Woodside sought to understand the most appropriate way to consult the commercial fishery sector.
    - **(1)** WAFIC and Woodside agreed a more strategic approach to consultation was required, noting the WAFIC fee for service model.
    - Woodside recognised the need for WAFIC to be appropriately resourced to consider consultation materials.
    - It was noted it is challenging to make assumptions about certain offshore activities, for example considering water depth or distance from shore, to reduce consultation fatigue.
    - Pipeline installation, seismic and decommissioning are activities of the most interest to the commercial fishing sector.
    - WAFIC noted consultation at the Offshore Project Proposal stage was effective in understanding projects and upcoming work scopes.
    - **(1)** Woodside and WAFIC agreed to identify a more strategic and tailored model to consult the commercial fishery sector.
    - Woodside gave a presentation on Environment Plan activities, consultation requirements, the environment that may be affected, and consultation on another EP.
- On 1 September 2023, Woodside phoned WAFIC to discuss the consultation approach and fee-for-service for other EPs.

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- WAFIC confirmed as per its guideline consultation should occur with licence holders in the operational area, and agreed to distribute consultation materials under fee for service for three other EPs.
- WAFIC confirmed it had sufficient existing information to consult with licence holders.
- **(1)** Woodside and WAFIC reiterated plans to develop a longer term consultation model for future EPs.

- **(2)** On 1 January 2024, WAFIC emailed its licence holders about work with Woodside to streamline consultation with commercial fishing industry.
  - WAFIC supported Woodside proposal to cease activity notifications for individual license holders, unless specifically requested.
  - If individual licence holders want to continue receiving Start and End-of-Activity notifications for Woodside activities, they are to let WAFIC know and WAFIC will advise Woodside.
  - Woodside continues to issue Start and End-of-Activity notifications to WAFIC as well as the Australian Hydrographic Office for purposes of Notices to Mariners and nautical charts as well as continues to consult relevant individual licence holders when preparing EPs for proposed offshore activities.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) WAFIC and Woodside are working towards a more strategic approach and tailored model to consult the commercial fishery sector and develop a longer term consultation model for future EPs. **(2)** WAFIC and Woodside agreed on activity notifications and informed individual licence holders. While feedback was received, there were no objections or claims.	**(1)** A fee for service model is in place for other EPs. WAFIC and Woodside are continuing discussions to develop a longer term consultation model. **(2)** Woodside will continue to issue start and end of activity notifications to WAFIC for future EPs. Woodside has consulted 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 7.8 of this EP).	**(1,2)** Not required. Woodside has assessed the relevancy of State fisheries in Section 4.10.1 of this EP. Woodside considers the measures and controls in the EP address WAFIC's functions, interests or activities. No additional measures or controls are required.

Recreational marine users and representative bodies

Exmouth Recreational Marine Users

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Exmouth Recreational Marine Users for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Exmouth Recreational Marine Users on 1 May 2023 based on their functions, interests or activities.

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- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Exmouth Recreational Marine Users with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Exmouth Recreational Marine Users and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.15).
- On 30 May 2023, Woodside sent a reminder email to Exmouth Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted Recfishwest, Marine Tourism Association of 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 7.8 of this EP).	No additional measures or controls are required.

Gascoyne Recreational Marine Users

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Gascoyne Recreational Marine Users for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Gascoyne Recreational Marine Users on 28 April 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up letter seeking feedback on the proposed activities.
- Woodside has provided the Gascoyne Recreational Marine Users with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 28 April 2023, Woodside sent a letter to the Gascoyne Recreational Marine Users and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.13).
- On 30 May 2023, Woodside sent a follow up letter to the Gascoyne Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 2.31) and provided a Consultation Information Sheet.

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Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted Recfishwest, Marine Tourism Association of 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 7.8 of this EP).	No additional measures or controls are required.

Pilbara/Kimberley Recreational Marine Users

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Pilbara/Kimberley Recreational Marine Users for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Pilbara/Kimberley Recreational Marine Users on 28 April 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up letter seeking feedback on the proposed activities.
- Woodside has provided the Pilbara/Kimberley Recreational Marine Users with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 28 April 2023, Woodside sent a letter to the Pilbara/Kimberley Recreational Marine Users and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.13).
- On 30 May 2023, Woodside sent a follow up letter to the Pilbara/Kimberley Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 2.31) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted Recfishwest, Marine Tourism Association of 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 7.8 of this EP).	No additional measures or controls are required.

Karratha Recreational Marine Users

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Karratha Recreational Marine Users for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Karratha Recreational Marine Users on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Karratha Recreational Marine Users with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Karratha Recreational Marine Users and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.15).
- On 30 May 2023, Woodside sent a reminder email to Karratha Recreational Marine Users advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted Recfishwest, Marine Tourism Association of 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 7.8** of this EP).	No additional measures or controls are required.

Recfishwest

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Recfishwest for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Recfishwest on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Recfishwest with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

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- On 1 May 2023, Woodside emailed Recfishwest and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.15).
- On 30 May 2023, Woodside sent a reminder email to Recfishwest advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted Recfishwest, Marine Tourism Association of 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 7.8 of this EP).	No additional measures or controls are required.

Marine Tourism WA

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Marine Tourism WA for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Marine Tourism WA on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Marine Tourism WA with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Marine Tourism WA and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.15).
- On 30 May 2023, Woodside sent a reminder email to Marine Tourism WA advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted Recfishwest, Marine Tourism Association of WA, WA Game Fishing Association and individual recreational marine users.	No additional measures or controls are required.

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	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 7.8 of this EP).	
WA Game Fishing Association		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with WA Game Fishing Association for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Consultation Information provided to WA Game Fishing Association on 1 May 2023 based on their functions, interests or activities. • Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback. • Woodside has sent follow up emails seeking feedback on the proposed activities. • Woodside has provided WA Game Fishing Association with the opportunity to provide feedback over a 12 month period. **Summary of consultation provided and record of consultation:** • On 1 May 2023, Woodside emailed WAGFA and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.15). • On 30 May 2023, Woodside sent a reminder email to WAGFA advising of the proposed activity (Record of Consultation, reference 2.13) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside has consulted Recfishwest, Marine Tourism Association of 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 7.8 of this EP).	No additional measures or controls are required.
Titleholders and Operators		
Chevron Australia/ Osaka Gas Gorgon/ Tokyo Gas Gorgon/ JERA Gorgon		

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Chevron Australia/Osaka Gas Gorgon/Tokyo Gas Gorgon/JERA Gorgon for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Chevron Australia on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Chevron Australia with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Chevron Australia and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.5).
- **(1)** On 3 May 2023, Chevron emailed Woodside to inform them of new contact details for consultation and requested GIS shape files in order to provide their feedback.
- On 16 May 2023, Woodside emailed Chevron Australia and provided the GIS shape files.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
(1) Chevron provided new contact details and requested GIS shape files for the proposed activities. Whilst feedback has been received, there were no objections or claims.	**(1)** Woodside has provided Chevron with GIS shape files for the EP as requested. 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 7.8 of this EP).	**(1)** Not required. 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 has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Western Gas for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Western Gas on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Western Gas with the opportunity to provide feedback over a 12 month period.

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Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Western Gas and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Western Gas following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Exxon Mobil Australia Resources Company

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Exxon Mobil Australia Resources Company for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Exxon Mobil Australia on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Exxon Mobil Australia with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Exxon Mobil Australia and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Exxon Mobil Australia following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Shell Australia

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Shell Australia for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Shell Australia on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Shell Australia with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Shell Australia and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Shell Australia following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

BP Developments Australia

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with BP for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to BP Developments Australia on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided BP Developments Australia with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed BP Developments Australia and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).

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- On 30 May 2023, Woodside emailed BP Developments Australia following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Carnarvon Energy

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Carnarvon Energy for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Carnarvon Energy on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Carnarvon Energy with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Carnarvon Energy and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- (**1**) On 8 May 2023, Carnarvon Energy emailed Woodside thanking it for the information provided and confirmed it had no request for further information.
- On 30 May 2023, Woodside emailed Carnarvon Energy following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.
- On 25 July 2023, Woodside emailed Carnarvon Energy and noted it had no requests for further information with the EP.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) Carnarvon advised it had no requests for further information with the EP.	**(1)** Woodside noted Carnarvon Energy had no requests for further information with the EP.	**(1)** Not required. No additional measures or controls are required.

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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 7.8 of this EP).	

Longreach Capital Investments / Beagle No. 1 Pty Ltd

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Longreach Capital/Beagle No 1 for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Longreach Capital on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Longreach Capital with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Longreach Capital and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Longreach Capital following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

PE Wheatstone

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with PE Wheatstone for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to PE Wheatstone on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.

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- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided PE Wheatstone with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed PE Wheatstone and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- **(1)** On 3 May 2023, PE Wheatstone emailed Woodside and advised it had no objection to the EP submission for JDP3 Drilling and Subsea installation.
-

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) PE Wheatstone advised it has no objection to the EP submission. Whilst feedback has been received, there were no objections or claims.	**(1)** Woodside noted PE Wheatstone has no objection to the EP submission. 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 7.8 of this EP).	**(1)** Not required. No additional measures or controls are required.

Kyushu Electric Wheatstone

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Kyushu Electric Wheatstone for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Kyushu Electric Wheatstone on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Kyushu Electric Wheatstone with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Kyushu Electric Wheatstone and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Kyushu Electric Wheatstone following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan

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No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.
Eni Australia		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with ENI Australia for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically: • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Consultation Information provided to ENI Australia on 1 May 2023 based on their functions, interests or activities. • Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback. • Woodside has sent follow up emails seeking feedback on the proposed activities. • Woodside has provided ENI Australia with the opportunity to provide feedback over a 12 month period. **Summary of consultation provided and record of consultation:** • On 1 May 2023, Woodside emailed ENI and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4). • On 30 May 2023, Woodside emailed ENI following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet. • (**1**) On 25 July 2023, ENI emailed Woodside and reported it had no concerns with the activities associated with the EP. • On 26 July 2023, Woodside emailed ENI and thanked it for its response.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
(1) ENI reported it had no concerns with activities associated with the EP. Whilst feedback has been received, there were no objections or claims.	**(1)** Woodside thanked ENI for its response and noted it had no concerns with activities associated with the 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 7.8 of this EP).	**(1)** Not required. No additional measures or controls are required.
Vermillion Oil & Gas Australia		

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Vermillion Oil & Gas Australia for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Vermilion Oil & Gas on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Vermillion Oil & Gas Australia with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Vermillion Oil & Gas and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Vermillion Oil & Gas following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Finder No 16

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Finder No 16 for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Finder No 16 on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Finder No 16 with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Finder No 16 and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).

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- On 30 May 2023, Woodside emailed Finder No 16 following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Jadestone

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Jadestone for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Jadestone on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Jadestone with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Jadestone and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Jadestone following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

KUFPEC

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with KUFPEC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to KUFPEC on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided KUFPEC with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed KUFPEC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed KUFPEC following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	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 has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Santos for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Santos on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Santos with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Santos and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Santos following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

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Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Coastal Oil and Gas

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Coastal Oil and Gas for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Coastal Oil and Gas on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Coastal Oil and Gas with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Coastal Oil and Gas and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Coastal Oil and Gas following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Bounty Oil and Gas

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Bounty Oil and Gas for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.

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- Consultation Information provided to Bounty Oil and Gas on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided Bounty Oil and Gas with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Bounty Oil and Gas and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed Bounty Oil and Gas following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

OMV Australia

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with OMV Australia for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to OMV Australia on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided OMV Australia with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed OMV Australia and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed OMV Australia following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan

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No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

KATO Energy / KATO Corowa

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with KATO for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to KATO Energy on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided KATO Energy with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed KATO Energy and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed KATO Energy following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

INPEX Alpha

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with INPEX for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to INPEX Alpha on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.

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- Woodside has provided INPEX Alpha with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed INPEX Alpha and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed INPEX Alpha following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

JX Nippon O&G Exploration (Australia)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with JX Nippon for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to JX Nippon O&G Exploration on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided JX Nippon O&G Exploration with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed JX Nippon O&G Exploration and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.4).
- On 30 May 2023, Woodside emailed JX Nippon O&G Exploration following up on the proposed activity (Record of Consultation, reference 2.7) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

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Peak Industry Representative bodies

Australian Energy Producers (AEP) (*formerly APPEA*)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with AEP for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to AEP on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided AEP with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed AEP and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.1).
- On 30 May 2023, Woodside emailed AEP following up on the proposed activity (Record of Consultation, reference 2.4) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Traditional Custodians and nominated representative corporations

Murujuga Aboriginal Corporation (MAC)

MAC is established under the Burrup and Maitland Industrial Estates Agreement and is the representative body for the Traditional Custodians for Murujuga being the Ngarluma, the Mardudhunera, the Yaburara, the Yindjibarndi and the Wong-Goo-Tt-Oo peoples (collectively Ngarda-Ngarli). MAC is the cultural authority for Murujuga and is responsible for the management and protection of its cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with MAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.

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- Provided Consultation Information Sheet and Summary Information Sheet to MAC on 18 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on MAC's preferred method of consultation. This resulted in face-to-face meetings being coordinated at the location of MAC's choosing, with MAC nominated representatives. These meetings included information that was readily accessible and appropriate. Any further meetings would be considered as ongoing engagement post regulation 25 (Environment Regulations) consultation.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that MAC can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided MAC with the opportunity to provide feedback over a 12-month period.
- Woodside asked MAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP)Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on NAC's functions, interests or activities.

Historical Engagement:

- On 3 and 5 April 2023, Woodside and MAC exchanged correspondence regarding a number of outstanding issues including time on the MAC agenda to meet and discuss various activities.

Summary of consultation provided and record of consultation:

- **(1)** On 18 May 2023, Woodside emailed MAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.22).
- On 22 June 2023, Woodside met with MAC Board and Circle of Elders. 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.
    - 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.
    - Provided an overview of the drilling activities.
    - Described the proposed activity, noting infrastructure to be removed; including existing pipeline and the location of the three activities located near Exmouth and Onslow.
    - Described the types of vessels involved.

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- Described the planned impacts and respective controls of the above activities including: the presence of vessels, seabed disturbance, underwater noise, discharge from vessels, emissions to air and external lighting.
- 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.
- Displayed and spoke to the EMBA for each proposed drilling activity, and the individual worst-case loss of containment scenarios identified
- Stated that Woodside wanted to understand how the functions, activities or interests of MAC and the people it represents may be impacted by any of those activities.
- Specifically asked the following:

  How could these activities impact your cultural values, interests and activities - does protecting the environment do enough to protect your cultural values?
  What are your concerns about the proposed activities and what do you think we should do about them?
  Is there anything you would like included in the EPs before submission?
  Is there anyone else Woodside should consult with about the activities?
- Advised that Woodside will continue to take feedback from MAC for the life of the EP.
- Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should MAC desire to provide feedback directly to the Regulator.

- At the 22 June 2023 meeting MAC asked:
  - whether any of the proposed activities are close to Pluto/Murujuga.

    Woodside advised that this drilling activity would occur of the coast of Karratha and Roebourne.
  - how old Woodside's assets are.

    Woodside advised that Rankin was discovered in 1975 but, by the time approvals were received and built Karratha Gas Plant (KGP) and other infrastructure, it began operation in the 1980s. KGP had been operating for around 40 years.
  - what condition this infrastructure is in.

    Woodside advised that it runs large maintenance campaigns to look after all the infrastructure.
- On 29 June 2023, Woodside emailed MAC advising of them of a separate activity and following up on feedback for this activity.
- On 18 July 2023, Woodside emailed MAC NOPSEMA's Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that MAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed MAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 10 August 2023, Woodside emailed MAC to request time to discuss EPs at the next Board and Circle of Elders meeting.
- **(2)** On 1 September 2023, MAC sent Woodside a letter regarding the authority of the Circle of Elders for their cultural guidance on various issues involving the people and "Country" of Murujuga.
- On 5 January 2024, Woodside emailed MAC following up on multiple outstanding EP consultations including this activity.

Ongoing Relationship:

- Woodside continues to pursue an ongoing two-way relationship with MAC on future opportunities to work together.

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Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) During face-to-face engagement on 22 June 2023, MAC asked: • Whether any activities were close to Pluto/Murujuga. • What conditions infrastructure is in. Woodside responded to queries within the meeting. **(2)** MAC have advised that they are the appropriate cultural authority for Murujuga	**(1)** Woodside responded to MAC's queries within face-to-face meetings, MAC has had no further feedback on this activity at this time. **(2)** Woodside has consulted with MAC in their capacity as the representative body for the Traditional Custodians of Murujuga. Separate from consultation under regulation 25 of the Environment Regulations, Woodside supports ongoing engagement with MAC (Section 5.7). As outlined in the consultation summary above, sufficient information and a reasonable period have been provided to demonstrate that consultation for the purpose of regulation 25 of the Environment Regulations is complete. Any further engagement with and support offered to MAC will be for the purpose of ongoing engagement. 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 7.7 of this EP).	**(1, 2)** Not required Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with MAC as part of ongoing engagement (Section 5.7 of the EP).
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) NTGAC is established under the Native Title Act 1993 by the Baiyungu people to represent the Baiyungu people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with NTGAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically: **Sufficient Information:** • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Provided Consultation Information Sheet and Summary Information Sheet to NTGAC on 22 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format. • Woodside sought direction on NTGAC's preferred method of consultation. This resulted in face-to-face meetings being coordinated at the location of NTGAC's choosing, with NTGAC nominated representatives. These meetings included information that was readily accessible and appropriate. Any further meetings would be considered as ongoing engagement post regulation 25 (Environment Regulations) consultation.		

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- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that NTGAC can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided NTGAC with the opportunity to provide feedback over a 12 month period.
- Woodside asked NTGAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on NTGAC's functions, interests or activities.

Woodside does not agree with NTGAC's assertion that it has not yet been adequately consulted on the activity. Woodside has assessed the claims and feedback raised by NTGAC, as detailed later in this section alongside Woodside's response to the claims.

Summary of consultation provided and record of consultation:

- On 22 May 2023, Woodside emailed NTGAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.23).
- On 1 June 2023, Woodside emailed NTGAC following up on the initial Consultation Information Sheet, to see if any assistance or further information was needed.
- On 7 June 2023, NTGAC emailed Woodside apologising for the delayed response and informing that as soon as the Board reviews the provided information, their thoughts will be shared.
- On 19 June 2023, Woodside emailed NTGAC, thanked them for their update and offered ongoing assistance in relation to these consultations.
- On 19 June 2023, NTGAC/YMAC emailed Woodside with instructions from NTGAC Directors that they would like to undertake a consultation workshop with Woodside.
- On 19 June 2023, Woodside emailed NTGAC/YMAC to request a one-day meeting with the NTGAC Directors and to offer funding to hold the meeting.
- On 20 June 2023, NTGAC/YMAC emailed Woodside noting they would enquire about the NTGAC Board's availability for a full day meeting.
- On 30 June 2023, NTGAC/YMAC emailed Woodside with a date and proposed budget for a full day meeting with NTGAC Board on 15 August 2023.
- On 5 July 2023, Woodside emailed NTGAC/YMAC to confirm the meeting date and offered assistance with meeting arrangements.
- On 5 July 2023, NTGAC emailed Woodside thanking them for the approvals and said that they would liaise closer to the date of the workshop.

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- On 17 July 2023, NTGAC/YMAC emailed Woodside attaching a draft framework for consultation with PBC's. YMAC advised NTGAC is not in a position to provide comments on consultation at this time. NTGAC would like to have a strategic planning workshop to develop benefits Woodside can provide under the consultation agreement and to discuss implementation of the framework.
- On 19 July 2023, Woodside emailed NTGAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email included Woodside's request that NTGAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 24 July 2023, Woodside emailed NTGAC to request a pre meeting to finalise the agenda for 15 August workshop with the NTGAC board. The email set out suggested topics to support outcomes to address NTGACs concerns and aspirations, and addressed Woodside's needs in respect of how best to work with NTGAC.
- On 25 July 2023, Woodside emailed NTGAC/YMAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 28 July 2023, NTGAC emailed Woodside and confirmed availability for a pre meeting.
- On 31 July 2023, Woodside emailed NTGAC/YMAC to accept a pre meeting date.
- On 31 July 2023, Woodside emailed NTGAC/YMAC about an unrelated activity and thanking YMAC for the pre meeting held on 2 August and confirming the meeting with NTGAC on 15 August 2023. Woodside also provided links to NOPSEMA's consultation documents, including links to the Brochure, Guideline and Policy documents.
- On 9 August 2023, Woodside emailed NTGAC/YMAC requesting clarity around the meeting scheduled for 15 August 2023.
- On 11 August 2023, Woodside emailed NTGAC/YMAC confirming the proposed meeting and listing who the Woodside representatives would be for 15 August 2023.
- On 14 August 2023, NTGAC/YMAC emailed Woodside acknowledging the meeting to be held 15 August 2023.
- On 15 August 2023, Woodside presented to the NTGAC about several EPs including this EP. At the meeting 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 content of Environment Plans.
    - Described the proposed activity.
    - Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely.
    - Displayed and spoke about the EMBA for the proposed activity, and the individual worst-case loss of containment scenarios identified.
    - Stated that Woodside wanted to understand how the functions, activities or interests of NTGAC and the people it represents may be impacted by any of those activities.
    - Specifically asked the following:

        How could these activities impact your cultural values, interests, and activities – does protecting the environment do enough to protect your cultural values?
        What are your concerns about the proposed activities and what do you think we should do about them?
        Is there anything you would like included in the EPs before submission?
        Is there anyone else Woodside should consult with about the activities?
        Advised that Woodside will continue to take feedback from NTGAC for the life of the EP.
        Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should WAC desire to provide feedback directly to the regulator.

    - At the meeting NTGAC/YMAC asked the following questions and gave the following feedback:

        (1) YMAC asked about whale sightings and response.
        Woodside responded that response depended on activity and controls, Marine Mammal Observers are implemented.

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(2) A proposed framework for consultation was discussed, involving Woodside funding a General Project Report to be written by an independent suitably qualified and experienced consultant, to be provided to NTGAC initially and then on to Woodside.
Terms for ongoing engagement were discussed, including frequency, participation, and content in context of the proposed General Project Report
(3) NTGAC Strategic Plan and relation to potential Woodside social investment opportunities were explored.
(4) NTGAC stated their consultation expectations (two-way dialogue preferred over one-way presentations and requested that consultation meetings cover whole projects or phases rather than single EP activities which is too time consuming).
(5) NTGAC requested that a table of EPs be submitted by December with a timeline.
(6) NTGAC stated that they did not consider that they had been consulted on other EPs based on engagement to date.

- On 31 August 2023, Woodside emailed NGTAC/YMAC, confirming outcomes of the meeting including:
    - YMAC to provide a first draft of a consultation agreement.
    - YMAC to prepare the first draft of a general report.
    - Woodside to provide a list of upcoming activities.
    - Agreed to continue discussions relating to key community focus areas highlighted by NTGAC.
    - Feedback from NTGAC on the appropriateness of the information given by Woodside (too technical) to enable NTGAC to provide feedback.
    - Responded to NTGAC's claim that consultation has not begun by stating that, in Woodside's view, consultation has begun and is ongoing.
- On 1 September 2023, NTGAC/YMAC emailed Woodside confirming they would respond shortly to the outcomes as assessed by Woodside and requesting response to queries in relation to another activity.
- On 1 September 2023, Woodside emailed NGTAC/YMAC, acknowledging information requested will be provided as soon as possible.
- On 6 September 2023, Woodside emailed NTGAC/YMAC, providing information requested regarding another activity.
- On 6 September 2023, NTGAC/YMAC emailed Woodside acknowledging information and noting they would pass over to their environmental scientist, as was stated as part of their proposed framework for consultation on 15 August 2023 meeting.
- On 14 September 2023, Woodside emailed NTGAC/YMAC with the table of upcoming EPs for consultation.
- **(2)** On 14 December 2023, Woodside emailed YMAC attaching the Program of Ongoing Consultation and advised that Woodside wanted to progress negotiations on consultation frameworks with groups represented by YMAC (including NTGAC). Woodside proposed the protocol would include (among other things):
    - The procedures Woodside will follow when a submission requires consultation.
    - Initial and ongoing consultation in relation to activities.
    - Agreement as to how Woodside will provide NTGAC with the information NTGAC requires to make free, prior and informed decisions about Woodside's EPs.
    - Agreement as to how NTGAC will provide feedback and how that can best be represented in EPs.
    - An agreed schedule of rates for NTGAC's participation in consultation.
    - How the outputs of the consultations will be managed.
- On 28 February 2024, Woodside emailed NTGAC/YMAC with a letter setting out the draft terms of an agreement between NTGAC and Woodside, the agreement (among other things) included the following topics:
    - Sufficient Information
    - Reasonable Period.
    - Provision of Information

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- Objection or claims
- Publications
- Cost and termination.

- On 29 February 2024, YMAC emailed Woodside acknowledging receipt of the information.

Ongoing Relationship:

- Woodside will continue to pursue an ongoing two-way relationship with NTGAC under the Proposed Program of Ongoing Engagement with Traditional Custodians.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) During face-to-face engagement on 15 August 2023, NTGAC requested further information on topics related to this proposed activity which were responded to during the meeting: • Whale sightings and response **(2)** NTGAC are developing the first draft of a Consultation Agreement, and General Report. The proposal for the General Report is that it would outline the nature of the activities for each phase of the project and the risks associated with each of the relevant activities. Woodside are awaiting receipt of the initial draft of the General Report. **(3)** NTGAC want to explore social investment opportunities with Woodside which may then feed into NTGAC's Strategic Plan **(4)** NTGAC advised their consultation expectations regarding two way dialogue and covering whole projects not single EPs.	**(1)** Woodside responded to NTGAC's requests for further information during face-to-face engagement, and no further information was requested on this topic. **(2)** Woodside will continue to progress a consultation agreement with NTGAC. This has commenced with the involvement of NTGAC's independent environmental scientist, which was confirmed by email from NTGAC on 6 September 2023. On 14 December 2023, Woodside emailed NTGAC via YMAC to progress negotiations on a consultation framework. Separate from consultation under regulation 25 of the Environment Regulations for this activity, Woodside will establish a Consultation Agreement with NTGAC. On 28 February 2024, Woodside emailed NTGAC via YMAC with a draft consultation agreement for the consideration of NTGAC. The draft agreement set out the aims and details and a consultation meeting framework. The Consultation Agreement and General Report/s would be used to frame ongoing consultation to occur as part of Woodside's commitment to post regulation 25 of the Environment Regulations consultation ongoing engagement. Sufficient information to allow informed assessment has already been provided by other means, including summary sheets developed by Indigenous staff, a face-to-face meeting with appropriate material (pictures, maps, videos) and project attendance allowing opportunity to ask questions and seek further understanding, and agreement to fund NTGAC/YMAC environmental scientist who was also present at the meeting. **(3)** Woodside has assessed that the framework for ongoing consultation proposed by NTGAC is an effective mechanism for exploring opportunities for alignment with NTGAC's Strategic Plan.	**(1)** Potential impacts to whales, which NTGAC have a particular interest in, have been assessed in Section 6.7 and 6.8. **(2, 3)** Woodside is implementing a program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on environment plans, (Appendix G). This includes continued engagement regarding NTGAC's proposed Consultation Framework which will be applied to ongoing consultation, and potential support for their Strategic Plan. This is described further in the Program of Ongoing Engagement with Traditional Custodians, Appendix G. **(4)** Not required. **(5)** Not required. **(6)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with NTGAC as part of ongoing engagement (Section 5.7 of the EP).

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(5) NTGAC requested that a table of EPs with timelines be provided. **(6)** NTGAC stated that in their view consultation had not commenced. NTGAC provided feedback that some of the information they have received has been too technical and outlined their consultation expectations.	**(4)** Woodside's consultation approach with NTGAC is aligned with their request. **(5)** Woodside provided the requested list of EPs on 14 September 2023. **(6)** Woodside responded to NTGAC on 31 August 2023 that in their view consultation has already commenced and is ongoing. Woodside also used NTGAC's preferred consulting format when consulting and on 14 September 2023 Woodside sent NTGAC a list of all activity dates in one email with related feedback timelines. Additionally, Woodside recognises that sufficient information must be provided in a form that is accessible and appropriate to the audience. In response to this request, Woodside developed and provided Summary information sheets developed with a Ngarluma Traditional Custodian for a Traditional Custodian audience in Western Australia. Woodside offered face to face consultation meetings resourced by Woodside to enable meaningful Traditional Custodian consultation, which include visual aids and videos. Woodside will continue to seek direction on a preferred consultation process with NTGAC, and adapt accordingly for future separate activities and for ongoing engagement purposes. As outlined in the consultation summary above, sufficient information and a reasonable period have been provided to demonstrate that consultation for the purpose of regulation 25 of the Environment Regulations for this activity is complete. Any further engagement with NTGAC will be for the purpose of ongoing engagement. 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 7.7 of this EP).	
Buurabalayji Thalanyji Aboriginal Corporation (BTAC) BTAC is established under the Native Title Act 1993 by the Thalanjyi people to represent the Thalanjyi people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.		

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with BTAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Woodside sought direction on BTAC's preferred method of consultation. As sufficient information and a reasonable period have been provided (see below), any future meetings would be considered as ongoing engagement post regulation 25 (Environment Regulations) consultation.
- Provided Consultation Information Sheets and Consultation Summary Sheets developed by Indigenous staff to BTAC. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity with controls in a digestible, plain English format.
- Confirmed the purpose of consultation and set out in detail what was being sought through consultation.
- Asked for the consultation and information sheets to be distributed to members and interested individuals.
- Woodside has provided NOPSEMA's Brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Woodside advised that BTAC could request the particular information provided in the consultation not be published (to align with regulation25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in national, state, and relevant local newspapers on 26 April advising of the proposed activities and requesting comments or feedback.
- Woodside commenced consultation with BTAC in May 2023. Woodside has since addressed and responded to BTAC queries over 9 months, demonstrating a "reasonable period" of consultation.

Woodside asked BTAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside has provided a reasonable opportunity for input since May 2023 and a genuine two-way dialogue has occurred via discussions and written exchanges to further understand the environment in which the activity will take place. BTAC has engaged with the detail of the activity asking related questions. The details of these engagements are described in the consultation summary below.

Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on BTAC's functions, interests or activities.

Summary of consultation provided and record of consultation:

- On 19 May 2023, Woodside emailed BTAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.24).
- On 19 May 2023, BTAC emailed Woodside requesting we resend the Julimar Summary Information Sheet as it was unable to be opened and may be corrupted. BTAC confirmed that, as discussed earlier in the day, Woodside will prepare an overview presentation for BTAC on all existing and proposed EPs, including this EP.

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- On 24 May 2023, Woodside emailed BTAC a link to the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet.
- On 14 June 2023, Woodside emailed BTAC attaching a letter setting out draft framework for ongoing consultation (requested by BTAC in response to consultation on other EPs) which includes recording of sea country values, commitments to regular three-monthly meetings, support for BTAC's capacity to engage, a set of milestones for agreeing the framework and commencement of implementation.
- On the 6 July 2023, Woodside attempted to make contact via phone call, but BTAC did not answer.
- On the 7 July 2023, Woodside attempted to make contact via phone call, but BTAC did not answer.
- On the 10 July 2023, Woodside followed up a phone call with BTAC with an email to seek further confirmation that BTAC did not object to Woodside's submission of a number of Environmental Plans (including this one) that it is planning to submit to NOPSEMA. Woodside outlined a series of commitments to BTAC in order to ensure ongoing consultation and a positive working relationship continues.
- On the 10 July 2023, BTAC emailed Woodside a letter, advising that:
    - **(1) & (2)** BTAC wishes to ensure it has the opportunity to be consulted and is appropriately resourced to do so;
    - **(3) & (4)** Subject to entering into a collaboration agreement, BTAC is agreeable in principle to Woodside including statements regarding consultation with BTAC, that were provided to BTAC in correspondence in March 2023;
    - **(4)** BTAC understands Woodside would prepare a pictorial presentation summarising the EPs undergoing consultation, and aspects of a proposed consultation framework; and,
    - **(4)** BTAC provided examples of areas the consultation framework could address.
- On 14 July 2023, Woodside responded to BTAC's letter of 10 July, noting that:
    - **(2) (3)** the collaboration agreement would take some time to finalise, and inviting BTAC to send a cost estimate to continue consultation while the agreement was being progressed.
    - **(4)** advising BTAC that Woodside intends to submit the EPs noted for consultation with BTAC, and seeking confirmation that BTAC does not object to submission.
- On 19 July 2023, Woodside emailed BTAC NOPSEMA's Consultation Guidelines, Consultation Brochure and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that BTAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult. No response was received to this email.
- On 19 July 2023, Woodside emailed BTAC seeking a time to continue discussion regarding a draft presentation to a meeting between Woodside and the BTAC Board about activities on Thalanyji country including other items not related to this proposed activity, and the collaboration principles.
- On 19 July 2023, BTAC emailed Woodside to organise a time for the discussion regarding the draft presentation.
- On 20 July 2023, Woodside emailed BTAC a draft presentation for discussion.
- On 26 July 2023, Woodside emailed BTAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 26 July 2023, Woodside emailed BTAC Woodside's template presentation further to an earlier draft for consideration.
- On 28 July 2023, Woodside emailed BTAC meeting details to join a Teams meeting of 28 July 2023.
- On 28 July 2023, BTAC emailed Woodside with outcomes of meeting, confirming Woodside has set aside funding for engagement, Woodside's wish to meet with BTAC Board (or sub-committee) as soon as available to discuss offshore activities/EPs. Woodside will prepare a draft framework agreement to address consultations in relation to NOPSEMA matters.

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- On 31 July 2023, Woodside emailed BTAC noting that Woodside would be open to funding a special meeting with the Board or sub-committee and requesting a cost estimate for such a meeting.
- On 31 July 2023, Woodside emailed 3 letters to BTAC, 2 of those letters related to other Woodside activities. The 3rd letter outlined support for an ethnographic assessment to:
    - (5) Identify sea country values generally sufficient to inform all Woodside EPs.
    - Support any work necessary to clarify or define the offshore areas that are relevant to the Thalanyji People.
    - Propose the delivery of interim reports if this will enable prioritising matters considered most critical by BTAC.
    - Confirm Woodside will be responsible for all reasonable costs to complete the assessment.
    - Confirm BTAC retains intellectual property.
- On 15 August 2023, Woodside emailed BTAC thanking them for their time on the phone regarding another activity unrelated to this EP. Woodside reaffirmed its commitment to building a positive ongoing relationship with BTAC and expressed a desire to meet again soon.
- On 22 August 2023, BTAC emailed Woodside acknowledging correspondence and noting they will come back with a time to meet and progress matters.
- On 23 August 2023, Woodside emailed BTAC requesting to meet for an initial discussion to layout the various matters that have been under discussion, including BTAC's capacity and priority areas previously identified by BTAC.
- **(2) & (3) & (8)** On 14 September 2023, BTAC emailed a letter to Woodside regarding a framework agreement with BTAC. The intent of the agreement would be to formalise a co-ordinated, streamlined approach to progressing meaningful ongoing engagement and consultation. The letter included areas the agreed framework could address, and confirmed that the agreed framework would allow BTAC to meaningfully comment on a range of issues including:
    - BTAC thanked Woodside for committing to on-going consultation throughout the life of relevant various EPs and associated activities.
    - BTAC noted that Woodside has commenced consultation, or intends to consult, with Thalanyji people through BTAC for more than 24 separate activities including this activity.
    - How/whether EP activities could impact cultural values, interests and customary or organisational activities, concerns and useful ways these can be addressed.
    - The content of EPs prior to submission to NOPSEMA
    - Appropriate ways for mitigating risk and ensuring ongoing social licence.
    - A further letter attached to the letter outlining a proposed cost recovery mechanism for consultation activities, and BTAC stated that it did not sanction or endorse any consultation occurring without cost recovery.
- On 14 September 2023, Woodside emailed BTAC acknowledging BTAC's email of 14 September and planning further review and discussion.
- **(2)** On 20 September 2023, BTAC emailed Woodside requesting a response from Woodside about accepting the proposed costs acceptance letter which BTAC sent on 14 September 2023, and requesting a list of current and ongoing activities Woodside were seeking ongoing consultation for.
- **(2) (3) (7)** On 20 September 2023, BTAC emailed Woodside further to their earlier email, requesting a response to BTAC's cost proposal, a list of Woodside activities for ongoing consultation and an update on the status of the framework agreement for BTAC's review.
- **(2) (3) (6) (7)** On 22 September 2023, Woodside emailed BTAC accepting BTAC's proposed consultation fee structure, the list of activities that Woodside has consulted BTAC on and advising that the draft framework agreement was under internal review.
- **(2) (3) (7)** On 26 September BTAC emailed Woodside acknowledging EP information received, signed costs and acceptance letter and that a draft agreement was currently under internal Woodside review. The email confirmed BTAC will be assisted with legal advice from a legal representative.
- On 27 September 2023, the legal representative emailed Woodside clarifying that they are instructed by BTAC on this matter.

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- On 4 October 2023, Woodside emailed BTAC via legal representative thanking them and stating that they look forward to an ongoing relationship with BTAC and its legal representation.
- On 13 October 2023, the legal representative emailed Woodside confirming they acted for BTAC on NOPSEMA matters. Among other things, they noted, they required an indemnity clause in the proposed framework agreement against any court action that arose from a claim against BTAC in regard to the consultation they engaged on with Woodside EPs.
- On 31 October 2023, the legal representative emailed Woodside, requesting a response to the email about indemnifying BTAC.
- On 1 November 2023, BTAC emailed Woodside requesting attendance at a BTAC member meeting to update on Woodside activities on 27 November 2023 in Carnarvon.
- On 1 November 2023, Woodside emailed BTAC accepting the invitation from BTAC and offering to cover costs.
- On 2 November 2023, Woodside emailed BTAC via the legal representative noting they would not agree to the request to indemnify BTAC against any court proceedings as a result of consultation they engage in with Woodside on EPs. Woodside re-iterated their wish to progress the framework agreement to build their relationship with BTAC. Woodside again noted that they wish to progress other matters, including the commitment to mapping BTAC's sea country values.
- On 2 November 2023, BTAC via the legal representative emailed Woodside requesting more detail about Woodside not supporting the indemnity request.
- On 3 November 2023, BTAC via the legal representative emailed Woodside confirming that BTAC would like Woodside to present to a BTAC members meeting on 27 November 2023 in Carnarvon.
- On 18 November 2023, Woodside emailed BTAC via the legal representative with further information about why they would not indemnify BTAC as requested in the 13 October 2023 email. Woodside explained that it could harm genuine engagement, may promote behaviours in others who may become aware of the indemnity by Woodside, and it would not be good practice to provide an indemnity in relation to the act or omission of other parties that Woodside would not necessarily engage with. Woodside again noted their commitment to build an ongoing relationship with BTAC.
- **(3) (5)** On 27 November 2023, Woodside attended a BTAC members meeting, during the one-hour Woodside gave an overview of current projects and re-iterated that consultation is ongoing for the life of EP's. BTAC members were very interested in an ongoing relationship and discussed sea country mapping, which Woodside had responded to in writing earlier in 2023 and agreed to re-send to the new CEO. Woodside will be invited to attend a meeting with BTAC early in the new year, a collaborative agreement will be settled and further ongoing consultation on all relevant EPs will continue in order of priority to BTAC and Woodside.
- **(3) (5) (7)** On 7 December 2023, Woodside emailed BTAC via the legal representative requesting a response to the email of 18 November 2023 in relation to their request and Woodside's response on indemnification. Woodside noted that the framework agreement has not been finalised to date but would include the following:
    - **(3)** Agreement between parties to consult in a meaningful and genuine manner.
    - Procedure Woodside will follow when a submission requires consultation, which would include notification and an invitation to meet.
    - Initial and ongoing consultation about activities.
    - How Thalanyji provides feedback and how to represent that feedback in submissions.
    - Agreed schedule of rates.
    - How to manage the outputs of consultation.
    - Woodside requested to meet to progress discussions with BTAC.
- **(2) (3) (5) (7)** On 7 December 2023, Woodside emailed BTAC forwarding correspondence received from and correspondence sent to the previous CEO dated 20 February 2023 and dated 17 March 2023, confirming support for recording sea country values and confirming anthropological support. Woodside confirmed support to pay reasonable costs for ethnographic/anthropological support for mapping and recording sea country values. Woodside requested to be contacted to enable progress on the above matters. BTAC's

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letter of 20 February 2023 in relation to other activities noted interests in archaeological sites on nearshore islands including the Montebello and Barrow Islands, they noted a cultural obligation to care for sea country and environmental values.

- **(5)** On 7 December 2023, BTAC emailed Woodside accepting the offer to take up sea country mapping and research. BTAC requested a meeting in the week of 15 January 2024 to plan for upcoming activities.
- **(7)** On 8 December 2023, the legal representative emailed Woodside in relation to settling finance matter, noting they would wait to schedule a meeting with BTAC once financials sorted.
- On 8 December 2023, Woodside emailed the legal representative requesting further details on finances for the framework agreement, noting that Woodside's policies require itemised estimates for services.
- On 11 December 2023, the legal representative emailed Woodside acknowledging costs estimates would be provided shortly and requesting availability to meet with BTAC during January, February and March 2024.
- On 12 December 2023, BTAC emailed Woodside asking if 17 January 2024 was a suitable date to meet.
- **(3) (5)** On 12 December 2023, Woodside emailed the legal representative noting that BTAC had suggested a meeting during the week of 15 January 2024 to discuss sea country mapping. Woodside suggested that they would include time to progress the framework agreement and present on the status of current EPs.
- On 15 December 2023, BTAC emailed Woodside requesting a copy of the slide presentation from the meeting of 27 November 2023.
- On 18 December 2023, Woodside emailed BTAC a copy of the slide presentation as requested from the meeting of 27 November 2023.
- On 19 December 2023, Woodside emailed BTAC agreeing to meet on 17 January 2024, Woodside provided an example of costings provided by other PBCs and noted they would not be able to pay legal fees if the framework agreement and EPs were not discussed. Woodside requested other meeting dates if the 17 January 2024 meeting was only to discuss sea country mapping.
- On 19 December 2023, the legal representative emailed Woodside noting that they had an understanding that the EP consultation and framework agreement would be discussed at the 17 January 2024 meeting. They queried the detail of the information being sought by Woodside on funding.
- On 20 December 2023, Woodside emailed the legal representative noting that they were seeking a cost estimate and required this prior to the legal representative being present at the BTAC meeting if they wished to be funded for attendance.
- On 9 January 2024, Woodside emailed BTAC confirming a meeting on 17 January 2024 to discuss sea country mapping, requesting logistics and cost coverage estimate.
- On 16 January 2024, BTAC emailed Woodside confirming meeting of 17 January 2024 with BTAC and requesting the names of Woodside attendees.
- On 16 January 2024, Woodside emailed BTAC with the names of Woodside attendees, as requested.
- On 17 January 2024, Woodside met with BTAC and discussed (among other things):
- **(5)** Sea country mapping, confirming:
    - BTAC choose their own experts for ethnographic survey.
    - BTAC retain intellectual property of material and may request information not be provided.
    - Fieldwork required with a preferred commencement in April, with Woodside personnel in attendance as guided by BTAC.
    - (8) BTAC prefer early notice on EPs, if possible.
    - (9) BTAC keen on employment/training opportunities and opportunities for rangers.
    - (8) BTAC to form a committee for consultation on EPs.

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- **(9)** On 17 January 2024, Woodside emailed BTAC information about training pathways as discussed at the meeting with BTAC on 17 January 2024.
- On 8 February 2024, Woodside emailed BTAC following up on a quote for Woodside to support BTAC articulating sea country values.
- **(5)** On 8 February 2024, BTAC emailed Woodside noting that they have a consultant generating a scope of work for articulating sea country values which will allow BTAC to understand costings.
- On 8 February 2024, Woodside emailed BTAC acknowledging their response.
- On 28 February 2024, Woodside emailed BTAC with a draft consultation agreement for their consideration. The draft agreement sets out the aims of consultation, proposed consultation agreement details and a consultation meeting framework. Woodside invited BTAC to provide rates and details relating to engagements.
- On 28 February 2024, the legal representative emailed Woodside querying the fee agreement for legal advice.
- On 28 February 2024, Woodside emailed BTAC via the legal representative confirming the delivery of a draft engagement framework as sought by BTAC, and a reiteration of Woodside's requirement for cost estimates which must be approved prior to the provision of legal services.
- On 5 March 2024, BTAC via a legal representative emailed Woodside in relation to another activity and advised they would respond shortly to Woodside's email on 28 February 2024 which included a draft consultation agreement for BTAC's review.
- On 6 March 2024, Woodside emailed BTAC via a legal representative to indicate their willingness to meet face-to-face and to request a suitable meeting date.
- Between 15 – 17 April 2024, BTAC and Woodside exchanged emails to confirm Woodside would attend a meeting with BTAC Directors on 22 May 2024.

Ongoing Relationship Building:
Woodside is continuing to pursue an ongoing two-way relationship with BTAC including the development of a Collaboration Agreement 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	Inclusion in Environment Plan
(1) BTAC wishes to ensure it has the opportunity to be consulted. **(2)** BTAC seeks to ensure it is appropriately resourced to support consultation. **(3)** BTAC seeks a collaboration agreement as an appropriate mechanism to provide feedback to Woodside regarding its activities. **(4)** BTAC supports submission of EPs subject to entering into a collaboration agreement. BTAC requested Woodside prepare a draft	**(1)** Woodside has identified BTAC as a relevant person as described in Section 5.3. of this EP Woodside has provided BTAC with sufficient information and reasonable time to be consulted. **(2)** Woodside has agreed to BTAC's proposed cost acceptance letter and invited BTAC to submit a cost estimate to support consultation. Woodside has confirmed Woodside has set aside funding to support engagement (28 July 2023) and offered financial support for BTAC to articulate their sea country values (31 July 2023). This was further discussed on 27 November 2023, BTAC newly appointed CEO has requested previous correspondence so as to progress this matter in early 2024. **(1, 3 & 4)** Separate from consultation under regulation 25 of the Environment Regulations, Woodside will establish a Collaboration Agreement with BTAC. The agreement would be used to frame ongoing consultation. Sufficient information to allow informed assessment has already been provided by other	**(1)** Not required **(2)** Not required **(3)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with BTAC as part of ongoing engagement (Section 5.7 of the EP). **(4) & (7)** Woodside is implementing a program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on environment plans for the purpose of avoiding impacts to cultural heritage values. This includes continued engagement regarding the Collaboration Agreement that Woodside seeks with BTAC, which could include support for BTAC to define and articulate values,

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presentation for discussion summarising EPs for consultation, and the elements of a collaboration agreement. BTAC provided elements to be considered in a collaboration agreement. **(5)** BTAC have not specifically developed values regarding Sea Country into a format that could be articulated for consultation. BTAC sought support from Woodside to enable BTAC to define and articulate its values on Sea Country in a manner that could be more clearly understood by the offshore sector, government, and the community. **(6)** BTAC requested a list of EPs open for ongoing consultation. **(7)** BTAC does not endorse any consultation without appropriate cost recovery. **(8)** BTAC requested early notification on EPs and are interested in forming a committee for ongoing consultation on EPs. **(9)** Expressed desire to be involved in local emergency response capability, potentially via an Indigenous Ranger Program. Interested in opportunities for employment/training.	means, including Consultation Information Sheets and a Summary Information Sheet developed by Indigenous staff members, and slide packs associated with offered face-to-face meetings. Woodside and BTAC have agreed on a Costs Acceptance Letter. Woodside has developed a Framework Agreement for ongoing consultation which was forwarded to BTAC for their consideration in February 2024. BTAC have acknowledged receipt and will consider the draft framework. 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 7.7) **(2)** Separate from consultation under regulation 25 of the Environment Regulations, Woodside will establish a Collaboration Agreement with BTAC. The agreement would be used to frame ongoing consultation. Sufficient information to allow informed assessment has already been provided by other means, including Consultation Information Sheets and a Summary Information Sheet developed by Indigenous staff members, and slide packs associated with offered face-to-face meetings. Woodside issued a draft presentation to BTAC on 20 July 2023 capturing BTAC's requests. **(5)** Woodside agreed to support the articulation and recording of sea country values. This offer has been taken up with further details to be addressed in writing from BTAC following the meeting of 17 January 2024. The draft Collaboration Agreement at (7) below includes support for recording and articulation of Sea Country values. Completion of an ethnographic assessment is not required to undertake or complete consultation under regulation 25 of the Environment Regulations. Opportunity to undertake this work continues under the proposed Collaboration Agreement (see 6) as part of ongoing engagement. Woodside has been able to develop a robust understanding of Thalanyji Sea Country cultural values and features in absence of this assessment. **(6)** Woodside provided a list of EPs open for consultation to BTAC on 22 September 2023. **(7)** Woodside assesses that the proposed Collaboration Agreement is an appropriate mechanism for addressing appropriate cost recovery for BTAC. Woodside has already offered BTAC support for consultation meetings and recording of sea country values (See 2). As described in the summary above, Woodside has afforded sufficient information and reasonable time for BTAC to provide feedback in the course of preparing this EP.	provision of ongoing feedback and cost recovery. This is described further in the Program of Ongoing Engagement with Traditional Custodians, Appendix G. **(5)** BTAC has been provided reasonable time and sufficient information to provide information regarding sea country values. In the absence of sea country mapping, Woodside has updated the EP to include a review of publicly available literature relevant to the Thalanyji people (Section 4.9.4.1). Should the sea country mapping activity take place, any information arising from it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP). **(2, 6, 8)** Not required. **(9)** The Program for Ongoing Engagement with Traditional Custodians (Appendix G) includes commitments to social investment to support Indigenous Ranger programs, and support for Indigenous oil spill response capabilities. In relation to BTAC's claim in relation to other EPs that it has a cultural obligation to care for sea country, Woodside has taken all reasonable steps to develop a robust understanding to identify cultural values and heritage features of Thalanyji people within the EMBA. Woodside has incorporated BTAC's interests and potential cultural values in Section 4.9, and assessed potential impact on these, including controls, in Section 6.10 of the EP.

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	(8) Woodside supports ongoing consultation being conducted in the most appropriate way for BTAC. **(9)** Woodside will engage in ongoing consultation with BTAC for the purposes of ongoing monitoring, management and emergency response associated with environmental risk. On 17 January 2024 Woodside provided information about training/employment program to BTAC. Woodside notes BTAC's claim in relation to other EPs that it has a cultural obligation to care for sea country. Woodside assessed BTAC's cultural obligation to care for environmental values of sea country to represent potential cultural values.	

Yinggarda Aboriginal Corporation (YAC)

YAC is established under the Native Title Act 1993 by the Yinggarda people to represent the Yinggarda people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with YAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Provided Consultation Information Sheet and Summary Information Sheet to YAC on 22 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on YAC's preferred method of consultation. This resulted in face-to-face meetings being coordinated at the location of YAC's choosing, with YAC nominated representatives. These meetings included information that was readily accessible and appropriate.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that YAC can request that particular information provided in the consultation not be published to align with regulation 25(4) of the Environment Regulations.

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided YAC with the opportunity to provide feedback over a 12 month period.

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- Woodside asked YAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on YAC's functions, interests or activities.

Summary of consultation provided and record of consultation:

- On 22 May 2023, Woodside emailed YAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.25).
- On 1 June 2023, Woodside emailed and phoned Gumala Aboriginal Corporation to speak with someone about consulting YAC on EPs. Reception said they would have a member of the governance team call back.
- On 15 June 2023, YAC via Gumala Aboriginal Corporation emailed Woodside stating they were keen for Woodside to consult to the Group. They indicated a date had been set for 6 July 2023 for the consultation meeting.
- On 19 June 2023, Woodside emailed YAC via Gumala Aboriginal Corporation accepting the invitation to attend the YAC Board meeting, and requesting a half day meeting with the YAC Board to allow YAC time to ask questions and have time to consider information.
- On 21 June 2023, YAC via Gumala Aboriginal Corporation emailed Woodside inviting attendance at a half day YAC Board meeting to discuss other EP matters.
- On 21 June 2023, Woodside emailed YAC via Gumala Aboriginal Corporation accepting the invite to attend the YAC Board meeting on 5 July for a half day.
- Between 29 June-1 July 2023, Woodside and YAC via Gumala Aboriginal Corporation exchanged emails on relevant material available to YAC Directors prior to the meeting. Woodside provided information sheets for this project and another activity for distribution to YAC Directors.
- **(1)** On 5 July 2023, Woodside presented to YAC about several EPs including this EP. At the meeting 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.
    - 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.
    - Described the proposed activity.
    - Described planned and unplanned environmental risks and impacts in accordance with tables provided in the Information Sheets for the activities, emphasising that unplanned risks are not expected to occur and are unlikely.
    - Displayed and spoke to the EMBA for the activity, and the individual worst-case loss of containment scenarios identified.
    - Stated that Woodside wanted to understand how the functions, activities or interests of YAC and the people it represents may be impacted by any of those activities.
    - Specifically asked the following:

        How could these activities impact your cultural values, interests, and activities – does protecting the environment do enough to protect your cultural values?
        What are your concerns about the proposed activities and what do you think we should do about them?
        Is there anything you would like included in the EPs before submission?

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Is there anyone else Woodside should consult with about the activities?

- Advised that Woodside will continue to take feedback from YAC for the life of the EP.
- Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should WAC desire to provide feedback directly to the regulator.

- At the 5 July meeting YAC also asked the following questions and provided the following feedback:
  - **(1)** YAC expressed sadness at the potential for environmental impact.

    Response: Woodside explained that the potential impact from the unplanned activities is very low. For example, Woodside has been operating in the region for over 30 years and has not had a serious unplanned environmental event in that time. Importantly, if there is an unplanned event, the entire EMBA as shown on the maps will not be impacted. The area of the EMBA will be somewhere within the mapped area depending on factors such as wind, current and tide.
  - **(1) (2) (3)** YAC stated plants, animals and the environment are inexorably linked to their culture and asked: whether Woodside has undertaken environmental studies and whether these studies ongoing; and what environmental monitoring happens after the EPs are approved.

    Response: Woodside has undertaken numerous environmental studies that form part of the EPs and has an ongoing commitment to environmental studies and research, some of which are set out on Woodside's website.
    Environmental monitoring is an ongoing activity, and the nature and timing of environmental monitoring depends on the nature, possible consequences, and likelihood of the environmental risks. Importantly, Woodside commits to ongoing consultation with YAC and will be able to take feedback if any new information in relation to risks comes to light.
  - **(5)** YAC suggested that ranger programs could assist with environmental management and monitoring, and that YAC would likely write to Woodside about this suggestion and generally to discuss how YAC can be involved with / benefit from Woodside's activities.

    Response: Woodside looks forward to discussing these opportunities with YAC further as part of our ongoing engagement. Woodside commits to ongoing consultation about the EPs and to building the relationship with YAC.
  - **(3) (4)** YAC expressed concern about potential impacts to potential impact patterns of whales, and potential collisions. Woodside responded by explaining controls which would be in place to minimise impacts and risks to whales, and no further information was requested.
- On 5 July 2023, YAC via Gumala Aboriginal Corporation emailed Woodside requesting a copy of the presentation slides from the 5 July meeting with YAC.
- On 5 July 2023, Woodside emailed YAC via Gumala Aboriginal Corporation to provide the presentation slides from the 5 July meeting with YAC, and additional information including relevant links on Woodside's website and links to a range of short videos, including the drilling video screened at the meeting.
- On 17 July, Woodside emailed YAC via Gumala Aboriginal Corporation a letter summarising the 5 July meeting.
- On 19 July 2023, Woodside emailed YAC via Gumala Aboriginal Corporation NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that YAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 19 July 2023, YAC via Gumala Aboriginal Corporation emailed Woodside acknowledging receipt of Woodside's email of 19 July.
- On 26 July 2023, Woodside emailed YAC via Gumala Aboriginal Corporation Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 2 August 2023, YAC lawyer emailed Woodside to indicate that they have been placed on a retainer by YAC to advise on NOPSEMA matters.

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- On 3 August 2023, Woodside emailed YAC via Gumala Aboriginal Corporation the NOPSEMA guidelines again with the new lawyer addressed in the email.
- **(7)** On 4 August 2023, YAC via legal representative emailed Woodside confirming instructions by YAC to formally engage with Woodside regarding future NOPSEMA consultation and requiring funds before engagement.
- **(6)** On 10 August 2023, YAC via legal representative emailed Woodside, noting that:
    - Woodside had provided a considerable volume of videos, complex materials and presentations to the YAC board since 1 July 2023, covering multiple proposed activities.
    - The YAC board is seeking advice about different documents and considering cultural and spiritual impacts of proposed activities.
    - The YAC board has not yet concluded its investigations and provided feedback, and if Woodside has advanced plans with NOPSEMA it has different view of the role and capacity of TOs in the process as clarified by Santos v Tipakalippa.
    - **(7)** Requesting appropriate resources and time for YAC board to allow them to form a considered view, as requested on 4 August 2023.
    - **(7)** Inviting Woodside to submit a proposed consultation agreement.
    - YAC board intends to raise matters at a community meeting in Carnarvon in September 2023, including Aboriginal community members who are not YAC members.
- On 11 August 2023, Woodside emailed YAC via legal representative acknowledging the request for a draft consultation agreement, noting it would be attended to within a week or so and confirming the process for onboarding to receive payments.
- On 11 August 2023, YAC via Gumala Aboriginal Corporation emailed Woodside confirming formal resolution by the YAC Board to retain their lawyer to engage on NOPSEMA matters and providing a copy of the Board Resolution.
- **(7)** On 14 August 2023, YAC via legal representative emailed Woodside stating that it looked forward to receiving the consultation agreement for consideration and agreeing arrangements for onboarding to receive payments.
- **(7)** On 14 September 2023, Woodside emailed YAC via legal representative with a proposed consultation framework.
- **(7)** On 14 September 2023, YAC via legal representative confirmed receipt of the consultation framework and advised they would seek direction from the YAC Board. No response on this matter has been received to date.
- On 13 October 2023, the legal representative emailed Woodside confirming they act for YAC on NOPSEMA matters. Among other things, they noted, they required an indemnity and hold harmless clause be included in the Framework Agreement to protect against potential exposure to activist litigation.
- On 2 November 2023, Woodside emailed YAC via legal representative advising they would not agree to the request to indemnify YAC against any court proceedings as a result of consultation they engage in with Woodside on EPs.
- On 3 November 2023, the legal representative emailed Woodside requesting information on the reason for Woodside's position not to include indemnification in the consultation agreement.
- On 18 November 2023, Woodside emailed YAC via legal representative with further information about why they would not indemnify YAC as requested in the 13 October 2023 email. Woodside explained that it could harm genuine engagement, may promote behaviours in others who may become aware of the indemnity by Woodside, and it would not be good practice to provide an indemnity in relation to the act or omission of other parties that Woodside would not necessarily engage with.
- On 8 March 2024, Woodside emailed YAC via legal representative with a draft consultation agreement for consideration by YAC. The draft agreement sets out the aims of consultation, proposed consultation agreement details, a consultation framework and an invitation for YAC to propose a schedule of rates and other details relating to engagements.

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- **(6)** On 12 March 2024, YAC via a legal representative emailed Woodside with a proposed schedule of rates, indicating they would wait for a response on the proposed schedule of rates before putting the consultation agreement before the YAC Board.
- **(6)** On 27 March 2024, YAC via a legal representative emailed Woodside on an unrelated activity and advised that they require agreement to their proposed Schedule of Fees to be able to proceed with consultation, and that they require a reply for their meeting on 4 April 2024 with the YAC Board.
- On 27 March 2024, Woodside emailed YAC via a legal representative advising they would follow up the status of Woodside's response.
- On 4 April 2024, Woodside emailed YAC via a legal representative advising that Woodside had undertaken a review, providing the Proposed Schedule of Rates for inclusion in the agreement, and asking for the next available Board meeting.
- On 8 April 2024, YAC via legal representative emailed Woodside (SI Report, reference 17.22) advising the next YAC Board would meet on 9 May 2024, asking if Woodside would fund the cost of the meeting for consultation, how much time Woodside would require, and asking for a list of matters for discussion to enable them to provide a cost estimate for legal fees.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) YAC asked Woodside has undertaken environmental studies and whether these studies are ongoing. **(2)** YAC asked if environmental monitoring happens after the EPs are approved. **(3)** YAC identified concerns over unplanned activities and their potential impact on plants and animals, including whale collisions. **(4)** YAC expressed a general interest in whales. Woodside discussed controls protecting whales from an ecological perspective during meetings in which they were raised, no further feedback or comment was received on these topics. **(5)** YAC expressed interest in a ranger program to assist with	**(1)** Woodside responded that numerous environmental studies are undertaken and they form part of the EPs and directed YAC to Woodside's website **(2)** Woodside responded that environmental monitoring is for the life of the EP and Woodside notes that they commit to ongoing consultation with YAC and will take feedback if any new information in relation to risks comes to light. **(3)** Woodside responded that potential impact from unplanned activities is very low and that they had not had a serious unplanned environmental impact in over 30 years. Woodside also responded to specific examples such as vessel collision with migratory species (e.g. whales) and stated that it would comply with regulatory requirements for interaction with marine fauna. Woodside would also adhere to defined observation and exclusion zones and implement adaptive management where required. **(4)** Woodside noted YAC's interest in whales. (5) Woodside will engage in ongoing consultation with YAC for the purposes of ongoing monitoring, management and emergency response associated with environmental risk. **(6)** Woodside does not agree with YAC's claim it requires more time for consultation on this on the activity. Woodside met with YAC's nominated representatives, at location of YAC's choice on 5 July a half day meeting where the activity was described face to face by Woodside project	**(1)-(4)** Existing controls are considered sufficient, as described in section 6. **(5)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with YAC as part of ongoing engagement (Section 5.7 of the EP). **(6)-(7)** Woodside is implementing a program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on environment plans. This is described further in the Program of Ongoing Engagement with Traditional Custodians, Appendix G.

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environmental management and monitoring. **(6)** YAC stated after 3 months of consultation that it requires further time to consider the proposed activity and other activities. **(7)** YAC stated it requires further funding and a consultation agreement to consider the proposed activity and other activities.	representatives, subject matter experts and First Nations relations advisers (see section 5 for approach). This included specifically developed "plain English" material developed by First Nations personnel in collaboration with technical experts, maps, pictures and a short video visually communicating the drilling process. During the meeting YAC representatives were encouraged to control the pace of the engagement and seek clarification. YAC asked questions about the activity (see points 1, 2 and 3) which indicates that material was engaged with. **(7)** Woodside has agreed to further reasonable costs and a consultation agreement relevant to: • activities for which consultation under regulation 25 is closed but for which ongoing consultation applies (such as this activity); and • for consultation under future EPs. 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 7.7 of this EP).	

Kariyarra Aboriginal Corporation (KAC)
Kariyarra is established under the Native Title Act 1993 by Kariyarra people to represent the Kariyarra people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Kariyarra Aboriginal Corporation for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Provided Consultation Information Sheet and Summary Information Sheet to Kariyarra Aboriginal Corporation on 18 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on KAC's preferred method of consultation. This resulted in a face-to-face meeting being coordinated at the location of KAC's choosing, with KAC nominated representatives. This meeting included information that was readily accessible and appropriate. As sufficient information and a reasonable period have been provided (see below), any future meetings would be considered as ongoing engagement post regulation 25 (Environment Regulations) consultation.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.

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- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that Kariyarra Aboriginal Corporation can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations.)

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided Kariyarra Aboriginal Corporation with the opportunity to provide feedback over a 12 month period.
- Woodside asked Kariyarra Aboriginal Corporation if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on Kariyarra Aboriginal Corporation's functions, interests or activities.

Summary of consultation provided and record of consultation:

- On 18 May 2023, Woodside emailed KAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.26).
- On 20 June 2023, Woodside emailed KAC CEO notifying of a wish to engage in relation to a further EP and seeking feedback and preferred time and method of consultation.
- On 6 July 2023, Woodside followed up on the two EPs provided to KAC on 18 May (this one) and 20 June 2023 and advising Woodside would be happy to meet or consult with KAC.
- On 18 July 2023, Woodside emailed KAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that KAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed KAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 28 August 2023, Woodside emailed KAC following up on EPs previously notified (including this one) and re-iterating a request to meet with KAC to consult on activities.
- On 31 August 2023, KAC emailed Woodside apologising for not responding sooner and noting that KAC were seeking legal advice on matters.
- On 31 August 2023, Woodside emailed KAC acknowledging their response.
- On 31 August 2023, KAC via legal representative emailed Woodside requesting information about another activity unrelated to this EP, indicating they required costs to be met for KAC to be engaged in consultations with Woodside.
- On 10 September 2023, Woodside emailed KAC a response advising that Woodside was still to provide clarity on funding.
- On 10 September 2023, Woodside emailed KAC on a series of activities not related to this EP, and reiterated Woodside's provision of various forms of assistance to support KAC's participation in consultation. Woodside offered a contact for any further information or discussion via KAC's preferred form of feedback.
- On 10 September 2023, KAC via legal representative emailed Woodside seeking confirmation of funding.

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- On 13 September 2023, KAC via legal representative emailed Woodside requesting confirmation that consultation costs would be covered by Woodside. KAC also advised that the Kariyarra have sea rights referenced in their native title evidence. The KAC lawyer affirmed that further consultation will be required now that KAC has a legal adviser.
- On 13 September 2023, Woodside emailed KAC via legal representative confirming agreement in principle to consultation costs covered by Woodside and requesting approximate, reasonable quotes for consultation activities.
- On 13 September 2023, KAC via legal representative emailed Woodside requesting a copy of the information sheet for another EP previously provided by Woodside to KAC.
- On 13 September 2023, Woodside emailed KAC via legal representative with information on another EP as requested. Woodside also noted that a response to funding had not yet been received but would be followed up and confirming that Woodside are looking for positive engagement with KAC.
- **(1, 2 & 3)** On 28 September 2023, KAC via legal representative emailed Woodside and provided a single figure non-itemised quote. The email attached a letter dated 22 September 2023 and entitled "Kariyarra and Woodside – Scarborough Project Consultation Requirements" and setting out proposed negotiations for a consultation protocol and co-management agreement. The letter did not refer to this activity but referred to values and interests in sea country including traditional fishing and gathering rights in the ocean and presence of mythic snakes.
- Between 20 and 23 October 2023, several emails were exchanged in relation to costs and Woodside reiterated the need for a reasonable quote.
- **(2)** On 26 October 2023, the KAC legal representative emailed Woodside in relation to a separate activity stating Woodside's proposed cost structure was inadequate and would confer with EDO and the neighbouring Traditional Owners that have taken court action.
- **(2)** On 14 November 2023, the KAC legal representative emailed Woodside in relation to a separate activity stating that they had taken their concerns to the EDO.
- **(2)** On 22 November, Woodside emailed KAC via legal representative reiterating a preparedness to fund consultation for consultation meetings and noting that Woodside were looking at implementing further environmental controls in relation to operations to reduce or remove any potential impact to KAC sea country. Woodside said they wished to progress the framework agreement and suggested a full day meeting with KAC. The agreement could set out a protocol for ongoing consultation on EPs where consultation for purposes of developing an EP is closed, and for consultation on development of EPs for new activities.
- **(1)** On 23 November 2023, KAC via legal representative emailed Woodside agreeing to the proposed process, requesting a draft consultation protocol and proposing a meeting in December.
- **(2)** On 23 November 2023, KAC legal representative sent a further email to Woodside confirming that KAC would be seeking recovery of costs incurred to date.
- **(2)** On 29 November 2023, Woodside telephoned KAC via legal representative to confirm a meeting on 5 December 2023 in Port Hedland with KAC, noting that Woodside will not pay legal costs that had been incurred prior to the meeting date.
- **(1 &2)** On 29 November 2023, KAC via legal representative emailed Woodside with details of a meeting with KAC, request for proposed protocol, costs for meeting and suggested Agenda for the meeting.
- On 29 November 2023, KAC via legal representative emailed Woodside requesting confirmation of costs quote, confirming logistics of meeting and Agenda.
- **(1 & 2)** On 29 November 2023, Woodside emailed KAC via legal representative attaching Woodside's Program of Ongoing Consultation, a revised Agenda and suggesting the protocol between KAC and Woodside would set out:
    - How Woodside and KAC would consult, the basic procedure for initial and ongoing consultation in relation to activities
    - Agreement as to how Woodside would provide KAC information.
    - How KAC would provide feedback and how Woodside represents that into submissions.
    - Agreed schedule of rates.
    - How the outputs of the consultations are managed.

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- On 29 November 2023, KAC (via legal representative) emailed Woodside with an amended proposed Agenda for the upcoming meeting.
- **(1 & 3)** On 5 December 2023, Woodside and KAC met in Port Hedland. At the meeting Woodside:
    - Presented on an Engagement Protocol.
    - What Woodside plan to do to protect the environment.
    - Presented the regulatory context.
    - Spoke about the biological studies that are carried out through different times of the year.
    - Discussed why Woodside were talking to KAC.
    - Displayed the EMBA and how it was developed.
    - Showed projects open for ongoing consultation.
    - Spoke to what Woodside were seeking to understand from KAC:

        How could these activities impact your cultural values, interests, and activities - does protecting the environment do enough to protect your cultural values?
        What are your concerns about the proposed activities and what do you think we should do about them?
        Is there anything you would like included in the EPs before submission?
        Is there anyone else Woodside should consult with about the activities?

    - **(3)** KAC asked how Woodside maintain the validity of controls over periods of times, sighting turtles as an example in terms of whether current controls would be sufficient into the future.
    - Woodside noted that there is ongoing monitoring and Woodside would apply its Management of Change and Revision process to address controls.
    - Noted the EP's subject of ongoing consultation, including this EP.
    - Spoke to planned and unplanned risks.

  (3) KAC gave a presentation to Woodside on their sea country rights and duties:

    - Accessing sea country for fishing, trapping, crabbing, catching turtle, hunting dugong, using stingray barbs for spears and collecting shellfish.
    - Visiting offshore islands at low tide.
    - Passing on traditional knowledge to children.
    - Secret habitat totems.
    - Yinta associated with sea country
    - Having duties to look after and protect all of KACs sea country.

  (1, 3, & 4) KAC outlined their consultation requirements to Woodside:

    - **(3)** Co-designed and co-managed approach to protecting sea country.
    - On-going input into EPs.
    - **(1)** An agreement with Woodside.
    - **(4)** Funding for sea rangers.
    - A positive and collaborative relationship.

- **(1)** On 13 December 2023, KAC via legal representative emailed Woodside with outcomes of the 5 December meeting, confirming availability for a workshop in March 2024 and that KAC and Woodside aim to reach agreement on an engagement protocol by mid-2024.

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- **(1 & 3)** On 20 December 2023, Woodside emailed KAC via legal representative confirming the process for ongoing consultation, noting information to be included in EPs provided by KAC and noting that Woodside looks forward to reaching agreement with KAC on a consultation process.
- **(5)** On 20 December 2023, KAC via legal representative emailed Woodside noting further information regarding sea country features and values KAC wish noted within EPs, including avoiding impacts on coastal landforms and coastal native vegetation, and tangible and intangible Aboriginal heritage sites and places associated with the coast and the ocean.
- **(1**) On 20 December 2023, KAC via legal representative emailed Woodside acknowledging they looked forward to progressing an agreement in 2024 between KAC and Woodside.
- On 13 January 2024, KAC via legal representative emailed Woodside outlining proposed costs to settle an agreement with the KAC Board.
- **(1 & 3)** On 21 February 2024, Woodside emailed KAC via legal representative discussing costings and attached a letter with the terms of a draft agreement noting:
    - Level of information to satisfy KAC to make informed decisions on the proposed activities.
    - Reasonable period for consultation.
    - How information would be provided.
    - Feedback, objections, and claims ad how KAC would provide these.
    - Reasonable costs and expenses to be agreed.
    - How the agreement would be terminated.
- On 22 February 2024, KAC via legal representative emailed Woodside requesting a Word version of the document.
- On 22 February 2024, Woodside emailed KAC (via legal representative) provided a Word version of the document.
- On 10 March 2024, KAC via legal representative emailed Woodside with a draft agreement incorporating KAC and PKMN inputs and inviting Woodside's comments.
- On 12 March 2024, Woodside emailed KAC via legal representative thanking them for the draft agreement and advising Woodside would review this and respond.
- On 4 April 2024, Woodside emailed KAC via legal representative advising Woodside had reviewed the draft agreement and provided some amendments for KAC's consideration.
- On 4 April 2024, KAC via legal representative emailed Woodside advising the amendments were not acceptable. Woodside is reviewing this.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
KAC has not provided any feedback, objections or claims in relation to this activity since May 2023. **(1)** KAC have noted that they want to engage on matters with Woodside and would like to develop an Engagement Protocol for (among other things) ongoing input into EPs and a collaborative relationship with	Woodside accepts that KAC has no feedback on this activity at this time. **(1, 2)** Woodside have agreed to fund reasonable costs and funded the 5 December 2023 meeting. Woodside will fund future meetings on an agreed costs basis to be set out in the Engagement Protocol. Woodside and KAC have agreed to hold a workshop in early March 2024 to progress towards an Engagement Protocol as requested and agreed by KAC and Woodside. As outlined in the consultation summary above, sufficient information and a reasonable period have been provided to demonstrate that consultation for the purpose of regulation 25 of the Environment Regulations is complete. Any further engagement with and support offered to KAC will be for the	Existing controls are considered sufficient, as described in Section 6. **(1, 2, 4)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with KAC through ongoing engagement as part of Woodside's Program of Ongoing Engagement with Traditional Custodians (Appendix G). This includes working towards a Framework Agreement which will include reasonable funding and sea ranger support.

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Woodside. **(2)** KAC has indicated they require costs to be met for KAC to be engaged in consultations with Woodside. **(3)** At a face-to-face meeting on 5 December 2023, KAC gave a presentation about their sea country rights and duties. They mentioned: o Fishing, trapping, crabbing, catching turtle, hunting dugong, and using stingray barbs for spears and collecting shellfish. o Visiting offshore islands at low tide. o Secret habitat totems. o Yinta [sites of significance] associated with sea country o Passing on traditional knowledge to children o Having a duty to look after and protect sea country. o KAC asked how the validity of current controls are maintained and appropriate into the future. **(4)** KAC requested funding for sea rangers. **(5)** On 20 December 2023, KAC raised avoiding impacts on:	purpose of ongoing engagement. **(3)** Woodside has noted the KAC's values and interests in sea country in Section 4.9.4.3 Woodside accepts that KAC may have sea country values within the EMBA for this EP. On 20 December 2023, Woodside responded to their question on how current controls are maintained and consider cultural information with an email to KAC confirming that their features, values and interests have been noted in EPs including this one. **(4)** Sea ranger funding is able to be addressed in the proposed agreement with KAC. Woodside is open to reasonable funding for rangers. 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 7.7). **(5)** Woodside understands cultural and environmental values are intrinsically linked; in addition to the specific controls for cultural features and heritage values, the controls and performance standards in section 6 will reduce impacts to cultural features and heritage values, including marine species and habitats.	**(3)** Existing controls considered sufficient as described in Section 6 of the EP. Woodside recognises that KAC holds Sea Country rights and interests that need to be protected (Section 4.9.4.3). **(4)** Not required. **(5)** Existing controls considered sufficient, as described in Section 6. Woodside recognises KAC's interests and values in Section 4.9.4.3

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○ Coastal landforms and coastal native vegetation ○ Tangible and intangible Aboriginal heritage sites and places associated with the coast and the ocean.		

Wirrawandi Aboriginal Corporation (WAC)

WAC is established under the Native Title Act 1993 by the Mardudhunera and Yaburara people to represent the Mardudhunera and Yaburara people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with WAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Provided Consultation Information Sheet and Summary Information Sheet to WAC on 18 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on WAC's preferred method of consultation. This resulted in a face-to-face meeting being coordinated at the location of WAC choosing, with WAC nominated representatives. This meeting included information that was readily accessible and appropriate. As sufficient information and a reasonable period have been provided (see below), any future meetings would be considered as ongoing engagement post regulation 25 (Environment Regulations) consultation.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that WAC can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided WAC with the opportunity to provide feedback over a 12 month period.
- Woodside asked WAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

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Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on WAC's functions, interests or activities.

Summary of consultation provided and record of consultation:

- On 18 May 2023, Woodside emailed WAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.27).
- On 20 June 2023, WAC emailed Woodside advising that Aboriginal Corporations are getting inundated with requests from Industry. A face to face meeting is preferred to just summary information sheets and it was requested that Woodside schedule and fund a presentation to WAC to explain the projects (including this one) and the potential impact areas that may be affected. To be discussed:
  - how the activities could impact WAC interests and activities and/or cultural value
  - listen WAC concerns about the proposed activities and what they think you should do about those concerns (sic)
  - talk to any other individuals, groups, or organisations at the meeting.
- On 21 June 2023, Woodside emailed WAC and agreed to setting up a meeting as requested, including funding.
- On 21 June 2023, WAC emailed Woodside advising that they were in Karratha and would liaise about organising the meeting tomorrow.
- On 22 June 2023, Woodside emailed WAC apologising for not calling as there was a day-long Board meeting that just finished. More information was requested to enable the organisation of the meeting, such as location and expected attendees.
- On 22 June 2023, WAC emailed Woodside advising that the Board members would be contacted for availability and the requested information supplied.
- On 28 June 2023, WAC emailed Woodside with a provisional meeting with Elders and Directors on Wednesday, 19 July, in Karratha. Also requested was confirmation of how many from Woodside will be attending and whether Woodside's costs will cater for WAC's Elders' flights and accommodation.
- On 28 June 2023, Woodside emailed WAC confirming 19 July and advising 4 Woodside attendees. Woodside also confirmed travel and accommodation allowances which has been based on reasonable rates and reflective of the industry standards.
- On 28 June 2023, WAC emailed Woodside thanking Woodside for the prompt reply and confirming a maximum of 4 WAC members attending.
- On 28 June 2023, Woodside emailed WAC confirming flight and accommodation budget.
- On 6 July 2023, Woodside emailed WAC asking for meeting time confirmation for the calendar.
- On 18 July 2023, Woodside emailed WAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that WAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 19 July 2023, Woodside met with the WAC Board and Elders and consulted on this activity and other activities. At the meeting 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.
  - 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.
  - 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.
  - Displayed and spoke to the EMBA for the activity, and the individual worst-case loss of containment scenarios identified.
  - Stated that Woodside wanted to understand how the functions, activities or interests of WAC and the people it represents may be impacted by any of those activities.

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- Specifically asked the following:

  How could these activities impact your cultural values, interests and activities – does protecting the environment do enough to protect your cultural values?
  What are your concerns about the proposed activities and what do you think we should do about them?
  Is there anything you would like included in the EPs before submission?
  Is there anyone else Woodside should consult with about the activities?

- Advised that Woodside will continue to take feedback from WAC for the life of the EP.
- Woodside played a drilling video and discussed the length of the pipelines.
- **(1)** During the meeting section on the JDP3 activity, WAC asked:

  Whether any spill would reach the shore, noting the EMBA showed it would reach the shore near Exmouth.
  Woodside responded that worst case scenario it would reach the shore, but it doesn't accumulate on the shore.

- On 20 July 2023, Woodside emailed WAC thanking them for their time, and following up on WAC's undertaking to provide feedback in writing after internal discussions. Also followed up about progressing Woodside's support for WAC's capacity to engage.
- On 20 July 2023, WAC emailed Woodside thanking them for the presentation, advising a response would be sent through WAC General Manger in the near future, and requesting a list of all Woodside activities and EP's for which WAC consultation would be sought, and a set of maps outlining EMBAs for relevant EPs and YM native title determination areas.
- **(3)** On 26 July 2023, Woodside emailed WAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 3 August 2023, WAC emailed Woodside requesting a map of relevant Commonwealth and State EMBAS.
- On 10 August 2023, Woodside emailed WAC to respond to the 3 August 2023 request and provided a list of current and pending EPs.
- On 10 August 2023, WAC emailed Woodside with thanks for the information and with a query about EMBAs.
- On 15 August 2023, Woodside emailed WAC providing an explanation of the query in relation to EMBAs and EMBA development.
- On 15 August 2023, WAC emailed Woodside with thanks for the clarification and noting they would provide a formal response shortly.
- On 31 August 2023, WAC emailed a letter to Woodside proposing a framework agreement to provide a streamlined, formalised approach to consultation between WAC and Woodside. This included a list of activities that WAC is to be consulted on including this one.
- **(2) (3)** On 11 September 2023, WAC emailed Woodside with a copy of the letter of 31 August, and advising that WAC does not object to Woodside progressing environment plans for the activities outlined on the proviso, including this EP, that Woodside and WAC enter into a framework agreement to provide for ongoing meaningful consultation with WAC and YM members in relation to activities the subject of EPs, as outlined in the attached letter on terms suitable to both parties within a reasonable period (nominally within the next 2-3 months).
- **(3)** On 12 September 2023, Woodside emailed WAC confirming receipt of the email of 11 September.
- On 28 September 2023, Woodside emailed WAC informing them who their focal point is.
- On 28 September 2023, Woodside phoned WAC to discuss consultation process and confirm WAC's preferred method of engagement.
- **(3)** On 3 October 2023, WAC emailed Woodside requesting a catch up.
- On 3 October 2023, Woodside emailed WAC suggesting dates during October to meet up.

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- On 3 October 2023, WAC emailed Woodside confirming availability on suggested dates.
- On 3 October 2023, Woodside emailed WAC confirming dates and meeting location.
- On 20 October 2023, Woodside met face-to-face with WAC to discuss current and ongoing EP consultation based on the 11 September 2023 letter. The meeting was to confirm WAC's preferred EP consultation process going forward. Woodside notes that WAC would like to start fresh with the new CEO. Woodside discussed the list of EPs and stated that WAC has an opportunity for ongoing consultation on any EP in which they have a cultural interest. Woodside acknowledged WAC is in the process of a corporate restructure which may impact WAC's response times.
- On 6 November 2023, Woodside emailed WAC re-sending the Consultation Information Sheet file attachments for the activity, upon realising the attachment files may have been broken in the 18 May 2023 email so only the weblinks were accessible for WAC. No response has been received.
- On 7 December 2023, Woodside met WAC in Karratha to have a general discussion on a range of matters including the Ranger program, culture capture projects, heritage support and sea mapping, as part of ongoing consultation.
- On 19 December 2023, Woodside emailed WAC to offer further information or consultation on any of Woodside's activities.
- On 19 December 2023, WAC emailed Woodside thanking them for their consideration, help, support and understanding in what they do.
- On 4 January 2024, Woodside met WAC in Perth for follow up discussions on the ranger program, culture capture opportunities, heritage support resources and social investment opportunities. It was noted that WAC is addressing resourcing shortfalls in the first quarter of 2024 which will allow them to engage more effectively for the purpose of EPs and other heritage and environment related works. Woodside agreed to provide recommendations for independent heritage consultants to support WAC.
- On 28 February 2024, Woodside emailed WAC with an interim point of contact and asking for confirmation on the best person to speak with given recent CEO changes at WAC.
- On 6 March 2024, Woodside emailed WAC with a letter setting out the draft terms of an agreement between WAC and Woodside, the agreement (among other things) included the following topics:
    - Sufficient Information
    - Reasonable Period.
    - Provision of Information.
    - Objection or claims.
    - Publications
    - Cost and termination.
- On 6 March 2024, WAC emailed Woodside requesting a word copy of the draft terms of agreement sent 6 March 2024.

On 6 March 2024, Woodside emailed WAC a word copy of the draft terms of agreement. No reply has been received.* Quarterly Heritage Meetings:

- Woodside convenes a quarterly meeting of Traditional Custodian representatives from the Representative Aboriginal Corporations involved in historical native title claims over the Burrup Peninsula, including WAC. Individual attendees are nominated by their representative Aboriginal Corporations. These meetings are summarised separately in this table.
- Copies of slides are made available to representative Aboriginal Corporations for the general awareness of members who were not able to attend individual meetings.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan

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(1) During consultation engagements related to this activity and others, WAC has not requested further information on topics related to this proposed activity, they asked the following question: • Would any spill reach the shoreline. **(2)** On the 11 September 2023 WAC sent an email supporting consultation on this EP. **(3)** WAC expressed that it does not object to Woodside progressing the proposed activity on the provision that Woodside and WAC enter into a framework agreement to provide for ongoing meaningful consultation a desire for ongoing engagement and partnership through a Framework Agreement.	**(1)** Woodside responded to WAC's query during face-to-face engagement and accepts that no further information was requested on this activity. **(2)** Woodside accepts WAC's support for consultation on this EP. **(3)** Woodside has confirmed and accepts that WAC is seeking to establish a framework agreement for the purposes of ongoing consultation with Woodside. Separate from consultation under regulation 25 of the Environment Regulations, Woodside will establish a framework agreement with WAC. The agreement would be used to frame ongoing consultation. A draft agreement was sent to WAC for their consideration on 6 March 2024. Sufficient information to allow informed assessment has already been provided by other means, including summary sheets developed by Indigenous staff, a face-to-face meeting with appropriate material (pictures, maps, video) and project attendance allowing opportunity to ask questions and seek further understanding. 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 7.7).	**(1)** Existing controls considered sufficient, as described in Section 6. **(2)** Not required. **(3)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with WAC through ongoing engagement and continue to progress with establishing a framework agreement as part of Woodside's Program of Ongoing Engagement with Traditional Custodians (Appendix G).
Robe River Kuruma Aboriginal Corporation (RRKAC) RRKAC is established under the Native Title Act 1993 by the Robe River Kuruma people to represent the Robe River Kuruma people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.		
Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with RRKAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically: **Sufficient Information:** • Consultation Information Sheet publicly available on the Woodside website since April 2023. • Provided Consultation Information Sheet and Summary Information Sheet to RRKAC on 18 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.		

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- Woodside sought direction on RRKAC's preferred method of consultation. This resulted in a face-to-face meeting being coordinated at the location of RRKAC choosing, with RRKAC nominated representatives. This meeting included information that was readily accessible and appropriate. As sufficient information and a reasonable period have been provided (see below), any future meetings would be considered as ongoing engagement post regulation 25 (Environment Regulations) consultation.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that RRKAC can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided RRKAC with the opportunity to provide feedback over a 12 month period.
- Woodside asked RRKAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on RRKAC's functions, interests or activities.

Summary of information provided and record of consultation:

- **(1)** On 18 May 2023, Woodside emailed RRKAC advising of the proposed activity (Record of Consultation, reference 1.28) and provided a Summary Information Sheet.
- On 18 July 2023, Woodside emailed RRKAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that RRKAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed RRKAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 11 August 2023, RRKAC emailed Woodside in response to another matter and in addition requesting ongoing consultation and training opportunities for rangers to prepare for caring for sea and coastal country.
- **(2)** On 14 August 2023, Woodside emailed RRKAC thanking them for their response and requesting to meet to discuss training opportunities for rangers.
- On 14 August RRKAC emailed Woodside agreeing to a meeting and indicating they would arrange a suitable time for a discussion.
- On 10 September 2023, Woodside emailed RRKAC to follow up on their 11 August 2023 email requesting a time to meet in person.
- On 10 September 2023, RRKAC emailed Woodside proposing early October to meet in Perth.
- On 10 September 2023, Woodside emailed RRKAC thanking them for the email and confirmed a meeting in the Woodside Perth Office early October.

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- **(3)** On 15 September 2023, RRKAC emailed Woodside advising they have noted Woodside's plans, and that they aren't resourced to adequately respond, and would require Woodside to fund additional resources.
- On 18 September 2023, Woodside emailed RRKAC agreeing to the burden placed on Aboriginal corporations lately and confirmed that they can support RRKAC with their financial costs for consultation. Woodside also re-emailed the planned Program of Ongoing Engagement with Traditional Custodians which details other investment opportunities.
- On 18 September 2023, Woodside emailed RRKAC forwarding the previous email with an apology that it may not have properly sent.
- Between 22 September-3 October 2023, Woodside and RRKAC exchanged emails regarding arrangements for a meeting in Perth to discuss the ranger program as part of ongoing consultation.
- On 3 October 2023, Woodside and RRKAC met to discuss the potential for a ranger program as part of ongoing engagement.
- On 6 November 2023, Woodside emailed RRKAC re-sending the Consultation Information Sheet file attachments for the activity, upon realising the attachment files may have been broken in the 18 May 2023 email so only the weblinks were accessible for RRKAC. No response has been received.
- On 14 November 2023, Woodside emailed RRKAC noting that this time of year is incredibly busy and inviting RRKAC to meet when convenient and in whichever consultation format favourable for them to discuss ongoing EP consultations.
- On 14 November 2023, RRKAC emailed Woodside informing that they are finalising some new team appointments and will be in touch soon with a new RRKAC focal point.
- On 19 December 2023, Woodside emailed RRKAC again offering further information or a consultation session on any of Woodside's activities.
- On 19 December 2023, RRKC emailed Woodside enquiring if Woodside had houses for sale in Karratha.
- On 9 January 2024, Woodside emailed RRKAC offering to meet to discuss any EPs deemed relevant to the community, confirmed that there were properties on the open market.
- On 5 March 2024, RRKAC emailed Woodside in response to an email on another activity and advised that they were looking to fill and environment role to assist with their ability to respond to these requests.
- On 5 March 2024, Woodside emailed RRKAC thanking them for their response.
- **(3)** On 20 March 2024, Woodside and RRKAC held an online meeting. Woodside outlined the purpose of engagement with Traditional Owner groups and PBC's, consultation on Environment Plans, feedback on heritage and cultural values, opportunities for engagement programs such as rangers, and opportunities and support for future meetings.
- On 26 March 2024, Woodside emailed RRKAC to follow up on the meeting, and to outline upcoming unrelated activities for consultation, that reasonable financial support is available for meetings for the purpose of consultation, to ask for guidance on their preferred next steps, and to provide Woodside's Program of Ongoing Engagement.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) Since consultation began on 18 May 2023, RRKAC has made no objections and provided no feedback on the activity.	**(1)** Woodside accepts that RRKAC has no feedback on the activity at this time. **(2)** 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	**(1)** Existing controls are considered sufficient, as described in Section 6. **(2)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with RRKAC as part of ongoing engagement (Section 5.7 of the EP).

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(2) RRKAC has expressed a desire for ongoing engagement including a ranger program. **(3)** RRKAC noted that they are insufficiently resourced to fully engage and respond regarding EPs.	appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7). **(3)** Woodside supports reasonable requests for resourcing and has provided support for meetings for the purpose of consultation.	**(3)** Woodside is implementing a program to actively support Traditional Custodians' capacity for ongoing engagement and consultation on environment plans. This is described further in the Program of Ongoing Engagement with Traditional Custodians, (Appendix G).

Ngarluma Aboriginal Corporation (NAC)

NAC is established under the Native Title Act 1993 by the Ngarluma people to represent the Ngarluma people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with NAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Provided Consultation Information Sheet and Summary Information Sheet to NAC on 18 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on NAC preferred method of consultation. This resulted in a face-to-face meeting being coordinated at the location of NAC's choosing, with NAC nominated representatives. This meeting included information that was readily accessible and appropriate.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Provided response to questions asked about the activity through consultation. Through these questions, NAC has displayed an understanding of the activities under this EP.
- Advised that NAC can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided NAC with the opportunity to provide feedback over a 12 month period.
- Woodside asked NAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

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Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on NAC's functions, interests or activities.

Summary of consultation provided and record of consultation:

- On 19 May 2023, Woodside emailed NAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.29).
- On 18 July 2023, Woodside emailed NAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that NAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult. No response was received to this email.
- On 26 July 2023, Woodside emailed NAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- **(1)** On 11 August 2023, Woodside held a Teams meeting with a NAC energy adviser and the following was noted:
    - Identify EPs for prioritisation.
    - NAC will put together a working group.
    - Bi-monthly consultations.
    - NAC has capacity issues and requires time to deal with matters.
- On 16 August 2023, Woodside emailed NAC requesting to re-establish regular meetings monthly with the Karratha-based Woodside contact.
- On 13 September 2023, Woodside emailed NAC acknowledging the previous email, advising of the planned start date for the activity, and once again requesting if NAC is aware of any other people with whom Woodside should consult, and if there is any information NAC wish to provide on cultural values, and reiterating that Woodside will take feedback after the commencement of the activity as part of ongoing consultation. The Summary Information Sheet for this activity was attached (Appendix F, reference 3.39.1).
- **(2)** On 18 September 2023, NAC emailed Woodside proposing:
    - establishment of Joint Working Group.
    - Woodside to provide draft agreement.
    - Working group meeting commence in October with monthly meetings.
    - Noting arrangements would cover future scope of consultations with NAC.
- On 28 September 2023, NAC emailed Woodside requesting a phone discussion about consultations with NAC.
- **(2)** On 28 September 2023, Woodside had a phone discussion with NAC representative, they were following up on Woodside consultation requests and wished to progress a consultation meeting with NAC Working Group in October. They requested Woodside:
    - Propose date/s to meet.
    - Confirm they would cover cost.
    - Provide any relevant information prior to the meeting.
    - Advise which EPs Woodside would like to consult with NAC on.

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- Woodside agreed to follow up on the above and looked forward to meeting with the Working Group in October.

- On 10 October 2023, Woodside emailed NAC in response to their email of 18 September 2023, in principle supporting NAC's proposal for ongoing consultation through a Working Group. Woodside requested meeting dates and confirmed that Woodside would provide a first draft of the agreement.
- On 10 October 2023, Woodside emailed NAC notifying them that their email is being forwarded.
- On 19 October 2023, Woodside emailed NAC following up the 10 October 2023 email.
- On 19 October 2023, NAC emailed Woodside requesting urgent pending matters and the upcoming EP scheduling.
- On 2 November 2023, Woodside emailed NAC with a top priorities list and upcoming list of EPs including this one.
- On 3 November 2023, Woodside emailed NAC with an EP schedule priority list as requested on 19 October 2023.
- On 3 November 2023, NAC emailed Woodside thanking them for the EP priority list and notifying that they will provide a draft consultation today.
- On 3 November 2023, NAC emailed Woodside a draft consultation framework.
- **(2)** On 13 November 2023, Woodside and NAC exchanged emails related to a range of EP activities, the resources of NAC to consult, and the requirement for a consultation protocol. A consultation framework agreement is being finalised.
- **(2)** On 1 March 2024, Woodside emailed NAC with a draft consultation agreement for their consideration.
- **(2)** On 26 April 2024, Woodside emailed NAC to follow up on the draft consultation agreement currently with NAC for their consideration. No response has been received.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) During face-to-face engagements related to this activity and others, NAC asked: • When the activities were proposed to commence. • How often consultation meetings should occur. **(2)** NAC proposed establishing a Joint Working Group to engage in meetings with Woodside for ongoing consultation. NAC noted they have capacity issues and require resourcing to cover costs of meeting.	**(1)** Woodside responded to NAC requests for further information during face-to-face engagements and emails, including an EP priorities list on 2 November 2023. **(2)** Separate from consultation under regulation 25 of the Environment Regulations, Woodside will establish an agreement with NAC to work with the NAC Working Group. The agreement and Working Group would be used to frame ongoing consultation. Sufficient information to allow informed assessment has already been provided by other means, including summary sheets developed by Indigenous staff, a face-to-face meeting with appropriate material (pictures, maps, video) and project attendance allowing opportunity to ask questions and seek further understanding. 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	**(1)** Existing controls considered sufficient as described in Section 6. **(2)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with NAC through ongoing engagement and continue to progress with establishing a framework agreement as part of Woodside's Program of Ongoing Engagement with Traditional Custodians (Appendix G).

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	appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7).	

Yindjibarndi Aboriginal Corporation (YAC)

YAC is established under the *Native Title Act 1993* by the Yindjibarndi people to represent the Yindjibarndi people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with YAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Provided Consultation Information Sheet and Summary Information Sheet to YAC on 18 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on YAC preferred method of consultation.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that YAC can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided YAC with the opportunity to provide feedback over a 12 month period.
- Woodside asked YAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on YAC's functions, interests or activities.

Historical Engagement:

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- **(1) (2)** On 26 February 2023, YAC emailed Woodside responding to previous consultation emails sent regarding activities unrelated to this EP. YAC advised that it will not be providing any comment on two unrelated projects as well as any of Woodside's decommissioning and drilling activities. YAC 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 YAC to thank them and noted the response.

Summary of consultation provided and record of consultation:

- On 18 May 2023, Woodside emailed YAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.30).
- On 7 July 2023, in a phone call between Woodside and Yindjibarndi, YAC reiterated that it would prefer that comments come from coastal Aboriginal Corporations and not themselves.
- On 18 July 2023, Woodside emailed YAC NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that YAC advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult. No response was received to this email.
- On 26 July 2023, Woodside emailed YAC Woodside's planned Program of Ongoing Engagement with Traditional Custodians, noting that it is a 'living document' and therefore Woodside is always open to feedback.
- **(3)** On 1 August 2023, YAC emailed Woodside acknowledging 26 July 2023 email, and confirming that Ngarluma Yindjibarndi Foundation Ltd (NYFL) will manage Oil and Gas matters on behalf of YAC.
- On 11 August 2023, YAC via NYFL emailed Woodside in response to another matter noting that Yindjibarndi Aboriginal Corporation looks forward to progressing discussion with Woodside on the proposed program of consultation. A letter attached with the email set out, among other things, YAC's views on consultation, method of communication and funding for participation for YAC's consultation.
- On 15 August 2023, Woodside emailed YAC via NYFL thanking them for their correspondence and requesting availability to meet.
- **(3)** On 18 August 2023, YAC via NYFL emailed Woodside noting a date of 30 August 2023 to meet to discuss next steps.
- On 18 August 2023, Woodside emailed YAC via NYFL accepting the proposed date to meet to discuss engagement processes.
- On 28 August 2023, Woodside emailed YAC via NYFL requesting a video link for a consultant to Woodside who will be involved in consultation and engagement going forward.
- On 28 August 2023, YAC via NYFL emailed Woodside an agenda for the proposed meeting.
- **(3)** On 30 August 2023, Woodside met with NYFL to discuss a consultation process and engagement with NYFL and YAC going forward. The meeting discussed consultation time frames, meeting arrangements and NYFL's views on consultation. NYFL stated it was open to ongoing engagement with Woodside and their proposed solution to the matters discussed at the meeting.
- See NYFL on behalf of Yindjibarndi below for record of further engagement.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) Yindjibarndi has provided a response and advised that it will not	**(1)** Woodside accepts Yindjibarndi's response.	**(1)** Not required.

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be providing any comment on the proposed activity. **(2)** Yinjibarndi expressed that they would prefer that traditional owner groups with land and sea adjacent to and within the precinct of the projects provide comment. **(3)** Yindjibarndi has instructed Woodside that it will be represented by NYFL in ongoing discussion about EPs, once an agreed process is developed between NYFL and Woodside.	**(2)** Woodside agrees and respects Yinjibarndi's position that traditional owners whose land and sea are adjacent to or within the precinct of the projects should be able to provide comment. **(3)** Woodside will engage with NYFL on behalf of Yindjibarndi for ongoing consultation related to this activity, separate from consultation under regulation 25 of the Environment Regulations. 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 7.7 of this EP).	**(2)** Not required. **(3)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with YAC as part of ongoing engagement (Section 5.7 of the EP).

Wanparta Aboriginal Corporation (Wanparta)

Wanparta is established under the Native Title Act 1993 by the Ngarla people to represent the Ngarla people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Wanparta for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Provided Consultation Information Sheet and Summary Information Sheet to Wanparta on 18 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on Wanparta's preferred method of consultation. This resulted in a face-to-face meeting being coordinated at the location of Wanparta's choosing, with Wanparta nominated representatives. This meeting included information that was readily accessible and appropriate. As sufficient information and a reasonable period have been provided (see below), any future meetings would be considered as ongoing engagement post regulation 25 (Environment Regulations) consultation.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.

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- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Provided response to questions asked about the activity through consultation. Through these questions, Wanparta has displayed an understanding of the activities under this EP.
    - Advised that Wanparta can request that particular information provided in the consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided Wanparta with the opportunity to provide feedback over a 12 month period.
- Woodside has provided a reasonable opportunity for input since May 2023 and a genuine two-way dialogue has occurred via meetings and written exchanges to further understand the environment in which the activity will take place. Wanparta has engaged with the detail of the activity asking related questions. The details of these engagements are described in the consultation summary below.
- Woodside asked Wanparta if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on Wanparta's functions, interests or activities.

Summary of consultation provided and record of consultation of this EP:

- On 18 May 2023, Woodside emailed Wanparta AC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.31).
- On 6 July 2023, Woodside emailed Wanparta about another matter but included another invitation to meet with Wanparta and give a full overview on all planned activities which would include this EP.
- On 18 July 2023, Woodside emailed Wanparta NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that Wanparta advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 21 July 2023, Wanparta emailed Woodside noting they were planning two board meetings in order to hear from the multiple proponents that have identified Wanparta as Relevant Persons and inviting Woodside to present at one of these meetings.
- On 24 July 2023, Woodside emailed Wanparta seeking to understand whether Wanparta would like a complete overview of activities which would include this EP.
- On 24 July 2023, Wanparta emailed Woodside confirming they would like a complete overview of all activities which would include this EP on 31 August 2023.
- On 25 July 2023, Woodside emailed Wanparta accepting the proposed date and proposing a longer time to meet.
- On 26 July 2023, Woodside emailed Wanparta Woodside's planned Program of Ongoing Engagement with Traditional Custodians and confirming Woodside's preference to attend the 31 August 2023 board meeting.

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- **(3)** On 31 August 2023, Woodside met with Wanparta Board and members in South Hedland, 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.
    - 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 2023/24.
    - Provided an overview of the broader EP activities.
    - Described the proposed activity.
    - Described the types of vessels involved.
    - Described the planned impacts and respective controls of the above activities including: the presence of vessels, seabed disturbance, underwater noise, discharge from vessels, emissions to air and external lighting.
    - 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.
    - Displayed and spoke to the EMBA for each proposed activity, and the individual worst-case loss of containment scenarios identified, noting that they are all diesel fuel releases which would only be caused by vessel collisions.
    - Stated that Woodside wanted to understand how the functions, activities or interests of Wanparta and the people it represents may be impacted by any of those activities.
    - Specifically asked the following:

        How could these activities impact your cultural values, interests, and activities - does protecting the environment do enough to protect your cultural values?
        What are your concerns about the proposed activities and what do you think we should do about them?
        Is there anything you would like included in the EPs before submission?
        Is there anyone else Woodside should consult with about the activities?

    - Advised that Woodside will continue to take feedback from Wanparta for the life of the EP.
    - Provided personal contact details for further feedback. Woodside provided NOPSEMA contact details, should Wanparta desire to provide feedback directly to the regulator
    - **(1) (2) (4)** At the 31 August 2023 meeting Wanparta asked/noted:

        Question about the chemicals in the water that may be discharged during commissioning.
        - Woodside responded that the chemicals used are biocide, oxygen scavenger and corrosion inhibitor. Noting that there are controls in place and explained the use of chemicals used in pipeline cleaning and to prevent rust. Woodside also explained low concentration biocide are used to clear 'bugs' oxygen scavenger and corrosion inhibitor, all to prevent rust.

        - **(1)** Wanparta stated that water is extremely important to Ngarla people, and they feel a responsibility to look after the ocean and Lore.
        - **(1)** Wanparta asked about ranger group involvement in spill response.

            - Woodside responded that they would get back to the team with regards to training and involvement.

    - **(2)** Wanparta is supportive of EP submission and would like to be kept up-to-date on any changes.
    - Wanparta would like to engage in an annual meeting with Woodside.
    - **(2)** When asked by Woodside if there were any further questions or concerns relating to the activity presented, Wanparta did not raise anything further.

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- On 4 October 2023, Woodside phoned Wanparta, to check in and consult on general matters and upcoming EPs.
- **(3)** On 4 October 2023, Woodside emailed Wanparta following up with a summary of the previous phone call. The outcomes of the phone discussion were:
  - Wanparta's interest in a Wanparta Ranger program and EP funding.
  - Wanparta's interest in a Karratha Gas Plant visit, as well as possible school visits and Perth Office visits.
  - Wanparta's request for updates on EPs unrelated to this one.
  - Woodside's query into Wanparta's thoughts on a formal authorisation/consent/endorsement process regarding future EPs.
- On 6 October 2023, Wanparta emailed Woodside thanking them for the previous summary email and stated that it will bring all the 4 October 2023 items to the Board for further consideration and will revert shortly after.
- **(3)** On 10 November 2023, Wanparta emailed Woodside with the Ngarla Ranger Proposal for consideration.
- **(3)** On 10 November 2023, Woodside phoned Wanparta to discuss the Ngarla Ranger Proposal, a further funding request for management of EPs, and a proposed meeting location and date for Woodside to host the WAC Board on 23 February 2024 at the Karratha Gas Plant.
- **(3)** On 12 November 2023, Woodside emailed Wanparta to acknowledge receipt of the Ngarla Ranger Proposal.
- On 13 November 2023, Wanparta emailed Woodside on funding to assist with their ongoing consideration and response to Woodside's consultation on EPs.
- On 22 November 2023, Woodside emailed Wanparta confirming the request had been received and options were being sought.
- Between 24-28 November 2023, Woodside and Wanparta exchanged emails to set up a time for a phone call.
- On 28 November 2023, Woodside phoned Wanparta to discuss outstanding meeting payments and confirmed the payments would suffice until the request for additional funding is considered in 2024.
- On 30 November 2023, Wanparta emailed Woodside confirming the issuing of invoices, and to propose a date for a Wanparta Directors' meeting in Karratha on 23 February 2024.
- On 7 December 2023, Woodside and Wanparta exchanged emails confirming the issuing of invoices for outstanding funds.
- Between 8-15 February 2024, Woodside and Wanparta exchanged emails on the details and attendees list for the Wanparta Directors' meeting to be held on 28 February 2024. The purpose of the meeting was to plan a visit to Karratha Gas Plant as well as to discuss activities not related to this EP.
- On 20-21 February Wanparta and Woodside exchanged emails on the need to reschedule the Wanparta Directors' meeting due to a passing in the Ngarla community.
- On 23 February 2024, Wanparta emailed Woodside requesting availability for a new meeting date on 23-24 April 2024.
- On 26 February 2024, Woodside emailed Wanparta confirming availability to attend the meeting to discuss relevant EPs based on Wanparta's preferred approach.
- Between 16-22 April, Woodside and Wanparta exchanged emails regarding logistics and funding for a meeting for consultation on this activity and a site visit with the Wanparta Board.
- **(3)** On 24 April 2024, Woodside met with Wanparta at Murujuga. Woodside presented an overview of EPs and ongoing consultation in 2024, and provided information on an unrelated activity, Aboriginal employment, and ranger programs. Wanparta informed Woodside that there were no issues following the discussion.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**

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(1) During face-to-face engagement, related to this activity and others Wanparta requested further information on topics related to this proposed activity, as well as others, which was responded to during the meeting: • What chemicals in the water may be discharged during commissioning. • the importance of water was emphasised by the group. **(2)** At the 31 August 2023 meeting, Wanparta expressed support for the EP, Wanparta said they had no concerns regarding the activity for now and wanted to be kept updated on any changes. **(3)** Wanparta expressed interest in a range of social investment opportunities including a ranger program. Wanparta stated their interest in ongoing engagement with Woodside.	**(1)** Woodside responded to Wanparta's requests for further information during face-to-face engagements, and no further information was requested on these topics. **(2)** Woodside accepts that Wanparta is supportive of this EP submission. Woodside advised Wanparta of the activity start date, in recognition of Wanparta's request to be kept informed of progress of this activity and will send them a start of activity notification. **(3)** Separate from consultation under regulation 25 of the Environment Regulations, Woodside has commenced discussion with Wanparta about social investment opportunities as part of ongoing engagement. 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 7.7 of this EP).	**(1)** Existing controls considered sufficient, as described in Section 6. **(2, 3)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with Wanparta through ongoing engagement. (See Section 5.7 of the EP).
Malgana Aboriginal Corporation Malgana is established under the Native Title Act 1993 by the Malgana people to represent the Malgana people (defined broadly by reference to descent from the set of ancestors who were known to have a continuous and unbroken connection as the Traditional Custodians at the time of European colonisation) and represent their communal interests including, among other things, management and protection of cultural values.		

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Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Malgana for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Woodside sought direction on Malgana's preferred method of consultation.
- Provided Consultation Information Sheet and Summary Information Sheet to Malgana on 19 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that Malgana can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Consultation information provided to Malgana on 19 May 2023.
- Woodside has addressed and responded to Malgana over 12 months, demonstrating a "reasonable period" of consultation.
- Woodside asked Malgana if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.
- Woodside has provided a reasonable opportunity for input since May 2023 and a genuine two-way dialogue has occurred via meetings and written exchanges to further understand the environment in which the activity will take place. The details of these engagements are described in the consultation summary below.

Woodside engages in ongoing consultation, beyond that required by regulation 25, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on Malgana functions, interests or activities.

Summary of consultation provided and record of consultation:

- On 19 May 2023, Woodside emailed Malgana and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.32).
- On 19 May 2023, Woodside emailed Malgana with an updated point of contact.
- On 1 June 2023, Woodside emailed Malgana to ask if further information or assistance was required following the initial consultation.
- On 22 June 2023, Woodside emailed Malgana to ask if Malgana would like to meet to discuss the project.

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- On 7 July 2023, Woodside emailed Malgana to ask if Malgana required further information or assistance and asked if Malgana would like to meet to discuss the project.
- On 10 July 2023, Malgana emailed Woodside to confirm the information had been forwarded to the Board and to ask about additional support to assist the Board with these consultations.
- On 19 July 2023, Woodside emailed Malgana NOPSEMA's Consultation Guidelines, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also reiterated Woodside's request that Malgana advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- **(3)** On 26 July 2023, Woodside emailed Malgana Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- **(1)** On 1 August 2023, Woodside emailed Malgana with follow up information that Malgana requested about hydrocarbon spill modelling which came out of the meeting of 4 April 2023 on another EP unrelated to the activity.
- **(2) (3)** On 1 August 2023, Malgana emailed Woodside with thanks for the information and noting that Malgana is looking to get an environmental consultant to give advice to their Board. Malgana also referred to Woodside supporting resourcing by funding the consultant.
- **(3)** On 3 August 2023, Woodside emailed Malgana asking for availability to meet or phone to discuss support for a consultant. The email also referred to another activity.
- **(3)** On 20 October 2023, Woodside emailed the new contact person at Malgana to establish contact and re-send most recent correspondence. Woodside re-iterated that any information or assistance Malgana required including in relation to the meeting in April Woodside are available at time and place that suits Malgana to meet.
- On 26 October 2023, Woodside phoned Malgana but there was no response.
- On 26 October 2023, Woodside emailed Malgana following up on the 20 October 2023 email and offering to assist in any way on consultation matters.
- On 2 November 2023, Woodside emailed Malgana again following up on the previous two emails and trying to establish contact. No response has been received.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) During face-to-face engagement, related to this activity and others, Malgana requested further information on topics related to this proposed activity which was responded to during the meeting: • Spill response arrangements and that they believe there are flaws in modelling related to Shark Bay hydrodynamics. **(2)** Malgana expressed a desire for ongoing engagement and partnership. Including engaging an	**(1)** Woodside responded to Malgana's requests for further information during face-to-face engagements and follow up emails, and no further information was requested on these topics. On 1 August 2023, Woodside emailed the requested information about hydrocarbon spill modelling and Malgana thanked them for their response. No further requests or objections have been made on this matter by Malgana to date. **(2, 3)** Separate from consultation under regulation 25 of the Environment Regulations, Woodside supports ongoing engagement and have responded to Malgana's advice about the limitations on their resources. Woodside has offered to support Malgana in correspondence throughout 20 October- 2 November 2023, however these offers have not been taken up. Sufficient information to allow informed assessment has already been provided, including Consultation Information Sheets and a Summary Information Sheet developed by Indigenous staff members on 19 May 2023.	**(1)** Existing controls considered sufficient, as described in Section 6. **(2, 3)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with Malgana to address funding restrictions as part of ongoing engagement (See Section 5.7 of the EP).

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external environment consultant to give advice to the Malgana board. **(3)** Malgana noted that their funding is restricted for these types of engagement and requested funding support. Woodside agreed to the requested funding assistance.	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 7.7).	

Yamatji Marlpa Aboriginal Corporation (YMAC)

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.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with YMAC for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Provided Consultation Information Sheet and Summary Information Sheet to YMAC on 18 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on YMAC's preferred method of consultation. This resulted in a face-to-face meeting being coordinated at the location of YMAC's choosing, with YMAC nominated representatives. This meeting included information that was readily accessible and appropriate. As sufficient information and a reasonable period have been provided (see below), any future meetings would be considered as ongoing engagement post regulation 25 (Environment Regulations) consultation.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan".
- Advised that YMAC can request that particular information provided in the consultation not be published (to align with 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided YMAC with the opportunity to provide feedback over a 12 month period.
- Woodside asked YMAC if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

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Woodside engages in ongoing consultation, beyond that required by regulation 25 of the Environment Regulations, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on YMAC's functions, interests or activities.

Historical Engagement:

- On 13 March 2023, Woodside emailed YMAC as to whether YMAC considers itself a 'relevant person' under regulation 25 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 are adjacent to the environment that may be affected (EMBA), of a particular activity.
- On 15 March 2023, Woodside emailed YMAC requesting a position on whether YMAC considers itself a 'relevant person' under the Environment Regulations for the purposes of consultation in EPs.
- **(1)** On 15 March 2023, YMAC replied to confirm that in its view it is a 'relevant person' under regulation 25 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.
- On 20 March 2023, YMAC emailed Woodside confirming that they agree to their advice being included in reporting.

Summary of consultation provided and record of consultation:

- On 22 May 2023, Woodside emailed YMAC and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.33).
- On 12 June 2023, YMAC emailed Woodside on behalf of itself and its clients. The email attached:
    - A proposal to fund in-house expertise to support consultations and administration of the consultation framework.
    - A draft consultation framework.
- On 12 June 2023, Woodside emailed YMAC, thanking them for the documents and informing them that Woodside would respond shortly.
- On 25 July 2023, Woodside emailed YMAC:
    - agreeing in principle to the draft consultation framework and funding proposal but seeking further discussion on details.
    - stating that Woodside is open to considering an industry funded position at YMAC to support the work they are facilitating.
    - attaching Woodside's Program for Ongoing Engagement with Traditional Custodians.
    - Seeking a meeting with YMAC in relation to the draft consultation framework at YMAC's earliest convenience.
- **(2)** On 14 December 2023, Woodside emailed YMAC re-attaching the Program of Ongoing Consultation and advising that Woodside would like to progress negotiations on consultation frameworks with groups represented by YMAC. Woodside proposed the protocol would include (among other things):
    - The procedures Woodside will follow when a submission requires consultation.
    - Initial and ongoing consultation in relation to activities.

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- Agreement as to how Woodside will provide the information groups requires to make free, prior and informed decisions about Woodside's EPs.
- Agreement as to how groups will provide feedback and how that can best be represented in EPs.
- An agreed schedule of rates for groups participation in consultation.
- How to manage the outputs of the consultations.

- **(2)** On 28 February 2024, Woodside emailed YMAC attaching draft consultation agreements for the consideration of each of the groups represented by YMAC, and inviting YMAC to provide details and rates on their preferred method of engagement.
- On 29 February 2024, YMAC emailed Woodside acknowledging receipt of their email and informing Woodside that they would review the documents and then respond.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) YMAC has provided feedback that in its view it is a 'relevant person' under regulation 25 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. **(2)** YMAC has provided feedback that it is seeking an industry funded position to support consultations for this and other activities. YMAC has provided a draft consultation framework to assist the consultation process.	**(1)** Woodside accepts that 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. Woodside accepts YMAC's feedback that it is a relevant person only in relation to its facilitation and coordination function as a representative body. Woodside has consulted with YMAC in relation to its facilitation and coordination function as a Native Title Representative Body under applicable federal legislation, and it has responded that it does not intend to provide substantive comment on the content of EPs. **(2)** Woodside engages in ongoing consultation throughout the life of an 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 (refer to Section 7.7). Woodside is engaging with YMAC in relation to its request for an industry funded position and a draft consultation framework.	**(1)** Woodside considers the measures and controls described within this EP address the potential impact from the proposed activities on YMAC's functions, interests or activities. **(2)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with YMAC through ongoing engagement (See Section 5.7 of the EP). Woodside will continue engaging with YMAC in relation to its request for an industry funded position and a draft consultation framework (Appendix G).
Self-identified First Nations Groups and Individuals		
***Ngarluma Yindjibarndi Foundation Ltd (*NYFL)**		

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NYFL was created to act as Trustee for the Trust under the Northwest Shelf Agreement 1998 struck between the Ngarluma and Yindjibarndi registered native title claimants, the NWS JVs and Woodside, prior to the resolution of the Ngarluma and Yindjibarndi native title claim. Its purpose is to carry on the business of enterprise development, investment and social welfare.

In 1999 the Ngarluma and Yindjibarndi native title claim was settled with the Federal Court appointing, at the request of the common law native title holders, the Ngarluma Aboriginal Corporation (NAC) as PBC to represent the communal interests of the Ngarluma people and the Yindjibarndi Aboriginal Corporation (YAC) as PBC to represent the communal interests of the Yindjibarndi people. Woodside consulted both NAC and YAC as relevant persons in the course of preparing this EP.

NYFL self-identified and has advised it is relevant for this EP.

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with NYFL for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.5 of the EP. Specifically:

Sufficient Information:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Provided Consultation Information Sheet and Summary Information Sheet to NYFL (via the Karratha Community Liaison Group) on 2 May 2023 based on their functions, interests or activities. These set out details of the proposed activity, the location of the activity, the timing of the activity as well as the potential risks and impacts of the activity in a digestible, plain English format.
- Woodside sought direction on NYFL's preferred method of consultation. NYFL requested consultation material suitable for Traditional Custodian audience, which was developed and provided. NYFL and Woodside initially agreed to hold a face-to-face consultation meeting at location of NYFL's choosing with NYFL nominated representatives, however NYFL chose to postpone the engagement for an undefined time.
- Articulated planned and unplanned environmental risks and impacts, with proposed controls.
- Confirmed the purpose of consultation and set out in detail what is being sought through consultation.
- Ask for the consultation and information sheets to be distributed to members and individuals.
- Provided NOPSEMA's brochure "Consultation on offshore petroleum environment plans" and Guideline "Guideline: Consultation in the course of preparing an environment plan"
- Advised that NYFL can request that particular information provided in the consultation not be published (to align with regulation 25(4) of the Environment Regulations).

Reasonable Period:

- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has provided NYFL with the opportunity to provide feedback over a 12 month period.
- Met face-to-face with NYFL in August 2023.
- Woodside asked NYFL if it was aware of any other Traditional Custodian groups or individuals with whom Woodside should consult. None were identified.

Woodside engages in ongoing consultation, beyond that required by regulation 25, throughout the life of an EP. Should feedback be received after the EP has been accepted (including any relevant new information on cultural values), it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.7 of the EP).

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Woodside considers the measures and controls described in this EP address the potential impact from the proposed activity on YMAC's functions, interests or activities.

Summary of information provided and record of consultation for this EP:

- On 2 May 2023, Woodside emailed NYFL via the Karratha Community Liaison Group advising of the proposed activity (Record of Consultation, reference 1.41) providing a Consultation Information Sheet and a link to the detailed information sheet on Woodside's website.
- On 22 May 2023, NYFL emailed Woodside in response to an email on another activity, advising that they consider NYFL a 'relevant person' for the purposes of consultation, and requesting appropriate communications targeted to Traditional Owners for whom English may be a second language.
- On 24 May 2023, in response to the email on 22 May 2023, Woodside spoke to NYFL by phone, explained that the information sheets were developed with a Ngarluma Traditional Custodian but that the best way to understand the materials was to take Woodside up on our offer to present to NYFL. These presentations include images and the subject matter experts are on hand to answer questions. Presentations had been well received by other groups. Woodside had budget for consultation meetings and could provide support for the meetings to occur.
- **(1)** On 8 June 2023, NYFL emailed Woodside about several matters including a request for "further information/culturally appropriate comms" for this activity and a number of others.
- On 8 June 2023, Woodside reconfirmed previous offers to meet with NYFL in relation to the activity and other activities unrelated to this EP for the purpose of face-to-face consultation and requested an EP look ahead for 2023 and beyond.
    - Explained that these presentations have been well received from groups.
    - Explained also that the summary information sheets provided were developed by Indigenous representatives for a Traditional Owner audience.
    - Requested that if face to face consultation was not preferred by NYFL, whether they could provide some direction as to alternatives.
    - Reiterated that Woodside can cover consultation costs to and can meet in Roebourne, assuming that is preferred.
    - Responded to the request for an EP look ahead as being currently unavailable due to resourcing logistics but it is Woodside's intent to provide similar summary EP information in the future, if and when possible.
- On 21 June 2023, Woodside called into the NYFL offices to advise of the community information sessions to be held in Roebourne on 22 June and 19 July 2023.
- On 28 June 2023, Woodside emailed NYFL confirming a consultation date of 20 July and requesting NYFL send through a quote for costs.
- On 28 June 2023, NYFL responded saying they would hold off on committing to a date while they had a chance to digest the outcomes of the NOPSEMA Summit.
- **(2)** On 29 June 2023, NYFL responded to notification of another activity stating that they were waiting to agree to national framework for consultation between industry and First Nations to be resolved before they consult on Environment Plans. This email was referring to the NOPSEMA Summit.
- On 10 July 2023, Woodside emailed NYFL seeking clarity in relation to their request. Woodside stated they understood the outcomes of the NOPSEMA Summit were as recorded by the facilitator was communicated to all participants as: It was agreed that:
    - There is a need for a National Summit of Indigenous Groups and Traditional Owners to consult together and agree what they require and what their collective and individual concerns may be;

      Government (DISR) will assist by mapping and compiling a list of all traditional owner groups that should be invited to this Summit,
      Kimberley Land Council and other PBCs will form a Steering Committee to draft the agenda for this Summit,
      APPEA will seek membership approval to facilitate by funding this Summit, and

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The Summit will be independently facilitated.

- APPEA to further consult with their members in order to get some agreement on priorities and next steps for Industry;
- After the National Summit of Indigenous Groups, the first of a number of meetings will be held between a smaller representative Traditional Owners group and a smaller representative Industry group, the latter to be coordinated through APPEA; and
- There will be ongoing parallel consultations in relation to current EPs, which will continue in accordance with what is required by regulation 25(1)(d) of the Environment Regulations.
- Woodside stated it is committed to supporting the National Summit of Traditional Owners and is committed to industry and Traditional Owners working together to agree consultation frameworks. Woodside noted, however, this will take time and necessarily must occur in parallel to ongoing consultation, with operators obliged to consult pursuant to regulation 25 of the Environment Regulations. Woodside also stated they were committing to a program of ongoing consultation for the life of the EP that would be happy to discuss that with NYFL.

- **(2)** On 10 July 2023, NYFL stated that they did not agree with the facilitators record of the NOPSEMA Summit and reiterated that they looked forward to developing the negotiation framework.
- On 18 July 2023, Woodside emailed NYFL NOPSEMA's Consultation Guideline, Consultation Brochure, and Draft Policy for Managing Gender-Restricted Information. This email also requested that NYFL advise Woodside of any other Traditional Custodian groups or individuals with whom Woodside should consult.
- On 26 July 2023, Woodside emailed NYFL Woodside's planned Program of Ongoing Engagement with Traditional Custodians.
- On 26 July 2023, NYFL emailed Woodside in response to Woodside's planned Program of Ongoing Engagement with Traditional Custodians, including requesting resourcing to support consultation.
- On 11 August 2023 NYFL emailed Woodside in response to another matter noting that NYFL and Yindjibarndi Aboriginal Corporation look forward to progressing discussion with Woodside on the proposed program of consultation. A letter attached with the email set out, among other things:
  - NYFL and YAC's views on consultation, method of communication and funding for participation for NYFL and YAC.
  - NYFL looks forward to progressing discussion with Woodside on the proposed program of consultation.
  - **(2)** NYFL is participating with other First Nations organisations and representative bodies to develop a framework for consultation.
  - **(3)** There may be people, who in accordance with Indigenous tradition, may have spiritual and cultural connections to an EMBA unrelated to this EP and that have not yet been afforded the opportunity to provide information
- On 15 August 2023, Woodside emailed NYFL thanking them for their correspondence and requesting availability to meet.
- On 18 August 2023, NYFL emailed Woodside proposing a date of 30 August to meet to discuss next steps.
- On 18 August 2023, Woodside emailed NYFL accepting the proposed date to meet to discuss engagement processes.
- On 28 August 2023, Woodside emailed NYFL requesting a video link for the meeting so that an external consultant to Woodside could be involved in consultation and engagement going forward.
- On 28 August 2023, NYFL emailed through an agenda for the proposed meeting and stated that a video link will be sent out for Woodside's external consultant so that he may be able to join online.
- On 28 August 2023, Woodside emailed NYFL thanking them and passing on the email contact to be sent a meeting video link.
- (2) On 30 August 2023, Woodside met with NYFL to discuss a consultation process and engagement with NYFL and YAC, NYFL put forward the following:

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  - **(4)** NYFL requested Woodside employ 3 Traditional Owners who would engage/consult with NYFL members.
  - **(5)** NYFL stated that time frames must be longer than one month for consultation.
  - Woodside took the requests on notice.

- On 12 September 2023, NYFL emailed Woodside noting their outcomes of the meeting held on 30 August 2023, they noted discussion about:
  - **(6)** Traditional Owner expectations that engagement commences on projects at an early stage.
  - Digital animations to assist with communicating projects to Traditional Owners. Resourcing for Traditional Owner organisations.
  - Capacity building, cultural sensitivity, and the role of NYFL and other organisations.
  - Woodside to follow-up with NYFL with next steps.
- **(2)** On 27 October 2023, NYFL provided NYFL's position statement regarding industry consultation which was a change of position from its advice on 29 June 2023. NYFL noted that it expects an updated proposal regarding consultation to be provided by Woodside. NYFL advised that it does not have the capacity to respond adequately to EPs or other consultation material sent by proponents nor did it feel the process results in a fair representation of Traditional Owner interests.
- On 3 November 2023, Woodside emailed NYFL acknowledging NYFL's request for solutions and said they would speak with their team and respond shortly.
- On 7 November 2023, Woodside emailed NYFL following up on the 27 October 2023 email and informed NYFL that they would be willing to work with NYFL in developing an effective consultation framework, proposing to meet end of November after the First Nations National Summit. No response was received.
- On 9 November 2023, Woodside emailed NYFL re-attaching the consultation information sheets for this activity for Yindjibarndi and NYFL. No response has been received.
- **(7)** On 19 November 2023, NYFL emailed Woodside explaining their limited capacity to meet in person and develop framework. NYFL did state that they look forward to hearing Woodside's proposed solutions to these problems and identified the key EPs of interest to them which are unrelated to this EP.
- On 20 November 2023, Woodside emailed NYFL thanking them for their email and informing them that they will discuss solutions with their team and get back to NYFL as soon as possible.
- On 4 December 2023, Woodside emailed NYFL:
  - seeking clarification about changes in recent correspondence, noting that NYFL had indicated on several occasions over a number of months that they wished to await outcomes of the First Nations Sea Country Summit in Darwin and would be involved in the development of the National First Nations Led Framework on consultation.
  - Woodside indicated that they had requested to meet face to face with NYFL in November as Woodside wanted to understand NYFL's expectations and discuss the outcomes of the Summit.
  - Woodside also wanted to discuss the strategic sponsorship funding request noting they required a business case to understand what NYFL was suggesting and how it would align with NYFL's strategic objectives.
- On 6 December 2023, NYFL emailed Woodside noting that:
  - At the meeting of 30 August 2023 there was discussion about challenges and proposed solutions to progress EP consultation.
  - **(8)** NYFL operate in a resource-constrained environment.
  - **(7)** A proposal to NYFL responding to issues raised at the above meeting was expected.
  - **(2)** The Summit had been referred to as a potential useful resource for developing an updated framework.
  - **(7)** NYFL had agreed to progress the Program of Ongoing Engagement with Traditional Custodians.
  - **(9)** Social investment and capacity building funding should remain separate to consultation regarding EPs and other environment and heritage matters.

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- On 14 December 2023, Woodside emailed NYFL, following up on previous emails about consultation on EPs, acknowledging NYFLs resource constraints and limitations that can be allocated to consultation on the EPs. Woodside proposed/noted the following to support consultation activities that would provide NYFL with the ability to engage and provide input and feedback:
    - Woodside intends engaging a senior Ngarluma person in an advisory/liaison capacity, which will include facilitating consultation with NYFL members in relation to EPs.
    - An agreement between Woodside and NYFL to consult in a meaningful and genuine manner.
    - The procedures Woodside will follow when a submission requires consultation.
    - Initial and ongoing consultation in relation to relevant Woodside EPs and the senior Ngarluma person's role in facilitating those consultations.
    - Agreement as to how Woodside will provide NYFL with the information NYFL requires to make free, prior and informed decisions about Woodside's EPs.
    - Agreement as to how NYFL will provide feedback and how that can best be represent NYFL's feedback to NOPSEMA or other relevant organisations.
    - An agreed schedule of rates for NYFL's participation in the consultations regarding Woodside's EPs.
    - How to manage the outputs of the consultations.
    - Agreement on an approach to minimise duplication of consultation activities conducted with NAC, Yindjibarndi and NYFL.
    - An EP Consultation Working Group with representation from Woodside and NYFL.
    - Suggested further discussion on the proposal at the NYFL/Woodside Quarterly meeting on 19 December 2023.
- On 6 March 2024, Woodside emailed NYFL with a draft consultation agreement for their consideration. The draft agreement sets out the aims of consultation and a consultation meeting framework and is intended to govern the process for EP consultation.
- On 6 March 2024, NYFL emailed Woodside in response to another activity, acknowledging receipt of the draft agreement, noting they would seek advice and respond shortly.
- On 14 March 2024, NYFL emailed Woodside confirming receipt of the consultation agreement, noting they would seek advice and respond.
- On 19 March 2024, NYFL emailed Woodside with an estimate for the review of Woodside's draft consultation agreement.
- On 17 April 2024, NYFL emailed Woodside to advise that Sorry Business was underway following a tragic passing in the community, asking for time and space for cultural protocols, and advising that consultation may be affected during this period.

NYFL is also consulted through its membership on the Karratha Community Liaison Group (KCLG) and the Quarterly Heritage Group.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
NYFL self-identified for this activity. NYFL has not provided any feedback, objections or claims for this activity. **(1)** NYFL requested information sheets appropriate for a Traditional Custodian audience. **(2)** NYFL noted they wished to halt consultation on EP's as they were working with other First Nations	Woodside has responded to NYFL's self-identification and consulted with them as a relevant person. NYFL was created to act as Trustee for the Northwest Shelf Agreement 1998. NYFL's membership is made up of Ngarluma people and Yindjibarndi people, membership is not open to any person who is not accepted as Ngarluma or Yindjibarndi. Woodside has also consulted with Ngarluma and Yindjibarndi Aboriginal Corporations individually. Ngarluma and Yindjibarndi Aboriginal Corporations were appointed by the Federal Court, at the request of the Ngarluma and Yindjibarndi common law native title holders as PBCs to represent the communal interests of the Ngarluma and Yindjibarndi people respectively.	NYFL has been consulted in accordance with the methodology described in Section 5 of the EP. Existing controls considered sufficient as described in Section 6 of the EP. **(1)** Not required **(2)** Not required. **(3)** Existing controls considered sufficient as described in Section 6 of the EP. Description of cultural values and heritage features is included in Section 4.9 of the EP.

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Organisations and representative bodies to develop a framework for consultation. This has not yet been proposed to Woodside. **(3)** NYFL expressed that there may be people who in accordance with Indigenous tradition, may have spiritual and cultural connections to the environment that may be affected who have not yet been afforded the opportunity to provide information. **(4)** NYFL requested that Woodside employ three Ngarluma/Yindjibarndi Traditional Owners who would consult with NYFL members. **(5)** NYFL stated that time frames must be longer than one month for consultation. **(6)** NYFL expects engagement to commence at an early stage. **(7)** NYFL stated an interest in pursuing an agreement with Woodside to resolve engagement matters. **(8)** NYFL stated they operate in a resource constrained environment. **(9)** NYFL expect social investment and capacity funding to remain separate from consultation.	Ngarluma and Yindjibarndi Aboriginal Corporations are representative of all Ngarluma and Yindjibarndi people regardless of membership. Woodside accepts that NYFL has no feedback on this activity at this time. **(1)** Woodside recognises that sufficient information must be provided in a form that is accessible and appropriate to the audience. Woodside has regularly asked NYFL for their preferred processes of consultation including on the 24 May 2023, 8 June 2023 and 30 August 2023 to inform Woodside's consultation processes with NYFL. In response to NYFL's requests for changes, Woodside developed and provided Summary information sheets developed with a Ngarluma Traditional Custodian for a Traditional Custodian audience. Woodside offered face to face consultation meetings resourced by Woodside to enable meaningful Traditional Custodian consultation, which include visual aids and videos. Woodside accepts NYFL's support in consultation animation videos which are being finalised by Woodside to further support culturally appropriate consultation with groups. Woodside accepts NYFL's 12 September 2023 email that recognises Woodside adapting consultation processes to suit group needs. As outlined in the consultation summary above, sufficient information and a reasonable period have been provided to demonstrate that consultation for the purpose of regulation 25 of the Environment Regulations for this activity is complete. Any further engagement with NYFL will be for the purpose of ongoing engagement. **(2)** Woodside does not consider that the proposal that consultation be paused until the proposed First Nations National Summit is reasonable. Sufficient information and a reasonable period has already been provided prior to the Summit. Since the summit in November, Woodside has continued to engage with NYFL as part of ongoing consultation. **(3)** As described in Section 5.5.2 of the EP, Woodside's consultation methodology provided Traditional Custodians with the opportunity to be aware of the proposed activity and to participate in consultation. Woodside considers this methodology has afforded all people whose spiritual connection to the environment that may be affected a reasonable opportunity to consult. Consultation with NYFL has not identified any other groups or individuals relevant to communally held functions, activities or interests. NYFL have been provided with reasonable time to respond with this information since the emails from Woodside of 18 July and 12 September	Methodology described in Section 6 adequately addresses this claim. **(4)** The proposed agreement will address appropriate NYFL resourcing. **(5)** Not required. **(6)** Not required. **(7)** Although consultation for the purpose of regulation 25 of the Environment Regulations is complete, Woodside will continue to engage with NYFL through ongoing engagement and continue to progress with establishing the draft agreement as part of Woodside's Program of Ongoing Engagement with Traditional Custodians (Appendix G). Woodside will continue to consult following acceptance of the EP, as required by the implementation strategy as set out in regulation 35(7) of the Environment Regulations. **(8)** The proposed agreement will address appropriate NYFL resourcing. **(9)** The proposed agreement will address appropriate NYFL resourcing relating to social investment and will be separate to consultation on EPs.

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	specifically requesting this information, but no response to this request has been received. Woodside has a robust understanding of the environment, cultural values and heritage features based on publicly available information and consultation with relevant persons. This is described in Section 4.9 of the EP. Woodside has also consulted with Ngarluma and Yindjibarndi Aboriginal Corporations who are the Representative Aboriginal Corporations nominated by the Ngarluma and Yindjibarndi people respectively to represent the communally held interests of the Ngarluma and Yindjibarndi people. **(4)** Woodside does not consider NYFL's request that Woodside employ three Ngarluma/Yindjibarndi traditional owners to consult with NYFL members a reasonable proposal. Woodside's consultation efforts are informed and undertaken by Woodside personnel with significant experience in First Nations relations, including Indigenous employees. **(5, 6)** Woodside has already provided NYFL with reasonable time to participate in consultation and has been engaging since June 2023. **(7)** Separate from consultation under regulation 25 of the Environment Regulations, Woodside is open to engaging with a joint First Nations framework for consultation, however, notes that this is not required to undertake and/or complete consultation in the course of preparing this EP. Sufficient information to allow informed assessment has already been provided by other means, including summary sheets developed by Indigenous staff. Woodside has an existing engagement framework in place with NYFL which enables regular (quarterly) communication about Woodside activities. Feedback from NYFL on 27 October 2023 requested Woodside develop a draft consultation framework. Woodside sent a draft consultation framework to NYFL on 6 March 2024 for their consideration. 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 7.7 of this EP).	

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	(8) Woodside assesses that the proposed Framework Agreement would be an effective mechanism to address resourcing for ongoing consultation. Woodside accepts NYFL's 12 September 2023 email that states their short- and long-term needs to support ongoing consultation. As outlined in the consultation summary above, sufficient information and a reasonable period have been provided to demonstrate that consultation for the purpose of regulation 25 of the Environment Regulations for this activity is complete. Any further engagement including support with NYFL will be for the purpose of ongoing engagement. **(9)** Woodside separates social investment and capacity building from consultation on EPs.	

Local government and community representative groups or organisations

Shire of Exmouth

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Shire of Exmouth for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to the Shire of Exmouth on 5 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Shire of Exmouth with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 5 May 2023, Woodside emailed Shire of Exmouth and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.35).
- On 30 May 2023, Woodside emailed Shire of Exmouth following up on the proposed activity (Record of Consultation, reference 2.28) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**

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No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Shire of Ashburton

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Shire of Ashburton for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to the Shire of Ashburton on 2 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Shire of Ashburton with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 2 May 2023, Woodside emailed Shire of Ashburton and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.36).
- On 30 May 2023, Woodside emailed Shire of Ashburton following up on the proposed activity (Record of Consultation, reference 2.28) and provided a Consultation Information Sheet.

As stated, the summary above demonstrates that Woodside's consultation with Shire of Ashburton for the purpose of regulation 25 is complete. However as per Woodside's ongoing commitment to consultation, engagement with Shire of Ashburton continues as summarised below;

Ongoing consultation:

- On 7 August 2023, Woodside emailed Shire of Ashburton on a variety of matters/query record of consultation (for other EPs) including organising an opportunity to brief the Shire's Local and District Emergency Management Committee (LEMC) on its approach to managing a hydrocarbon release in the highly unlikely event this occurs.
- On 14 August 2023, Shire of Ashburton emailed Woodside thanking it for its response which was deemed sufficient and invited Woodside to present at the Shire's December community information sessions. It was also suggested that for more regular information sharing, Woodside could submit articles to the Onslow Pipeline.
- On 26 September 2023, Woodside emailed Shire of Ashburton asking when the Shire's next Local and District Emergency Management Committee (LEMC) meeting would be held.
- On 26 September 2023, Shire of Ashburton responded with the next LEMC meeting date and shared contact details for Woodside to be added to the invitation list.
- On 26 September 2023, Woodside emailed Shire of Ashburton with a list of desired meeting attendees and confirmed the start time.
- On 26 September 2023, Shire of Ashburton responded with a Teams link invitation and confirmed contact details for Woodside's requested attendees. The Shire advised it would confirm the exact presentation time closer to the meeting date.
- On 17 October 2023, Shire of Ashburton and Woodside exchanged further emails confirming presentation start time and attendee details.

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- On 21 November 2023, Woodside presented at the Shire of Ashburton LEMC meeting and provided:
  - An overview of proposed activities relevant to the Shire including this EP;
  - An outline of the consultation approach and explanation of the EMBA as a modelling process of the broadest spatial extent an unplanned hydrocarbon release could spread based on a number of conditions;
  - Details of the oil spill response approach in the highly unlikely event of a hydrocarbon spill;
  - Woodside's key steps when activating an oil spill response plan;
  - Shire of Ashburton thanked Woodside for presenting to the committee and no questions or concerns were raised.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
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 7.8 of this EP).	No additional measures or controls are required.

City of Karratha

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with City of Karratha for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to the City of Karratha on 2 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the City of Karratha with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 2 May 2023, Woodside emailed City of Karratha and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.37).
- **(1)** On 2 May 2023, City of Karratha emailed Woodside advising that the City has no comment to make on this proposal.
- On 2 May 2023, Woodside emailed City of Karratha thanking them for their response and confirming that the City had no comment on this proposal.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) City of Karratha confirmed it has no comments for this activity.	**(1)**Woodside notes the City of Karratha has no comments. Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be	**(1)**Not required.

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Whilst feedback has been received, there were no objections or claims.	assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	Woodside considers the measures and controls in the EP are appropriate. No additional measures or controls are required.

Shire of Carnarvon

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Shire of Carnarvon for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to the Shire of Carnarvon (SoC) on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Shire of Carnarvon with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Shire of Carnarvon and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.38).
- On 30 May 2023, Woodside emailed Shire of Carnarvon following up on the proposed activity (Record of Consultation, reference 2.1) and provided a Consultation Information Sheet.
- On 21 July 2023, Woodside responded to SoC accepting the invitation to attend the committee meeting.
- **(1)** On 16 August 2023, Woodside attended SoC LEMC meeting and provided:
    - an overview of proposed activities relevant to the Shire including this EP.
    - Outlined consultation approach and explanation of Environment That May be Affected (EMBA) as a modelling process of the broadest spatial extent an unplanned. hydrocarbon release could spread based on a number of conditions.
    - Detail of oil spill response approach in the highly unlikely event of a hydrocarbon spill.
    - Woodside key steps when activating an oil spill response plan.
    - SoC thanked Woodside for presenting to the committee and no questions or concerns were raised.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
(1) The Shire of Carnarvon requested Woodside attend their committee meeting. Whilst feedback has been received, there were no objections or claims.	**(1)**Woodside attended the committee meeting and provided an overview of activities and oil spill response plan. 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 7.8 of this EP).	**(1)** Not required. Woodside considers the measures and controls in the EP are appropriate. No additional measures or controls are required.

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Town of Port Hedland

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Town of Port Hedland for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to the Town of Port Hedland on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Town of Port Hedland with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Town of Port Hedland and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.39).
- On 30 May 2023, Woodside emailed Town of Port Hedland following up on the proposed activity (Record of Consultation, reference 2.18) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Exmouth Community Liaison Group (CLG)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Exmouth CLG for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Exmouth CLG on 5 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Exmouth CLG with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 5 May 2023, Woodside emailed Exmouth CLG and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.40).

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- On 30 May 2023, Woodside emailed Exmouth CLG following up on the proposed activity (Record of Consultation, reference 2.26) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Karratha Community Liaison Group (CLG)

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Karratha CLG for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Karratha CLG on 2 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Karratha CLG with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 2 May 2023, Woodside emailed Karratha Community Liaison Group (CLG) and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.41).
- On 1 June 2023, Woodside emailed Karratha Community Liaison Group (CLG) following up on the proposed activity (Record of Consultation, reference 2.29) and provided a Consultation Information Sheet.
- On 29 June 2023, Woodside presented to the Karratha CLG on Woodside activities, including this EP. Woodside presented a slide which listed Environment Plans on which the CLG members had recently been consulted and Environment Plans it is currently consulting on (Record of Consultation, reference 2.34.7). The slide included a QR and URL to Consultation Activities page of the Woodside website.
- On 29 September 2023, Woodside presented to the Karratha CLG on Woodside activities, including this EP. Woodside presented a slide which listed Environment Plans on which the CLG members had recently been consulted and Environment Plans it is currently consulting on (Record of Consultation, reference 2.36). The slide included a QR and URL to Consultation Activities page of the Woodside website. 14 individuals attended the meeting:
    - City of Karratha – Council representatives and staff representatives

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- Karratha Central Health Care
- Bechtel
- Dampier Community Association
- Pilbara Development Commission
- Regional Development Australia
- Karratha & Districts Chamber of Commerce & Industry
- Ngarluma Yindjibarndi Foundation ltd
- Pilbara Ports Authority

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has provided a reasonable period in which to receive feedback which is consistent with the intended outcome of consultation (see Section 5.2 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 7.8 of this EP).	No additional measures or controls are required.

Onslow Chamber of Commerce and Industry

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Onslow Chamber of Commerce for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Onslow Chamber of Commerce on 2 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Onslow Chamber of Commerce and Industry with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 2 May 2023, Woodside emailed Onslow Chamber of Commerce and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.42).
- On 30 May 2023, Woodside emailed Onslow Chamber of Commerce following up on the proposed activity (Record of Consultation, reference 2.27) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan

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No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Port Hedland Chamber of Commerce and Industry

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Port Hedland Chamber of Commerce for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Port Hedland Chamber of Commerce on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Port Hedland Chamber of Commerce with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Port Hedland Chamber of Commerce and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.43).
- On 30 May 2023, Woodside emailed Port Hedland Chamber of Commerce following up on the proposed activity (Record of Consultation, reference 2.22) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Carnarvon Chamber of Commerce and Industry

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Carnarvon Chamber of Commerce for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Carnarvon Chamber of Commerce and Industry on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.

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- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Carnarvon Chamber of Commerce and Industry with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Carnarvon Chamber of Commerce and Industry and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.44).
- On 30 May 2023, Woodside emailed Carnarvon Chamber of Commerce and Industry following up on the proposed activity (Record of Consultation, reference 2.20) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

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Table 3: Engagement Report with Persons or Organisations Assessed as Not Relevant

Other non-government groups or organisations		
350 Australia (350A)		
Summary of consultation provided and record of consultation: • On 1 May 2023, Woodside emailed 350A and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.45). • On 30 May 2023, Woodside emailed 350A following up on the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.
Australian Conservation Foundation (ACF)		
Summary of consultation provided and record of consultation: • On 1 May 2023, Woodside emailed ACF and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.45). • On 30 May 2023, Woodside emailed ACF following up on the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.
Australian Southern Bluefin Tuna Industry Association (ASBTIA)		

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Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed ASBTIA and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.11).
- On 30 May 2023, Woodside sent a follow up email to ASBTIA advising of the proposed activity (Record of Consultation, reference 2.12) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted 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 7.8 of this EP).	Woodside has assessed the relevancy of Commonwealth fisheries issues in Section 4.10.1 of this EP. Woodside will provide notifications to DAFF – Fisheries, CFA, ASBTIA, Tuna Australia and relevant individual Fishery Licence Holders that have the potential to be directly impacted by planned activities in the Operational Area prior to the commencement and at the end of the activity, as referenced as PS 1.7 in this EP. No additional measures or controls are required.

Australian Marine Conservation Society (AMCS)

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed AMCS and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.45).
- On 30 May 2023, Woodside emailed AMCS following up on the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Conservation Council of Western Australia (CCWA)

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Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed CCWA and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.45).
- On 30 May 2023, Woodside emailed CCWA following up on the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Greenpeace Australia Pacific (GAP)

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed GAP and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.45).
- On 30 May 2023, Woodside emailed GAP following up on the proposed activity (Record of Consultation, reference 2.21) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

Research institutes and local conservation groups or organisations

Cape Conservation Group (CCG)

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed CCG and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.46).
- On 30 May 2023, Woodside emailed CCG following up on the proposed activity (Record of Consultation, reference 2.23) and provided a Consultation Information Sheet.

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Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.
Protect Ningaloo		
Summary of consultation provided and record of consultation: • On 1 May 2023, Woodside emailed Protect Ningaloo and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.1). • On 30 May 2023, Woodside emailed Protect Ningaloo following up on the proposed activity (Record of Consultation, reference 2.4) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.
University of Western Australia (UWA)		
Summary of consultation provided and record of consultation: • On 1 May 2023, Woodside emailed UWA and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.47). • On 30 May 2023, Woodside emailed UWA following up on the proposed activity (Record of Consultation, reference 2.24) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its	No additional measures or controls are required.

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	Management of Change and Revision process (see Section 7.8 of this EP).	
Western Australian Marine Science Institution (WAMSI)		
Summary of consultation provided and record of consultation: • On 1 May 2023, Woodside emailed WAMSI and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.48). • On 30 May 2023, Woodside emailed WAMSI following up on the proposed activity (Record of Consultation, reference 2.19) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.
Commonwealth Scientific and Industrial Research Organisation (CSIRO)		
Summary of consultation provided and record of consultation: • On 1 May 2023, Woodside emailed CSIRO and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.49). • On 30 May 2023, Woodside emailed CSIRO following up on the proposed activity (Record of Consultation, reference 2.3) and provided a Consultation Information Sheet.		
Summary of Feedback, Objection or Claim	**Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response**	**Inclusion in Environment Plan**
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.
Australian Institute of Marine Science (AIMS)		

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Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed AIMS and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.50).
- On 30 May 2023, Woodside emailed AIMS following up on the proposed activity (Record of Consultation, reference 2.2) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside engages in ongoing consultation throughout the life of an EP. Should feedback be received after the EP has been accepted, it will be assessed and, where appropriate, Woodside will apply its Management of Change and Revision process (see Section 7.8 of this EP).	No additional measures or controls are required.

State Commercial fisheries and representative bodies

Western Rock Lobster Council

Woodside has discharged its obligations for consultation under regulation 25 of the Environment Regulations and consultation with Western Rock Lobster Council for the purpose of regulation 25 is complete. Sufficient information and a reasonable period have been provided, as described in Section 5.4 of the EP. Specifically:

- Consultation Information Sheet publicly available on the Woodside website since April 2023.
- Consultation Information provided to Western Rock Lobster Council on 1 May 2023 based on their functions, interests or activities.
- Woodside published advertisements in a national, state and relevant local newspapers on 26 April 2023 advising of the proposed activities and requesting feedback.
- Woodside has sent follow up emails seeking feedback on the proposed activities.
- Woodside has provided the Western Rock Lobster Council with the opportunity to provide feedback over a 12 month period.

Summary of consultation provided and record of consultation:

- On 1 May 2023, Woodside emailed Western Rock Lobster Council and provided the Julimar Development Project Phase 3 Drilling and Subsea Installation Environment Plan Fact Sheet (Record of Consultation, reference 1.14).
- On 30 May 2023, Woodside sent a reminder email to Western Rock Lobster Council advising of the proposed activity (Record of Consultation, reference 2.14) and provided a Consultation Information Sheet.

Summary of Feedback, Objection or Claim	Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	Inclusion in Environment Plan
No feedback, objections or claims received despite follow up.	Woodside has consulted DPIRD, WAFIC, the Western Rock Lobster Council and individual relevant licence holders.	Woodside has assessed the relevancy of State fisheries issues in Section 4.10.1 of this EP.

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	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 7.8** of this EP).	Woodside will provide notifications to DPIRD and WAFIC prior to the commencement and at the end of the activity, as referenced as PS 1.6 in this EP. No additional measures or controls are required.

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RECORD OF CONSULTATION

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1. Initial Consultation

1.1 Email sent to Australian Border Force (ABF), Department of Industry, Science and Resources (DISR), Department of Transport (DoT), Australian Petroleum Production and Exploration Association (APPEA), Department of Biodiversity, Conservation and Attractions (DBCA), Department of Mines, Industry Regulation and Safety (DEMIRS – *formerly DMIRS*), Protect Ningaloo (1 May 2023)

Dear Stakeholder

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.

Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels

	• DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **30 May 2023**.

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.

1.2 Email sent to Ningaloo Coast World Heritage Advisory Committee (NCWHAC) (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete.

	Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system

	• Potential ubsea cooling skid associated with the J85 reservoir tie back. • Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **30 May 2023**.

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.

1.3 Email sent to Department of Primary Industries and Regional Development (DPIRD) (1 May 2023)

Dear [redacted] and [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.

- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.

Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the

	control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)
Relevant fisheries	**State fisheries** • **Operational Area:** Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Trap Fishery and Pilbara Line Fishery • **EMBA:** Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery Land Hermit Crab Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne

	Demersal Scalefish Fishery, West Coast Rock Lobster Fishery, Nickol Bay Prawn Managed Fishery, Shark Bay Crab Managed Fishery, Shark Bay Prawn Managed Fishery, Shark Bay Scallop Managed Fishery, Pilbara Trawl Fishery, Pilbara Trap Fishery and Pilbara Line Fishery

Feedback:

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 **30 May 2023**.

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.

1.4 Email sent to Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, BP Developments Australia, Carnarvon Energy, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, Vermillion Oil & Gas Australia, Finder No 16, Jadestone, KUFPEC, Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos WA PVG, Coastal Oil and Gas, Bounty Oil and Gas, OMV Australia, KATO Energy / KATO Corowa, Longreach Capital Investments / Beagle No. 1 Pty Ltd, INPEX Alpha, JX Nippon O&G Exploration (Australia) (1 May 2023)

Dear Titleholder

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the

third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.

- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval.

	Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km

	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m • 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m • 2 x umbilicals associated with production flowlines (~diameter 150 mm) • Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system • Potential subsea cooling skid associated with the J85 reservoir tie back. • Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.5 Email sent to Chevron Australia Osaka Gas Gorgon, Tokyo Gas Gorgon, JERA Gorgon (1 May 2023)

Dear Chevron

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to

210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

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.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant.

	Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

	• The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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 Australian Hydrographic Office (AHO), Australian Maritime Safety Authority (AMSA) – Marine Safety (1 May 2023)

Dear AHO / AMSA

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. **A shipping lane map is also attached.** You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.

Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels

- DP Well Intervention Vessel (contingency only)
- Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.7 Email sent to Australian Maritime Safety Authority (AMSA) – Marine Pollution (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning:

	• Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.

	• Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023.**

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.

1.8 Email sent to Australian Fisheries Management Authority (AFMA) (1 May 2023)

Dear AFMA

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Exclusionary / Cautionary Zones
The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP.

The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Environment that May be Affected (EMBA)
Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations whom are located within the EMBA by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.

Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels

	• DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)
Relevant fisheries	**Commonwealth fisheries** • Operational Area: North West Slope and Trawl Fishery • EMBA: North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery, Western Tuna and Billfish Fishery

Feedback:

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 30 May 2023.

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 Pilbara Trap Fishery, Pilbara Line Fishery, Pilbara Trawl Fishery and Exmouth Gulf Prawn Managed Fishery (1 May 2023)

Dear Fishery Stakeholder

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.

- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years.

Exclusionary / Cautionary Zones
The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP.

The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.

Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
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Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the

	control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)
Relevant fisheries	**State fisheries** • **Operational Area:** Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Trap Fishery and Pilbara Line Fishery • **EMBA:** Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery

	Land Hermit Crab Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne Demersal Scalefish Fishery, West Coast Rock Lobster Fishery, Nickol Bay Prawn Managed Fishery, Shark Bay Crab Managed Fishery, Shark Bay Prawn Managed Fishery, Shark Bay Scallop Managed Fishery, Pilbara Trawl Fishery, Pilbara Trap Fishery and Pilbara Line Fishery

Feedback:

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 **30 May 2023**.

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.

1.10 Email sent to Western Australian Fishing Industry Council (WAFIC) (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years.

Exclusionary / Cautionary Zones
The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP.

The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Environment that May be Affected (EMBA)
Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations whom are located within the EMBA by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

Woodside acknowledges WAFIC's consultation guidance and has applied this by consulting fisheries that are assessed as having a potential for interaction in the Operational Area directly and consulting fisheries assessed as having a potential for interaction in the EMBA via WAFIC.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan

Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
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1.11 Email sent to North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery, Western Tuna and Billfish Fishery, Commonwealth Fisheries Association (CFA), Australian Southern Bluefin Tuna Industry Association (ASBTIA), Tuna Australia (1 May 2023)

Dear Fishery Stakeholder

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Subsea installation and commissioning activities

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Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
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1.12 Letter sent to Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Managed Fishery (28 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

28 April 2023

Dear Stakeholder

CONSULATION ON JULIMAR DEVELOPMENT PROJECT PHASE 3 (JDP3) DRILLING AND SUBSEA INSTALLATION ENVIRONMENT PLAN

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	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential ubsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Relevant fisheries	**State fisheries** • **Operational Area:** Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery, Pilbara Trap Fishery and Pilbara Line Fishery • **EMBA:** Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2 and 3), Pilbara Crab Managed Fishery, West Coast Deep Sea Crustacean Managed Fishery, Specimen Shell Managed Fishery, Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Fishery Land Hermit Crab Fishery, Exmouth Gulf Prawn Managed Fishery, Gascoyne Demersal Scalefish Fishery, West Coast Rock Lobster Fishery, Nickol Bay Prawn Managed Fishery, Shark Bay Crab Managed Fishery, Shark Bay Prawn Managed Fishery, Shark Bay Scallop Managed Fishery, Pilbara Trawl Fishery, Pilbara Trap Fishery and Pilbara Line Fishery

Feedback:

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 **28 May 2023**.

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
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com

1.13 Letter sent to Gascoyne Recreational Marine Users and Pilbara/Kimberley Recreational Marine Users (28 April 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

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Mia Yellagonga
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Perth WA 6000
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T: +61 8 9348 4000
www.woodside.com

28 April 2023

Dear Stakeholder

CONSULATION ON JULIMAR DEVELOPMENT PROJECT PHASE 3 (JDP3) DRILLING AND SUBSEA INSTALLATION ENVIRONMENT PLAN

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our woodside.com. You can also subscribe to receive updates on our consultation activities by subscribing at our website.

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 **28 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan

Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU

	to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential ubsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **28 May 2023**.

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
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au
www.woodside.com

Email sent to Western Rock Lobster Council (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Exclusionary / Cautionary Zones

The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP.

The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Environment that May be Affected (EMBA)
Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations whom are located within the EMBA by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m

Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
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Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
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Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)
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Feedback:

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 **30 May 2023**.

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.

1.15 Email sent to Exmouth Recreational Marine Users, Karratha Recreational Marine Users, Recfishwest, Marine Tourism Association, WA Game Fishing Association (1 May 2023)

Dear Stakeholder

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

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The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

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A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m

Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
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Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
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	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
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	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.16 Email sent to AMSA (24 July 2023)

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 the *Julimar Development Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan* (EP). Woodside is planning to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System, located around 160 km north-west of Dampier and adjacent to the Chevron operated, Wheatstone Platform. The activity is located in Commonwealth waters in permit area WA-49-L, in water depths of approximately ~120-210 m.

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 providing information on the proposed activities is available here: Link
- The *Julimar Development Phase 3 (JDP3) Drilling and Subsea Installation Oil Pollution First Strike Plan* is also 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 are presented in a succinct summary.

If you have any feedback on these activities, please respond to Woodside at: Feedback@woodside.com.au or 1800 442 977 by **Thursday 31 August 2023**.

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]

1.17 Email sent to DAFF – Fisheries and Biosecurity (1 May 2023)

Dear DAFF – Fisheries and Biosecurity

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Exclusionary / Cautionary Zones

The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP.

The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Environment that May be Affected (EMBA)

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations whom are located within the EMBA by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from activities within the scope the EP. The worst-case credible spill scenario for this EP is a well loss of integrity.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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, assessment of government fishing effort data (including Fishcube and AFMA) from recent years, fishing methods and water depth.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025.

	The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats

	• Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)
Relevant fisheries	**Commonwealth fisheries** • **Operational Area:** North West Slope and Trawl Fishery • **EMBA:** North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery, Western Tuna and Billfish Fishery

Biosecurity:

With respect to the biosecurity matters, please note the following information below:

Environment description:
The Petroleum Activity Area (which include the Well, Subsea Installation and Well Intervention Operational Areas) is located in water depths of approximately 120 to 300 m within the Carnarvon Basin, on the middle continental shelf. The seabed is relatively flat sloping toward the north-west of the Petroleum Activity Area and is likely to be dominated by soft sediment comprised of fine to coarse sands, which typify the sediments of the North West Marine Region.

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.

Feedback:

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 **30 May 2023**.

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.

1.18 Email sent to Department of Defence Dear Department of Defence

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
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Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. **A defence zone map is also attached**. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025.

	The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
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	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats

	• Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.19 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) (1 May 2023)

Dear DCCEEW

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.

- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. **Also attached is a list of shipwrecks in Commonwealth waters within the EMBA.** You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier

Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
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Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.20 Email sent to Director of National Parks (DNP) (1 May 2023)

Dear Director of National Parks

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

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Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Australian Marine Parks (AMPs)

We note Australian Government Guidance on consultation activities and confirm that:

- The proposed activities are outside the boundaries of a proclaimed Australian Marine Park.
    - The Petroleum Activity Area is located approximately 1 km north west of the Commonwealth boundary of the Multiple Use Zone of the Montebello Marine Park, approximately 151 km north east of the Multiple Use Zone of the Gascoyne Marine Park and approximately 186 km north east of the Recreational Use Zone of the Ningaloo 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 highly unlikely event of a loss of well containment resulting in the release of reservoir hydrocarbons to the marine environment. Through review of hydrocarbon spill modelling, and with consideration of a 50 ppb dissolved and 100 ppb entrained hydrocarbon threshold, the following AMPs may be contacted in the event of a spill:
    - Ningaloo
    - Gascoyne
    - Shark Bay
    - Montebello
    - Argo-Rowley Terrace
- 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.

Environment that May Be Affected (EMBA)
Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations whom are located within the EMBA by a proposed petroleum activity. The EMBA is the largest spatial extent where unplanned events could potentially have an environmental consequence. For this EP, the broadest extent of the EMBA has been determined by the highly unlikely event of a hydrocarbon release from 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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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 **30 May 2023**.

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Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
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	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m

	• 2 x umbilicals associated with production flowlines (~diameter 150 mm) • Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system • Potential subsea cooling skid associated with the J85 reservoir tie back. • Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.21 Email sent to Department of Planning, Lands and Heritage (DPLH) (1 May 2023)

Dear DPLH

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years.

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. **Also attached is a list of shipwrecks in State waters within the EMBA.** You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be

	surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.22 Email sent to Murujuga Aboriginal Corporation (MAC) (18 May 2023)

Hi [redacted]

I note you have received earlier correspondence regarding Woodside's proposed Scarborough, decommissioning and drilling activities. As mentioned earlier, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure (which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier); and
- Goodwyn A Infill Geophysical and Geotechnical Surveys (to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier).

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explain the activities we plan to undertake. Detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that Murujuga Aboriginal Corporation (MAC) and its members may have in the 'environment that may be affected' (EMBA) by these activities. As I'm sure you are aware, the EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact MAC's interests and activities and/or cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by **19 June 2023** and please also advise of your preferred method of consultation and any support you may require from us.

There are various ways in which you can provide feedback. They are as follows:

1. Directly to me on the details below;

2. Via email at Feedback@woodside.com.au or by calling Woodside Feedback on 1800 442 977
3. Directly to the Australian Government's National Offshore Petroleum Safety and Environmental Management Authority at communications@nopsema.gov.au or (08) 6188 8700.

Please feel free to forward this email and the attached documents to MAC members or other people who you think may be interested as required. Woodside would be pleased to speak with MAC members, the MAC Board or office holders and other interested parties as required.

We look forward to hearing from you.

Kind regards

1.23 Email sent to Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) (22 May 2023)

Dear [redacted]

Further to our earlier correspondence, meeting with the NTGAC Board and discussions regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier
- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact NTGAC's interests and activities and/or cultural values;
- NTGAC's concerns about the proposed activities and what NTGAC thinks we should do about those concerns;

- Whether there are any other individuals, groups or organisations NTGAC thinks we should talk to.

If NTGAC would like to speak with us, please let us know by **19 June 2023** and please also advise of NTGAC's preferred method of consultation and any support NTGAC may require.

NTGAC, NTGAC members and other individuals, groups or organisations 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 NTGAC, NTGAC members and other groups, individuals and / or organisations who NTGAC thinks may be interested as required. Woodside would be pleased to speak with NTGAC members, the NTGAC Board and office holders and other interested parties.

We look forward to hearing from you.

Sincerely,
[redacted]

1.24 Email sent to Buurabalayji Thalanyji Aboriginal Corporation (BTAC) (19 May 2023)

Dear [redacted] and [redacted]

[redacted], thank you for your time on the phone this morning. Further to our discussions and earlier correspondence regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier
- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that Buurabalayji Thalanyji Aboriginal Corporation (BTAC) and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned

events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by **19 June 2023** and please also advise of your preferred method of consultation and any support you may require.

BTAC, BTAC members and other individuals, groups and organisations 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.

1.25 Email sent to Yinggarda Aboriginal Corporation (YAC) (22 May 2023)

Dear Sir / Madam,

Further to my previous correspondence about consultation with Yinggarda Aboriginal Corporation (YAC) regarding Woodside's offshore activities, please find attached information about two additional Woodside activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier
- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that YAC and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact YAC's interests and activities and/or cultural values;
- YAC's concerns about the proposed activities and what YAC thinks we should do about those concerns;

- Whether there are any other individuals, groups or organisations YAC thinks we should talk to.

If YAC would like to speak with us, please let us know by **19 June 2023** and please also advise of YAC's preferred method of consultation and any support YAC requires.

YAC, YAC members and other individuals, groups or organisations 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 YAC, YAC members and other groups, individuals and / or organisations who YAC thinks may be interested as required. Woodside would be pleased to speak with YAC members, the YAC Board and office holders and other interested parties.

We look forward to hearing from you.

Sincerely,

[redacted]

1.26 Email sent to Kariyarra Aboriginal Corporation (KAC) (18 May 2023)

Dear [redacted]

Further to our earlier correspondence with you regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier
- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that Kariyarra Aboriginal Corporation (KAC) and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by **19 June 2023** and please also advise of your preferred method of consultation and any support you may require.

KAC 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 KAC members or other people who you think may be interested as required. Woodside would be pleased to speak with KAC members, the KAC Board or office holders and other interested parties as required.

We look forward to hearing from you.

Sincerely,

[redacted]

1.27 Email sent to Wirrawandi Aboriginal Corporation (WAC) (18 May 2023)

Dear [redacted]

Further to our earlier correspondence with you regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier
- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that Wirrawandi Aboriginal Corporation (WAC) and its members may have in the 'environment that may be affected'

(EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by 19 June 2023 and please also advise of your preferred method of consultation and any support you may require.

WAC 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 WAC members or other people who you think may be interested as required. Woodside would be pleased to speak with WAC members, the WAC Board or office holders and other interested parties as required.

We look forward to hearing from you.

Sincerely,

[redacted]

1.28 Email sent to Robe River Kuruma Aboriginal Corporation (RRKAC) (18 May 2023)

Dear [redacted]

Further to our earlier correspondence with you regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier
- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

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) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by 19 June 2023 and please also advise of your preferred method of consultation and any support you may require.

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 or other people who you think may be interested as required. Woodside would be pleased to speak with RRKAC members, the RRKAC Board or office holders and other interested parties as required.

We look forward to hearing from you.

Sincerely,

[redacted]

1.29 Email sent to Ngarluma Aboriginal Corporation (NAC) (18 May 2023)

Dear [redacted] and [redacted]

Further to our earlier correspondence and the opportunity to present to the board yesterday (17 May) regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier
- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned

activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that Ngarluma Aboriginal Corporation (NAC) and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by **19 June 2023** and please also advise of your preferred method of consultation and any support you may require.

NAC 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 NAC members or other people who you think may be interested as required. Woodside would be pleased to speak with NAC members, the NAC Board or office holders and other interested parties as required.

We look forward to hearing from you.

Sincerely,

[redacted]

1.30 Email sent to Yindjibarndi Aboriginal Corporation (YAC) (18 May 2023)

Dear [redacted]

Further to our earlier correspondence with you regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier
- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and

other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that Yindjibarndi Aboriginal Corporation (YAC) and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by **19 June 2023** and please also advise of your preferred method of consultation and any support you may require.

YAC 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 YAC members or other people who you think may be interested as required. Woodside would be pleased to speak with YAC members, the YAC Board or office holders and other interested parties as required.

We look forward to hearing from you.

Sincerely,

[redacted]

1.31 Email sent to Wanparta Aboriginal Corporation (18 May 2023)

Dear [redacted]

Further to our earlier correspondence with you regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about an additional activity:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3

Woodside is seeking to understand the nature of the interests that Wanparta Aboriginal Corporation (Wanparta) and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by **19 June 2023** and please also advise of your preferred method of consultation and any support you may require.

Wanparta 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 Wanparta members or other people who you think may be interested as required. Woodside would be pleased to speak with Wanparta members, the Wanparta Board or office holders and other interested parties as required.

We look forward to hearing from you.

Sincerely,

[redacted]

1.32 Email sent to Malgana Aboriginal Corporation (19 May 2023)

Dear [redacted] and [redacted]

Further to my email of earlier today, please find attached information about Woodside's Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure activity, which

will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier.

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached a summary information sheet that explains the activities we plan to undertake, and a detailed consultation information sheet can be found at the link below:

- Julimar Development Project Phase 3

Woodside is seeking to understand the nature of the interests that Mulgana Aboriginal Corporation (MAC) and its members may have in the 'environment that may be affected' (EMBA) by the JDP3 activity. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

- About how the activities outlined in the Summary Information Sheet could impact your interests and activities and/or your cultural values;
- Your concerns about the proposed activities and what do you think we should do about those concerns;
- Whether there are any other individuals, groups or organisations you think we should talk to.

If you would like to speak with us, please let us know by **19 June 2023** and please also advise of your preferred method of consultation and any support you may require.

Mulgana Aboriginal Corporation and its members, and other individuals, groups or organisations 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 MAC members and other people who you think may be interested as required. Woodside would be pleased to speak with MAC members, the MAC Board and office holders and other interested parties.

We look forward to hearing from you.

Sincerely,
[redacted]

1.33 Email sent to Yamatji Marlpa Aboriginal Corporation (YMAC) (22 May 2023)

Dear [redacted]
Further to our earlier correspondence, meeting with the NTGAC Board and discussions regarding Woodside's proposed Scarborough, decommissioning and drilling activities, please find attached information about two additional activities:

- Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System approximately 160 km North West of Dampier

- Goodwyn A Infill Geophysical and Geotechnical Surveys, to undertake geophysical and geotechnical surveys in multiple permit areas adjacent to the GWA Platform and other existing associated subsea infrastructure, approximately 140km North West of Dampier

In preparation for this work, Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from both planned and unplanned activities. Mitigation and management measures have been developed for each of the risks identified and will be outlined in the Environmental Plans.

I have attached summary information sheets that explains the activities we plan to undertake, and detailed consultation information sheets can be found at the links below:

- Julimar Development Project Phase 3
- Goodwyn A Infill Geophysical and Geotechnical Surveys

Woodside is seeking to understand the nature of the interests that Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC) and its members may have in the 'environment that may be affected' (EMBA) by these activities. The EMBA is the total area over which unplanned events could have environmental impacts. The EMBA is set out in the attached Summary Information Sheet. In particular, we are interested in hearing:

· About how the activities outlined in the Summary Information Sheet could impact NTGAC's interests and activities and/or cultural values;
· NTGAC's concerns about the proposed activities and what NTGAC thinks we should do about those concerns;
· Whether there are any other individuals, groups or organisations NTGAC thinks we should talk to.

If NTGAC would like to speak with us, please let us know by 19 June 2023 and please also advise of NTGAC's preferred method of consultation and any support NTGAC may require.

NTGAC, NTGAC members and other individuals, groups or organisations 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 NTGAC, NTGAC members and other groups, individuals and / or organisations who NTGAC thinks may be interested as required. Woodside would be pleased to speak with NTGAC members, the NTGAC Board and office holders and other interested parties.

We look forward to hearing from you.

Sincerely,

[redacted]

1.34 Email sent to Western Australian Museum (1 May 2023)

Dear Western Australian Museum

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. **Also attached is a list of shipwrecks in State waters within the EMBA.** You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant.

	Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels.

	• The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.35 Email sent to Shire of Exmouth (5 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **31 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.

Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels

	• DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **31 May 2023**.

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.

1.36 Email sent to Shire of Ashburton (2 May 2023)

Dear [redacted] and [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **31 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning:

	• Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.

	• Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **31 May 2023**.

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.

1.37 Email to City of Karratha (2 May 2023)

Dear [redacted] and [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.

- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **31 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m

Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **31 May 2023**.

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.

1.38 Email to Shire of Carnarvon (1 May 2023)

Dear [redacted] / Shire of Carnarvon

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan

Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP.

	• The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.39 Email sent to Town of Port Hedland (1 May 2023)

Dear Town of Port Hedland

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated

management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location).

	If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel

	• Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.40 Email sent to Exmouth Community Liaison Group (5 May 2023)

Dear Exmouth Community Liaison Group

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **31 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete.

	Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
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	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system

	• Potential subsea cooling skid associated with the J85 reservoir tie back. • Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **31 May 2023**.

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.

1.41 41Email sent to Karratha Community Liaison Group (CLG) (2 May 2023)

Dear Karratha Community Liaison Group

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.

- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
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Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **31 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m

Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
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Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **31 May 2023**.

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.

1.42 Email sent to Onslow Chamber of Commerce and Industry (2 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **31 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines).

	• The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **31 May 2023**.

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.

1.43 Email sent to Port Hedland Chamber of Commerce and Industry (1 May 2023)

Dear Port Hedland Chamber of Commerce and Industry

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated

management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location).

	If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel

	• Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **30 May 2023**.

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.

1.44 Email sent to Carnarvon Chamber of Commerce and Industry (1 May 2023)

Dear Carnarvon Chamber of Commerce and Industry

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.

Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m

	• 2 x umbilicals associated with production flowlines (~diameter 150 mm) • Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system • Potential subsea cooling skid associated with the J85 reservoir tie back. • Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **30 May 2023**.

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.

1.45 Email sent to Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Greenpeace Australia Pacific (GAP) and 350 Australia (350A) (1 May 2023)

Dear Stakeholder

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.

Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the

	control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
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	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
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	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.46 Email sent to Cape Conservation Group (CCG) (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.

Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
	• Mattresses/grout bags (~40)

Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels

	• DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **30 May 2023**.

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.

1.47 Email sent to University of Western Australia (UWA) (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. 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.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.

Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m

	• 2 x umbilicals associated with production flowlines (~diameter 150 mm) • Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system • Potential subsea cooling skid associated with the J85 reservoir tie back. • Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **30 May 2023**.

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.

1.48 Email sent to Western Australian Marine Science Institution (WAMSI) (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. 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.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.

Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the

	control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
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	  ○ ILT to JULB manifold –~2.5 km
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	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m
	• 2 x umbilicals associated with production flowlines (~diameter 150 mm)
	• Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system
	• Potential subsea cooling skid associated with the J85 reservoir tie back.
	• Five Umbilical Termination Assemblies (UTA) complete with mudmats
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Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:

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 **30 May 2023**.

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.

1.49 Email sent to Commonwealth Scientific and Industrial Research Organisation (CSIRO) (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
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Subsea installation and commissioning activities

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Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. 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.

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 **30 May 2023**.

[1]The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
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Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels

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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.

1.50 Email sent to Australian Institute of Marine Science (AIMS) (1 May 2023)

Dear [redacted]

Woodside is planning to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

Following recent changes to Commonwealth EP consultation requirements, Woodside is now consulting persons or organisations 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 EP, 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.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. 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.

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 **30 May 2023**.

[1]*The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.*

Activity: Julimar Development Project Phase 3

JDP3 Environment Plan	
Summary	Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Location	~160 km north-west of Dampier
Approx. Water Depth (m)	~120 – 300m
Schedule	Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.

Approx. Estimated Duration	Drilling: • Activities are currently anticipated to take approximately 60 days per well to complete. Subsea installation and commissioning: • Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). If required, well intervention activities will take up to approximately 70 days per well to complete.
Exclusionary/ Cautionary Zone	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area includes a 500 m safety exclusion zone around the MODU to manage vessel movements as well as the IMR vessel if used for commissioning activities. The 500 m safety exclusion zone is under the control of the MODU Person in Charge. The Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master.

Infrastructure	• Up to five Xmas trees and wellheads
	• One two-slot production manifold complete with mudmat
	• Flexible production flowlines complete with diverless connectors
	  ○ ILT to JULB manifold –~2.5 km
	  ○ JULB manifold to Penfolds well – ~4.4 km
	  ○ JULA manifold to J85 production well – ~2 km
	• 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells –~300 m
	• 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well –~100 m

	• 2 x umbilicals associated with production flowlines (~diameter 150 mm) • Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system • Potential subsea cooling skid associated with the J85 reservoir tie back. • Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

Feedback:
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 **30 May 2023**.

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.

1.51 Newspaper Advertisements (26 April 2023)

Midwest Times

ENVIRONMENT PLANS NOTICE

Woodside Energy Ltd (ACN 006 923 679) and Woodside Energy Julimar Pty Ltd (ACN 130 391 365) are proposing to conduct activities in Commonwealth waters as described below.

Julimar Development Project Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan (Woodside Energy Julimar Pty Ltd)

Activity summary:	Activities to develop the Julimar Development Project Phase 3 (JDP3) by installing five new wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.
Location:	Approximately 160 km north-west of Dampier to the Petroleum Activities Area.
Commencement timing:	Anticipated around Q3 2024, pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 60 days per well and will take place 24 hours, 7 days a week. Subsea installation activities are likely to take approximately 100 days.

Geophysical and Geotechnical (GP/GT) Surveys – Goodwyn A Infill (GP/GT) Environment Plan (Woodside Energy Ltd)

Activity summary:	Activities to undertake geophysical and geotechnical surveys in multiple title blocks adjacent to existing associated infrastructure. These surveys will support future activities including Goodwyn A (GWA) infill development and plug and abandonment (P&A) of decommissioned wells.
Location:	Approximately 165 km north-west of Dampier.
Commencement timing:	Anticipated around Q4 2023 pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 17 weeks for geophysical and geotechnical surveys and will take place 24 hours, 7 days a week.

Figure 1 (JDP3) and Figure 2 (GP/GT): 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 JDP3 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.

Impacts associated with the GT/GP planned activities include the physical presence of vessels, interaction with other marine users, seabed disturbance (such as survey equipment and boreholes), noise, light, air emissions and marine discharges. Impacts that could occur due to an unplanned event include hydrocarbon releases (marine diesel or other vessel fuels), vessel collisions with marine fauna, introduced marine species, accidental loss of waste or other discharges.

Figure 1 and Figure 2 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.

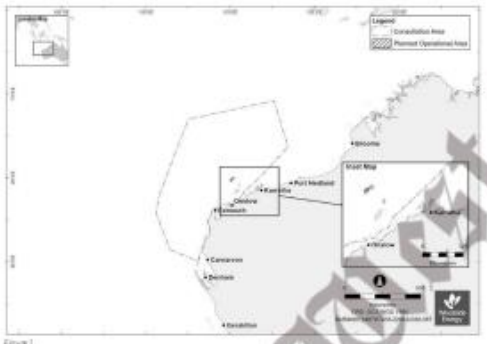

Figure 1

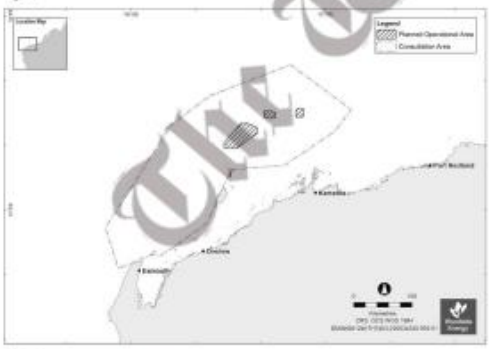

Figure 2

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, 26 May 2023**.

E: **Feedback@woodside.com**
Toll free: **1800 442 977**

ENVIRONMENT PLANS NOTICE

Woodside Energy Julimar Pty Ltd (ACN 130 391 365) is proposing to conduct activities in Commonwealth waters as described at **Table 1** below.

An Environment Plan (EP) for the proposed activity has been prepared in accordance with the regulations administered by the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA) under the *Offshore Petroleum and Greenhouse Gas Storage Act 2006 (Cth)*. A public comment period is open until **Friday, 19 May 2023.**

The public comment process provides an opportunity for community members to have their say on environmental management aspects of the proposed activities. For more information about the proposed activity or to make a submission in relation to the EP, see NOPSEMA's website at: **https://consultation.nopsema.gov.au/environment-division/7417/**

Table 1: 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
Location:	~182 km west-north-west of Dampier
Commencement timing:	Anticipated around second half of 2023 pending approvals, vessel availability and weather constraints. However, drilling may be performed at any point within the life of the EP.
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
Public comment period closes	Friday, 19 May 2023 See NOPSEMA's website at: **https://consultation.nopsema.gov.au/environment- division/7417/**

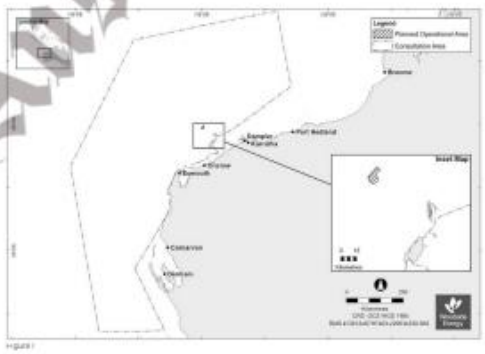

Figure 1

Figure 1 describes the Operational Area 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 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.

The indicative EMBA **(Figure 1)** supports 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 available at: **www.woodside.com/sustainability/consultation-activities**

If you would like to comment on the proposed activities outlined above or for more information, please see NOPSEMA's website at: **https://consultation.nopsema.gov.au/environment-division/7417/** and provide your comment by **Friday, 19 May 2023.**

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The West Australian

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DEATHS

WINMAR (Mervyn Aaron): Passed away in South Hedland. Loving Son of Margaret and Allan (dec). Wonderful Father of Nikki, Jaimee, Peter, Mervyn, Orlando and Valentina. Loved Uncle to all nieces and nephews. Pop of Shannon and Louiza. Brother of Alan, Harry, Ebony, Derek, Christopher and extended families. Grandson of Melba and Leonard (dec) Wallam and Harry and Hazel Winmar (both dec). Stepson of David Moses Martin (dec) and step brother of Miranda. Loved by so many, never to be forgotten by family and friends, always and forever.

FUNERAL NOTICES

WINMAR: The Funeral Service for the late Mr Mervyn Aaron Winmar of Bunbury will take place in Church of Christ, 46 Tinsperley Road, South Bunbury commencing at 1pm on FRIDAY (5.5.23). Following the Service the cortege will proceed to the BUNBURY Lawn Cemetery for burial arriving at 2.30pm.

William Barrett & Sons 9722 5311

BUNBURY
Post an eTribute at barrettfunerals.com.au
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PUBLIC NOTICES

Searcher

Seismic Survey Consultation Invitation

Searcher Seismic Pty Ltd is proposing to conduct 3D Marine Seismic Surveys (MSS) located Offshore in the North West Region of Western Australia. As such Searcher wishes to provide all potential stakeholders the opportunity to provide us with any values or sensitivities affecting your functions, interests or activities in order to address any issues or concerns.

Possum 3D MSS is approximately 211km offshore of Broome and 246km from Port Hedland. Survey duration will be about 70 days commencing sometime between Jan and July 2023.
Full Environment Plan: https://info.nopsema.gov.au/environment_plans/563/show_public

Superbowl 3D MSS is approximately 105km offshore of Port Hedland. Maximum annual survey duration will be around 60 days with acquisition between Jan 2023 to Dec 2023.
Project details are available on our website:
searcherseismic.com/stakeholderfeedback
or contact us direct:
Phone: +61 (0)8 9327 0301
Email: feedback@searcherseismic.com

ENVIRONMENT PLANS NOTICE

Woodside Energy Ltd (ACN 006 923 870) and Woodside Energy Julimar Pty Ltd (ACN 130 318 869) are proposing to conduct activities in Commonwealth waters as described below:

Julimar Development Project Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan (Woodside Energy Julimar Pty Ltd)

Activity summary:	Activities to develop the Julimar Development Project Phase 3 (JDP3) by installing five new wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.
Location:	Approximately 160 km north-west of Dampier to the Petroleum Activities Area.
Commencement timing:	Anticipated around Q2 2024, pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 60 days per well and will take place 24 hours, 7 days a week. Subsea installation activities are likely to take approximately 100 days.

Geophysical and Geotechnical (GP/GT) Surveys – Goodwyn A Infill (GP/GT) Environment Plan (Woodside Energy Ltd)

Activity summary:	Activities to undertake geophysical and geotechnical surveys in multiple titleblocks adjacent to existing associated infrastructure. These surveys will support future activities including Goodwyn A (GWA) infill development and abandonment (P&A) of decommissioned wells.
Location:	Approximately 140km north-west of Dampier.
Commencement timing:	Anticipated around Q4 2023 pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 17 weeks for geophysical and geotechnical surveys and will take place 24 hours, 7 days a week.

Figure 1 (JDP3) and Figure 2 (GP/GT) describe the Petroleum Activities Environment That May Be Affected (EMBA) based on a composite of many different paths and with no 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 JDP3 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 (marine diesel or other vessel fuels), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

Impacts associated with the GP/GT planned activities include the physical presence of vessels, interaction with other marine users, seabed disturbance (such as towed equipment and boreholes), noise, light, air emissions and marine discharges. Impacts that could occur due to an unplanned event include hydrocarbon releases (marine diesel or other vessel fuels), vessel collisions with marine fauna, introduced marine species and accidental loss of waste or other discharges.

Figure 1 and Figure 2 provide indicative EMBA to support persons or organisations understanding of whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's Consultation Information Sheets.

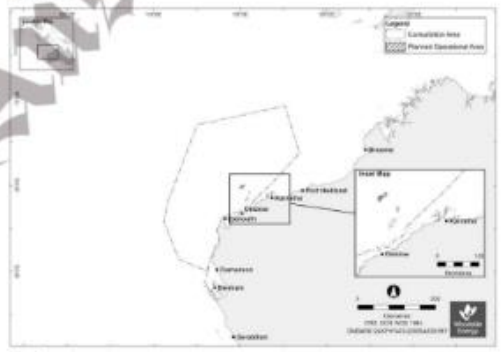

Figure 1

Figure 2

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, 26 May 2023**.

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TENDERS

City of Karratha

REQUEST FOR TENDER
RECONSTRUCTION HILLVIEW AND BALMORAL ROADS RFT09-22/23

The City is seeking tenders from suitably qualified and competent contractors for the reconstruction of Balmoral and Hillview Roads, and associated works.

A copy of the tender documents must be obtained by registering your details via the City's Tenderlink website: www.tenderlink.com/karratha

Tenders can only be lodged electronically via the City's Tenderlink website: www.tenderlink.com/karratha

Non Mandatory briefing is 2.00pm (AWST) Friday, 12 May 2023.

The deadline for tenders to be submitted is 2.00pm (AWST) Wednesday, 24 May 2023.

Please direct any enquiries to Zoe Roosendaal via the Tenderlink online forum.

Canvassing of Elected Members may disqualify.

Virginia Miltrup
Chief Executive Officer

PUBLIC NOTICES

City of Karratha

ACCESS & INCLUSION

Have you experienced challenges in accessing events, facilities, services or information within the City of Karratha?

Have you ever been met with resistance when seeking inclusion in sports and other community activities?

As part of the City of Karratha's review to inform the future direction of its Disability Access and Inclusion Plan (DAIP) 2023-2027, we would like to hear from our residents.

If you have a story to tell, we would like to hear from you!

Please contact the City of Karratha's Community Engagement team via email – community.engagement@karratha.wa.gov.au; or in writing – City of Karratha, Welcome Road, Karratha 6714.

To access further information or view the current DAIP 2018-2022, please attend the City's Administration Office during business hours or access the City's website at: www.karratha.wa.gov.au/community/accessibility-diversity-and-inclusion/accessibility-and-inclusion-people-all-abilities

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Chief Executive Officer

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ENVIRONMENT PLANS NOTICE

Woodside Energy Ltd (ACN 006 923 870) and Woodside Energy Julimar Pty Ltd (ACN 130 388 365) are proposing to conduct activities in Commonwealth waters as described below:

Julimar Development Project Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan
(Woodside Energy Julimar Pty Ltd)

Activity summary:	Activities to develop the Julimar Development Project Phase 3 (JDP3) by installing five new wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.
Location:	Approximately 160 km north-west of Dampier to the Petroleum Activities Area.
Commencement timing:	Anticipated around Q2 2024, pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 60 days per well and will take place 24 hours, 7 days a week. Subsea installation activities are likely to take approximately 100 days.

Geophysical and Geotechnical (GP/GT) Surveys - Goodwyn A Infill (GP/GT) Environment Plan (Woodside Energy Ltd)

Activity summary:	Activities to undertake geophysical and geotechnical surveys in multiple tranches, adjacent to existing associated infrastructure. These surveys will support future activities including Goodwyn A (GWA) infill development and plug and abandonment (P&A) of decommissioned wells.
Location:	Approximately 140km north-west of Dampier.
Commencement timing:	Anticipated around Q4 2023, pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 17 weeks for geophysical and geotechnical surveys and will take place 24 hours, 7 days a week.

Figure 1 (JDP3) and Figure 2 (GP/GT) describe the [illegible] Area and Environment That May Be Affected (EMBA) based on a composite of many different paths and further distance where 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 JDP3 planned activities include the [illegible] 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 (marine diesel or other vessel fuels), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

Impacts associated with the GP/GT planned activities include the physical presence of vessels, interaction with other marine users, seabed disturbance (such as survey equipment and boreholes), noise, light, air emissions and marine discharges. Impacts that could occur due to an unplanned event include hydrocarbon releases (marine diesel or other vessel fuels), vessel collisions with marine fauna, introduced marine species, accidental loss of waste or other discharges.

Figure 1 and Figure 2 [illegible] EMBA to support persons or organisations understanding of whether their functions, interests or activities may be affected by the proposed activities, with detailed information found in Woodside's Consultation Information Sheets.

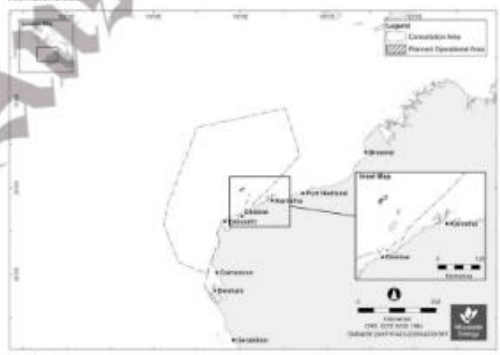

Figure 1

Figure 2

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 assess 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, 26 May 2023** via:

Woodside Energy

The Australian

ENVIRONMENT PLANS NOTICE

Woodside Energy Ltd (ACN 006 923 879) and Woodside Energy Julimar Pty Ltd (ACN 110 391 365) are proposing to conduct activities in Commonwealth waters as described below:

Julimar Development Project Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan (Woodside Energy Julimar Pty Ltd)

Activity summary:	Activities to develop the Julimar Development Project Phase 3 (JDP3) by installing five new wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.
Location:	Approximately 160 km north-west of Dampier to the Petroleum Activities Area.
Commencement timing:	Anticipated around Q2 2024, pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 60 days per well and will take place 24 hours, 7 days a week. Subsea installation activities are likely to take approximately 300 days.

Geophysical and Geotechnical (GP/GT) Surveys – Goodwyn A Infill (GP/GT) Environment Plan (Woodside Energy Ltd)

Activity summary:	Activities to undertake geophysical and geotechnical survey in multiple title blocks adjacent to existing associated infrastructure. These surveys will support future activities including Goodwyn A (GWA) infill development and plug and abandonment (P&A) of decommissioned wells.
Location:	Approximately 140 km north-west of Dampier.
Commencement timing:	Anticipated around Q4 2022 pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 17 weeks for geophysical and geotechnical surveys and will take place 24 hours, 7 days a week.

Figure 1 (JDP3) and Figure 2 (GP/GT): 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 JDP3 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 release (condensate, marine diesel or other vessel fuels), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

Impacts associated with the GT/GP planned activities include the physical presence of vessels, interaction with other marine users, seabed disturbance (such as survey equipment and borehole), noise, light, air emissions and marine discharges. Impacts that could occur due to an unplanned event include hydrocarbon release (marine diesel or other vessel fuels), vessel collisions with marine fauna, introduced marine species, accidental loss of waste or other discharges.

Figure 1 and Figure 2 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.

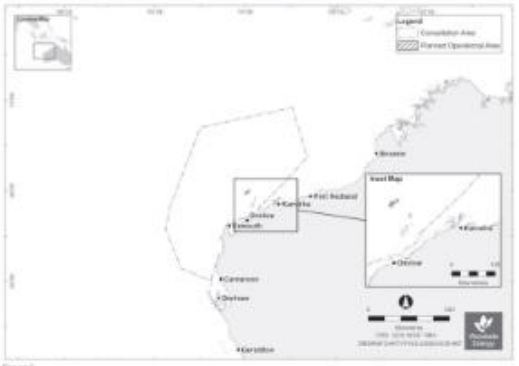

Figure 1

Figure 2

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, 26 May 2023 via:

E: **Feedback@woodside.com**

Toll free: **1800 442 977**

Shift to 60-day scripts in pharmacy shake-up

NATASHA ROBINSON
JESS MALCOLM

The federal government is to push through changes allowing patients to be prescribed 60-day supplies of a large host of medicines in a shake-up of the Pharmaceutical Benefits Scheme that will save many consumers hundreds of dollars a year.

The initiative contained in the upcoming budget enacts a five-year old recommendation of the Pharmaceutical Benefits Advisory Committee long opposed by powerful lobby groups.

The change is set to affect at least six million Australians, who will also save hundreds of dollars in gap fees every year for doctors' visits as they will not need to return for new scripts so often.

The PBAC called for the change to apply to 543 commonly prescribed medicines in 2015. Currently, patients have to go back to the pharmacy to get a new packet of many common medicines every month, paying a PBS co-payment of $30 every time, or $7.30 for concessioners.

Under the change to 60-day dispensing, even patients on just one medication will save $180 a year as they will only have to pay the PBS co-payment once. With many people, especially elderly, on three or more medications, some consumers will be saving thousands of dollars a year. Those with chronic conditions will save the most. The government estimates the shift to longer prescribing will save the federal budget $1.8bn over the next four years.

"This cheaper medicines policy is safe, good for Australians' hip pockets and most importantly good for their health," Health Minister Mark Butler said.

"Pharmacists already do much more than just dispense medicine and the government is supporting our trained pharmacists to play an even bigger role in the healthcare of Australians."

In moving to finally implement the PBAC advice, Mr Butler has shared down the Pharmacy Guild, which ahead of the change, revealed in The Weekend Australian, was claiming the policy would result in mass medicine shortages and rip $1.5bn from community pharmacies over the next four years.

"If the federal government proceeds with this proposal, everyday prescription medicine will be put into severe shortages lasting months, not days or weeks," Pharmacy Guild president Trent Twomey said.

The nation is already suffering medicine shortages but they have little to do with prescribing arrangements. Pharmacists stand to lose a slice of their income in not dispensing lines that they receive every time a script is filled, which cover the costs of providing services to patients and storing and preparing medication.

However, they are to some extent protected by a controversial clause in the five-year community pharmacy agreement signed between the previous government and the Pharmacy Guild that compensates pharmacies if the number of prescriptions they issue in any one year drops by more than 2 per cent.

The Australian Medical Association said it was "delighted" patients would save money on healthcare and be granted more convenience. AMA president Steve Robson said the measure might help have some effect on easing the crisis in GP accessibility as fewer people would need to visit their doctor for a new script.

Professor Robson said the concerns about medicine shortages were unfounded. "The recommendation for this came from the same body that monitors medicine shortages and they've made it absolutely clear they are... helpful in no effect," he said.

"It's not as if people are taking more medicines, ... so it should have absolutely zero effect on supply."

The policy is set to come in from September 1 in a staged roll-out.

Scrap negative gearing if you want our votes: Greens

GEOFF CHAMBERS
CHIEF POLITICAL CORRESPONDENT

Greens leader Adam Bandt has called on Anthony Albanese to scrap negative gearing and capital gains tax discounts to bankroll the doubling of rent assistance, a rent freeze and more government-owned affordable housing.

Parliamentary Budget Office modelling commissioned by the Greens shows that ending tax breaks for property investors would raise $74.1bn over the decade and offset expenditure on the left-wing party's housing wishlist.

Mr Bandt argues the Greens' housing policies, valued at $69.4bn, could be legislated in parliament by July and deliver a $4.7bn improvement to the budget bottom line.

In a National Press Club speech on Wednesday, Mr Bandt will threaten to oppose the Prime Minister's $10bn Housing Australia Future Fund unless he delivers on the Greens' demands.

Mr Bandt, who made similar threats to scuttle the government's safeguard mechanism and 2030 emissions reduction target before folding in last-minute negotiations, will say if Labor "wants our support on its housing bill, it needs to come to the table on the rental crisis".

The Greens' five-point housing package includes doubling the rate of commonwealth rent assistance at a cost of $43.6bn, building 225,000 publicly owned properties over a decade, abolishing the 50 per cent capital gains discount, establishing a rent-freeze housing fund for state governments and phasing out investment property deductions. The expenditure review committee of cabinet has been looking at raising rent assistance in the May budget but is likely to opt for an increase in the single parenting payment instead.

In his speech, Mr Bandt will say "Labor is actively choosing to make the housing and rental crisis worse" and chastises the government for committing to fund stage-three tax cuts and submarines. "Labor is the party of property moguls. The Greens are fighting for renters and affordable homes for all," he will say.

Treasury's tax expenditure statement released in February showed that about 680,000 people benefited from capital gains tax discounts in 2019-20. The statement said "revenue foregone is elevated in 2020-22 and 2022-23 due to higher capital gains realisations for individuals" before reducing in subsequent years. The Greens say the majority of those benefiting from capital gains tax discounts and negative gearing are male, high-income earners aged over 50.

With the Coalition opposed to the housing fund, the government needs the Greens and two crossbenchers to get its legislation through the parliament when MPs return for the budget.

Unions' $350m funds windfall

Continued from Page 1

businesses could be forced to pay into union-linked entitlement funds.

Industry sources said a consultation paper released last month on "employee-like forms of work and stronger protections for independent contractors" was laying the ground for collective-bargaining and enterprise bargaining agreements requiring payments to entitlement funds.

Under the guiding principle of giving all workers access to minimum rights and protections, the consultation paper said "this included" access to "freedom of association and dispute resolution".

The paper, which industry figures believe drove independent contractors into Ubers, said the Fair Work Commission could be directed to "make minimum standards in respect of, but not limited to workplace conditions, such as portable leave, net breaks ... (and) training and skill development".

ETU acting national secretary Michael Wright told the Sydney Morning Herald in January the construction industry had "fostered portable long-service leave and income protection entitlements, assuring that union members were negotiating benefits that didn't begin and end with one employer". He was hopeful new multi-employer bargaining laws would "spread portable entitlements throughout the economy and heighten the benefit of union membership".

The Australian understands the government's focus is gig-economy workers and those being paid under the minimum wage, as well as empowering the Fair Work Commission to make decisions. With consultations running for another two to three months and no final details settled, Workplace Relations Minister Tony Burke on Tuesday said the government "is on the side of ending the race to the bottom on wages and conditions".

"As always, the Coalition is on the side of driving rates of pay down," he said. "This year we decide whether we'll continue to be a country where workers in areas like food delivery can be paid less than the legal minimum based on an archaic idea that only employers are allowed to have minimum standards."

Board members at Australia's biggest and oldest workers' entitlement scheme, Incolink, include CFMEU Victorian state secretary John Setka and national Plumbing Trades Employees Union boss Karl Setches. Master Builders Victoria, Master Painters and Master Plumbers are also Incolink stakeholders.

Opposition workplace relations spokeswoman Michaelia Cash said "any entitlement fund must be used for the benefit of employees and not to line the pockets of the Albanese government's union donors".

CFMEU national secretary Zach Smith hit back at criticism of entitlement funds and said "the sector is already heavily regulated by ASIC and others and every payment that's made, to unions and to employer groups, is accounted for and scrutinised".

Ahead of last year's federal election, The Australian revealed the nation's largest employer groups were concerned Labor's secure jobs plan could force business to pay billions in entitlements each year into new union-linked funds, driving up costs for companies and consumers.

EDITORIAL P10

Chalmers faces ALP revolt on JobSeeker

EXCLUSIVE

JESS MALCOLM

Jim Chalmers is facing growing internal division over his decision to reject a core $24bn recommendation from his Economic Inclusion Advisory Committee to raise JobSeeker by 40 per cent to just under $1000 a fortnight.

Labor MP Mike Freelander is joining an increasing number of Labor backbenchers urging the Treasurer to substantially lift JobSeeker and related payments to address structural inequality.

The Macarthur MP also did an about-face on his push for Labor to go ahead with legislated stage-three tax cuts after previously urging the Albanese government to deliver the tax cuts in full amid concerns people earning $200,000 were "not rich".

He has now called for the cuts to be reversed to fund an increase to JobSeeker for the nation's most vulnerable.

"I think JobSeeker should be raised as it's just a measure of inequality ... and I'm changing my opinion about stage three. When I look at the level of inequality and rate of JobSeeker, it's clear we need to do something," Dr Freelander said.

"I'd rather see the stage-three tax cuts reversed so we can pay for an increase to JobSeeker. It's not ideal to go back on what we've said but the situation is now very different; even I think we need to rethink those stage-three tax cuts, but I've has got a very difficult job to do and he's doing a great job."

The Albanese government is facing a backbench revolt after several Labor MPs signed an open letter co-ordinated by the Australian Council of Social Service to lift JobSeeker to address "structural injustice" and "increased deprivation".

Canberra MP Alicia Payne, Bonthby MP Louise Miller-Frost, Jagajaga MP Kate Thwaites and Higgins MP Michelle Ananda-Rajah signed the letter addressed to Anthony Albanese, which urges him to "substantially increase" JobSeeker, Youth Allowance and related payments.

"We all want the security of knowing that we'll be supported during tough times," the letter reads. "But right now, the rate of JobSeeker is so low that people are being forced to choose between paying their rent or buying enough food and medicine."

Liberal MP Bridget Archer has thrown her support behind the push, alongside Independent ACT senator David Pocock, Tasmanian senator Jacqui Lambie and the Greens.

Senator Pocock said it was time Labor "listened to the experts when it comes to economic inclusion". "There will always be pressure on the budget, but this isn't a cuts the government can kick down the road forever."

Several teal MPs are also calling for an income support to rise, including Kooyong MP Monique Ryan, Goldstein MP Zoe Daniel, Curtin MP Kate Chaney, Wentworth MP Zali Steggall and Indi MP Helen Haines.

The West Australian

PUBLIC NOTICES

DECEASED ESTATES

DECEASED ESTATE - ANDREW CHARLES ROSS
Creditors and other persons having claims (to which section 63 of the Trustees Act 1962 applies) in respect of the estate of the late Andrew Charles Ross late of 18 Barrett Street, Wembley, 6014, Western Australia who died on 19 March 2023, are required by the Executor to send particulars of their claims addressed to the Executor, Estate of the late Andrew Charles Ross, PO Box 2147, Claremont, WA, 6910 within one month of the date of publication of this notice after which date the Executor may convey or distribute the assets having regard only to the claims of which the Executor then have notice.

TRUSTEES ACT 1962 DECEASED ESTATE
In the matter of the estate of the late JOHN GREGORY late of Angle Stradbroke, 72 Fourth Avenue, Shoalwater in the state of Western Australia, the proposed administrator of the estate wishes to locate AMANDA JOAN SWALLOW or AMANDA JOAN PAGE, the granddaughter of the late JOAN GREGORY and the daughter of STEPHEN ROBERT CARL PAGE. Anyone knowing the whereabouts of AMANDA JOAN SWALLOW should contact JL legal, 72 Fourth Road, Armadale WA on 08 9190 0401 within 7 days.

GENERAL

Notice of Intention
Ah Loon Tan of 201 Balfour Street, Southern River WA 6110, I the above mentioned, hereby give notice of my intent to apply to be licensed as a Pawnbroker and Second-hand Dealer on the behalf of Ah Loon Tan, Cash for Gold Perth at Suite 6/136 Railway Street, Bassendean WA 6154.

RAFFLE RESULTS

SDFC Youth Development Raffle Bassendean Oval April 23
1st - 40736, 2nd - 61047

Public Notice

Rights in Water and Irrigation Act 1914

Water Corporation has made application for a temporary licence under s5C to take 500,000 kilolitres for earthworks and construction purposes at Lot 3000 Brindabella Parkway, Alkimos. People who are interested in the application may make a written submission within 15 days of this publication to the Department of Water and Environmental Regulation, 7 Ellam Street, Victoria Park, Western Australia 6100, quoting DWERVT10362-10. If you object to the proposal, you must in your submission specify what actions, if any, would overcome your objections. General enquiries to Swan Avon Region office on 6250 8000.

watercorporation.com.au

WATER CORPORATION

NOTICE TO SCHEME CREDITORS OF BELL GROUP FINANCE PTY LTD ACN 009 165 182 (IN LIQUIDATION) (SCHEME ADMINISTRATOR APPOINTED) AND THE OTHER SCHEME COMPANIES OF TERMINATION OF THE SCHEMES

TO all Scheme Creditors of:

Scheme Company
ACN 008 775 411 Pty Ltd (in liquidation) (scheme administrator appointed)
Albany Broadcasters Limited ACN 008 674 600 (in liquidation) (scheme administrator appointed)
Bell Bros Pty Ltd ACN 008 672 375 (in liquidation) (scheme administrator appointed)
Bell Bros Holdings Ltd ACN 008 695 056 (in liquidation) (scheme administrator appointed)
Bell Equity Management Limited ACN 009 210 208 (in liquidation) (scheme administrator appointed)
Bell Group Finance Pty Ltd ACN 009 165 182 (in liquidation) (scheme administrator appointed)
Bell Publishing Group Pty Ltd ACN 008 734 451 (in liquidation) (scheme administrator appointed)
Dolfinne Pty Ltd ACN 009 134 516 (in liquidation) (scheme administrator appointed)
Dolfinne Securities Pty Ltd ACN 009 218 182 (in liquidation) (scheme administrator appointed)
Great Western Transport Pty Ltd ACN 009 669 121 (in liquidation) (scheme administrator appointed)
Harlesden Finance Pty Ltd ACN 009 227 561 (in liquidation) (scheme administrator appointed)
Industrial Securities Pty Ltd ACN 008 728 792 (in liquidation) (scheme administrator appointed)
Maradolf Limited ACN 009 482 898 (in liquidation) (scheme administrator appointed)
Maranoa Transport Pty Ltd ACN 009 668 303 (in liquidation) (scheme administrator appointed)
Neoma Investments Pty Ltd ACN 009 234 842 (in liquidation) (scheme administrator appointed)
TBGL Enterprises Ltd ACN 008 669 216 (in liquidation) (scheme administrator appointed)
WADN Investments Pty Ltd ACN 008 937 166 (in liquidation) (scheme administrator appointed)
Wanstead Pty Ltd ACN 008 775 120 (in liquidation) (scheme administrator appointed)
Wanstead Securities Pty Ltd ACN 009 218 160 (in liquidation) (scheme administrator appointed)
Western Interstate Pty Ltd ACN 000 224 395 (scheme administrator appointed)
Western Transport Pty Ltd ACN 009 566 308 (in liquidation) (scheme administrator appointed)
Wigmores Tractors Pty Ltd ACN 008 679 221 (in liquidation) (scheme administrator appointed)

On 20 August 2018, the Supreme Court of Western Australia approved the schemes of arrangement (the **Schemes**) for each of the Scheme Companies under section 411(4)(b) of the Corporations Act 2001 (Cth). Terms defined in the Schemes have the same meaning when used in this notice. A copy of the Schemes is available at: www.bgfscheme.com.au

TAKE NOTICE that:

1. All of the Scheme Assets have been realised and the Scheme Fund has been fully distributed in accordance with the terms of the Schemes.
2. The Schemes terminated on 12 April 2023.

Dated 12 April 2023.

A L J Woodings
Scheme Administrator

A L J Woodings Chartered Accountant
PO Box 1940
WEST PERTH WA 6872
Tel: +61 8 9486 4211
Email: admin@tbgl.com.au

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Cheer on your local team
See sporting notices

ENVIRONMENT PLANS NOTICE

Woodside Energy Ltd (ACN 005 482 986) and Woodside Energy Julimar Pty Ltd (ACN 130 391 365) are proposing to conduct activities in Commonwealth waters as described below:

Julimar Development Project Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan (Woodside Energy Julimar Pty Ltd)

Activity summary:	Activities to develop the Julimar Development Project Phase 3 (JDP3) by installing five new wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.
Location:	Approximately 160 km north-west of Dampier in the Petroleum Activities Area.
Commencement timing:	Anticipated around Q2 2024, pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 40 days per well and will take place 24 hours, 7 days a week. Subsea installation activities are likely to take approximately 100 days.

Geophysical and Geotechnical (GP/GT) Surveys – Goodwyn A Infill (GP/GT) Environment Plan (Woodside Energy Ltd)

Activity summary:	Activities to undertake geophysical and geotechnical surveys in multiple title blocks adjacent to existing associated infrastructure. These surveys will support future activities including Goodwyn A (GWA) infill development and plug and abandonment (P&A) of decommissioned wells.
Location:	Approximately 140 km north-west of Dampier.
Commencement timing:	Anticipated around Q4 2023 pending approvals, vessel availability and weather constraints.
Estimated duration:	Approximately 17 weeks for geophysical and geotechnical surveys and will take place 24 hours, 7 days a week.

Figure 1 (JDP3) and Figure 2 (GP/GT): Describes the Operational Area 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 JDP3 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 (condensate, marine diesel or other vessel fuels), vessel collisions with marine fauna, additional seabed disturbance, introduced marine species, accidental loss of waste or other discharges.

Impacts associated with the GP/GT planned activities include the physical presence of vessels, interaction with other marine users, seabed disturbance (such as survey equipment and boreholes), noise, light, air emissions and marine discharges. Impacts that could occur due to an unplanned event include hydrocarbon releases (marine diesel or other vessel fuels), vessel collisions with marine fauna, introduced marine species, accidental loss of waste or other discharges.

Figure 1 and Figure 2 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.

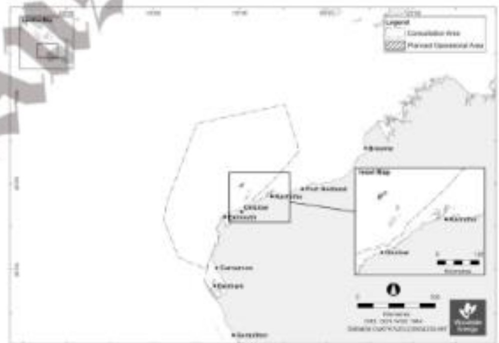


Figure 1

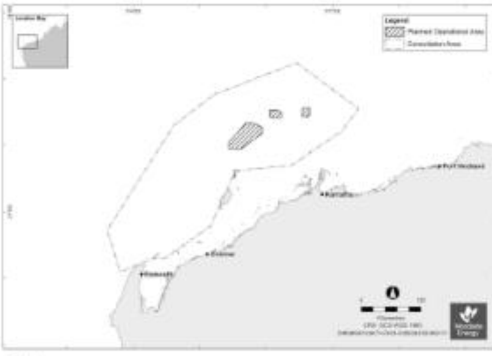


Figure 2

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, 26 May 2023** via:

E: **Feedback@woodside.com**
Toll free: **1800 442 977**

The West Australian

1.52 Consultation Information Sheet

Woodside Energy

STAKEHOLDER CONSULTATION

INFORMATION SHEET

April 2023

JULIMAR DEVELOPMENT PROJECT PHASE 3 (JDP3) DRILLING AND SUBSEA INSTALLATION ENVIRONMENT PLAN

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.

Activity overview

Drilling **activities**

Woodside is planning to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System, located around 160 km north-west of Dampier and adjacent to the Chevron operated, Wheatstone Platform.

Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well[1]) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L. The wells are located at a water depth of between approximately 120 to 210 m **(see Table 2)**.

If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Once drilling activities have commenced other contingent activities that Woodside may need to perform include well abandonment, re-spud, side-track, well suspension, well intervention, well work-over, leaving wellhead assembly in situ, sediment mobilisation and relocation, venting, well test/unload and emergency disconnect sequence.

Subsea installation and commissioning activities

Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold (see **Table 1**).

Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years.

Table 1 summarises the project activities, which involves connections of two wells (JUB1B and JUB1A) to a new two slot production manifold (JULB). The new manifold will tie into the existing in-line tee (ILT) assembly via approximately 2.5 km of flexible flowline and umbilical. JUB1B will connect to the new JULB manifold by approximately 4.4 km flexible flowline and umbilical.

Three wells (JUA1C, JUA1E and the J-85 development well) are planned to tie back to empty slots located at the existing JULA production manifold via flexible flowlines and umbilicals.

The timing and direction of the proposed activities is subject to change due to approvals, project schedule requirements, vessel availability, weather or unforeseen circumstances.

Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P (see **Figure 1**).

Start-up and operation of the JDP3 production system will be subject to approval of a future revision of the Julimar Operations Environment Plan.

Project vessels

It is intended that the proposed activity will be performed by either a moored semi-submersible mobile offshore drilling unit (MODU), dynamically positioned (DP) MODU or a hybrid MODU which will moor on the seabed and operate on DP assist mode.

The hybrid MODU may operate at JDP3 in moored with dynamic positioning (DP) assist mode, which will have DP running for some or all of the time. Typically, two or three vessels will support the MODU during drilling activities, with at least one vessel in the vicinity to complete standby duties, if required.

Supply vessels from nearby ports will frequent the MODU at regular intervals, throughout operations. MODU moorings may be pre-installed up to three months prior to MODU arrival on location.

The flowlines, umbilicals, manifold and remaining subsea infrastructure are planned to be installed and tested from a primary installation vessel which may also support cold commissioning prior to start-up.

Cold commissioning could also be performed using a subsea Inspection, Maintenance and Repair (IMR) vessel if required. Xmas trees may be installed by the MODU, or with an IMR vessel.

[The J85 reservoir development well location is not yet determined, though it will be within ~2 km of the JULA manifold.

Drilling activities are currently expected to take approximately 60 days per well to complete, including mobilisation, demobilisation and contingency activities. It is anticipated that vessels will operate 24 hours per day, seven days per week for the duration of the activities.

Subsea installation and commissioning activities are likely to take approximately 100 days, with production targeted for around the second half of 2025. The wells may be developed as a single campaign or a second shorter campaign may be required in 2026, with production for those second campaign wells expected to commence in around 2026 or 2027.

Simultaneous Operations (SIMOPS) activities may occur whilst the proposed activities are underway (e.g. subsea installation nearby drilling activities but not at the same well location). Timing and duration of all activities is subject to change due to project schedule requirements, MODU/vessel availability, unforeseen circumstances and weather.

Communications with mariners

A 4 km radius Operational Area will be applied around the JDP3 development well centres allowing for well intervention, drilling and temporary installing of MODU moorings. A 1.5 km radius Operational Area will also be applied around subsea installation locations.

A temporary 500 m safety exclusion zone will apply around the MODUand subsea installation vessel to allow management of movement and positioning of vessels.

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 JDP3 wells will continue to be marked on navigational charts.

Background

Woodside Energy Julimar Pty Ltd (Woodside), is operator of the Julimar Field Production System in Title Areas WA-49-L, WA-26-PL and WA-29PL. The system consists of subsea wells, Xmas trees, manifolds, flowlines/ pipelines and umbilicals. The system produces gas and condensate from the Brunello and Julimar fields to the offshore Chevron-operated Wheatstone platform. Gas and condensate from the Wheatstone Platform are then transported to the onshore Chevron-operated Wheatstone LNG facility for processing, storage and supply of LNG and condensate to customers. The system normally operates 24 hours per day, 365 days per year.

Assessment

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

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** X . Further details will be provided in the 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 Energy Ltd is operator on behalf of the Julimar joint venture participants. The participants are Woodside and KUFPEC Australia (Julimar) Pty Ltd.

We welcome your feedback by X Month 2023.

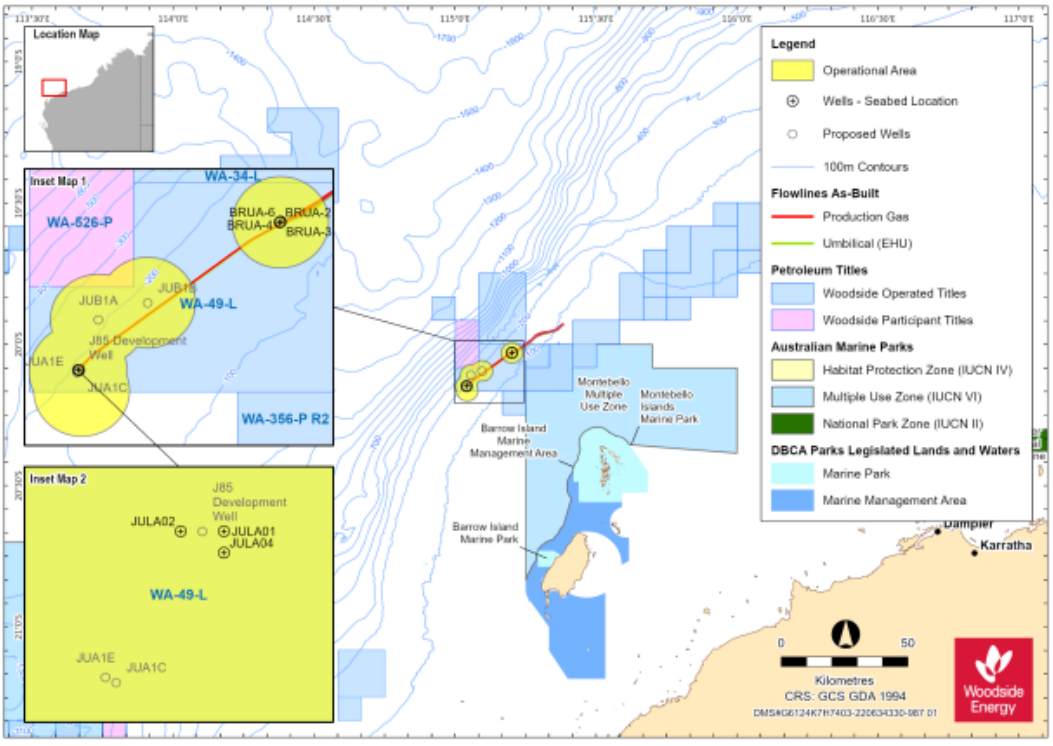


Figure 1 Petroleum Activity Program Operational Area

Table 1. Activity summary

JDP3 Environment Plan	
Summary	• Drill up to four wells (JUA1C, JUA1E, JUB1B and J-85 development well) in the Julimar field and one well (JUB1B) in the Penfolds prospect. • Installation of subsea infrastructure to connect the wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant. • Pre-commissioning and cold commissioning activities up to the point of introduction of hydrocarbons.
Permit Area	• Activities will occur predominantly within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.
Approximate water depth	• ~120 – 300m
Commencement date	• Drilling is currently anticipated to be conducted between around Q3 2024 – Q1/2 2025, subject to EP approval. However, drilling may be performed at any point within three years of EP acceptance. • Subsea installation is currently anticipated to be undertaken between around Q1 2025 – Q2 2025, subject to EP approval. • Pre-commissioning and cold commissioning activities are currently anticipated to be conducted between around Q2/Q3 2025, subject to EP approval.
Approximate estimated duration	• Drilling: Activities are currently anticipated to take approximately 60 days per well to complete. • Subsea installation and commissioning: Activities are currently anticipated to take approximately 100 days to complete, with production targeted for around the second half of 2025. • The wells may be developed as a single campaign or a second shorter campaign may be required in about 2026, with production for those second campaign wells expected to commence in around 2026 or 2027. • Simultaneous Operations (SIMOPS) activities may occur (e.g., subsea installation nearby drilling activities but not at the same well location). • If required, well intervention activities will take up to approximately 70 days per well to complete.
Infrastructure	• Up to five Xmas trees and wellheads • One two-slot production manifold complete with mudmat • Flexible production flowlines complete with diverless connectors • ILT to JULB manifold ~2.5 km • JULB manifold to Penfolds well – ~4.4 km • JULA manifold to J85 production well – ~2 km • 2 x flexible jumpers complete with diverless connectors, connecting JULA manifold to 2 x JULA production wells ~300 m • 1 x flexible jumper complete with diverless connectors, connecting JULB manifold to 1 x JULB production well ~100 m • 2 x umbilicals associated with production flowlines (~diameter 150 mm) • Flying leads (FLs) connecting each Xmas tree to the manifolds and connecting to the existing subsea production control system • Potential ubsea cooling skid associated with the J85 reservoir tie back. • Five Umbilical Termination Assemblies (UTA) complete with mudmats • Mattresses/grout bags (~40)
Vessels	• Moored MODU, DP MODU or hybrid moored/DP MODU • Primary Installation Vessel • Inspection, Maintenance and Repair (IMR) Vessel • Support vessels including anchor handling vessel(s) and general supply/support vessels • DP Well Intervention Vessel (contingency only) • Subsea support vessel (optional for well head recovery)

JDP3 Environment Plan	
Operational Areas and Exclusion zones	• The Well Operational Area includes a radius of 4 km around development well centres, in which drilling related activities will be managed under this EP. This Operational Area allows for temporary installation of MODU moorings. The J85 Well Operational Area overlaps the Chevron operated WA-5-R Petroleum Title (this will include MODU mooring lines). • The Well Intervention Operational Area encompasses a radius of 4 km around existing Julimar Brunello production well centres, in which well intervention activities may take place and be managed under this EP. • The Subsea Installation Operational Area encompasses a 1.5 km radius (3 km corridor) around the subsea installation locations in which subsea installation and pre-commissioning activities will occur. The 1500 m (radii) Operational Area around subsea installation allows for the movement and positioning of vessels. • The Well Operational Area 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 Primary Installation Vessel, operating within the Subsea Installation Operational Area, will also be surrounded by a 500 m safety exclusion zone when on-location and which be under the control of the vessel master. • The Operational Areas are collectively referred to as the Petroleum Activity Area (PAA) in this EP, with specific Operational Areas referred to where relevant. Vessel-related activities within the PAA will comply with this EP. Vessels supporting the Petroleum Activities Program when outside the PAA must adhere to applicable maritime regulations and other requirements. • 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	• ~182 km west-north-west of Dampier
Distance to nearest marine park/ nature reserve	• ~37 km north-west of the Montebello Islands Marine Park (State) • ~1 km north-west of the Montebello Multiple Use Zone (Cwlth)

JDP3 Environment Plan					
New Wells and Manifold					
JUA1C	~173 m	20° 08' 59.969" S	115° 02' 23.622" E		WA-49-L
JUA1E	~174 m	20° 08' 58.753" S	115° 02' 22.501" E		WA-49-L
JUB1A	~191 m	20° 06' 27.931" S	115° 03' 23.418" E	Temporary 500 m radius	WA-49-L
JUB1B (Penfolds)	~169 m	20° 05' 39.071" S	115° 05' 44.871" E		WA-49-L
JULB Manifold	~192 m	20° 06' 26.41"S	115° 03' 24.02"E		WA-49-L
J85 Reservoir Development Well**	~158-207 m	20° 08"52.917" S	115° 02 27.23" E		WA-9-PL
Existing or Approved Wells					
BruA-2	149 m	20°01'49.1571" S	115°12'05.6357" E		WA-49-L
BruA-3	149 m	20°01'47.8720" S	115°12'07.0511" E		WA-49-L
BruA-4	149 m	20°01'48.1207" S	115°12'07.5964" E	Temporary 500 m radius***	WA-49-L
BruA-5	149 m	20°01'49.6633" S	115°12'05.7596" E		WA-49-L
BruA-6	149 m	20°01'48.4958" S	115°12'07.8942" E		WA-49-L

JDP3 Environment Plan					
JULA-01	174 m	20° 08' 52.996" S	115° 02' 28.377" E		WA-49-L
JULA02	174 m	20° 08' 52.222" S	115° 02' 26.436" E	Temporary 500 m radius if contingency activities are required	WA-49-L
JULA04	174 m	20° 08' 53.554" S	115° 02' 28.078" E		WA-49-L
Existing Subsea Infrastructure					
JDP2 ILT Assembly (existing)	167 m	20° 07 '36.11" S	115°04 '12.23" E	Temporary 500 m radius if contingency activities are required	WA-49-L
JULA Manifold (existing)	174 m	20° 08 '52.917" S	115°02 '27.23" E		WA-49-L

** Well coordinates are approximate and could shift within a 2 km radius of the indicative location within WA-49-L.*
*** The J85 reservoir development well location is not yet determined, though it will likely be within ~2 km of the JULA manifold. As such the coordinates provided for this well in the above table are those of the JULA manifold and depth range demonstrates the depths within this 2 km radius.*
**** Relates primarily to installation of Subsea Power and Communication Unit, location is not yet determined. Also relates if contingency activities are required.*

Environment That May Be Affected (EMBA)

The environment that may be affected (EMBA) is the largest spatial extent where the JDP3 drilling and subsea installation program [Petroleum Activities Program (PAP)] 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 and a vessel collision. This is depicted in **Figure 2**.

The EMBA does not represent the extent of predicted impact of the highly unlikely marine diesel 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, and vessel collision.

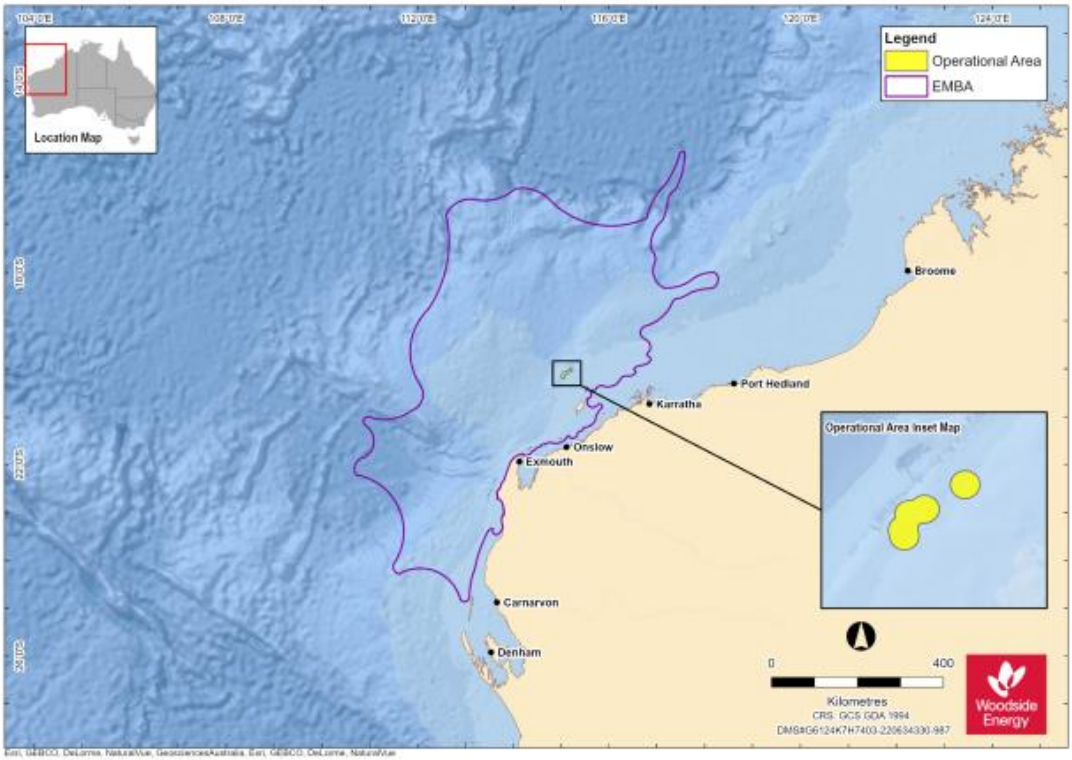


Figure 2 Environment that May Be Affected by the JDP3 Petroleum Activities Program

Mitigation and Management Measures

Woodside has undertaken an assessment to identify potential impacts and risks to the marine environment arising from the proposed JDP3 activities considering timing, duration, and location.

A number of mitigation and management measures for JDP3 activities are outlined in Table 3. Further details will be provided in the EP.

Table 3. Summary of key risks and/or impacts and management measures for the proposed JDP3 activities

JDP3 Environment Plan			
Planned			
Physical presence: interference or displacement of third party vessels	• Several vessel types will be required to complete the activity, and may include a MODU (either moored, operating on DP, or a hybrid of the two), installation vessels, inspection, maintenance and repair (IMR) vessels, well intervention vessels and support vessels. • The MODU will be present for up to ~60 days per new production though this could be longer if well intervention is required. • 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 displace third party vessels.	• Other vessels in the Operational Area, which may include commercial fishing and shipping and defence may experience temporary and localised displacement during the activity. • The Pilbara Line and Mackerel Managed fisheries were the fisheries considered to be active in the vicinity of the operational area. The operational area is located in water depths of 120 - 300m, 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 the be limited. The Montebello Islands are the closest location for frequent tourism activities, located approx. 42 km from the Operational Area. Recreational fishing may occur in the Operational Area, though given the water depths and distance from the 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 the regulatory requirements for navigational safety. • Establish a 500 m petroleum safety zone around MODU (and decommissioning, and intervention vessels, if required) 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.
Physical presence: seabed disturbance	Seabed disturbance may result from the following: • Subsea infrastructure including wellheads, JULB manifold and flexible flowlines • MODU mooring system • Movement of a ROV near seabed. • DP transponders - clump weight • Stabilisation weights • Temporary installation aids	• Habitat modification as a result of seabed disturbance could occur within a localised radius of the well. 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 present. • The Continental Slope Demersal Fish Communities Key Ecological Feature (KEF) overlap the Operational Areas. Potential seabed disturbances in this area are expected to be localised and short-term and are unlikely to affect the ecological value of the KEF. • The operational area for the contingent well intervention scope at the BRUA wells overlaps the Ancient Coastline at 125 m depth contour KEF.	• Mooring systems (chains/wires and anchors) will be removed at the conclusion of the activity. • Infrastructure will be placed on the seabed within the predefined design footprint using positioning technology to limit seabed disturbance. • MODU well site locations consider seabed sensitivities. • Impacts to cultural heritage areas or prospective areas to be avoided and/ or mitigated in accordance with Woodside's First Nations Communities Policy.

JDP3 Environment Plan			
Routine acoustic emissions	• Project 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 (cetaceans), turtles and fish in three main ways: 1. By causing direct physical effects, including injury or hearing impairment. Hearing impairment may be temporary (temporary threshold shift – TTS), or permanent (permanent threshold shift - PTS), with PTS generally considered to represent a form of injury. 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 considered credible that individual cetaceans that may pass through the Operational Area would experience PTS, given individuals would need to remain within 150 m of the drilling activity for a period of 24 hours continuously. • TTS onset is also considered highly unlikely given the known movement behaviour of cetaceans including key migrating whale species (pygmy blue whale and humpback whale) transiting through the Operational Area. • The Operational Area is not known to represent significant foraging/ aggregation habitat for cetaceans and individuals are not expected to dwell for extended periods. • Marine turtles within the Operational Area are expected to be transient and behavioural impacts are expected to be short term and localised. It is not credible that permanent and temporary thresholds would be exceeded for marine turtles. • Potential impacts from acoustic emissions on fish, sharks and rays are likely to be restricted to localised and temporary avoidance behaviour.	• Comply with regulatory requirements for interactions with marine fauna to prevent adverse interactions. • Implement adaptive management procedure prior to and during MODU/ installation vessel moves.

JDP3 Environment Plan			
Routine and non-routine discharges: project vessels	• Sewage, greywater, and putrescible waste will be discharged from MODU and project vessels. • 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 to water quality are expected 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.	• Comply with regulatory requirements for marine discharges. • Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process. • 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.
Routine and non-routine discharges: Flowline and subsea installation fluids	• Routine discharge of small volumes 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.	• Comply with regulatory requirements for marine discharges. • Chemicals intended or likely to be discharged into the marine environment reduced to ALARP using Woodside's chemical assessment process. • ROV inspection during hydrotest to identify any leakage.

JDP3 Environment Plan			
Routine and non-routine discharges: drill cuttings, drilling fluids and well removal fluids	Drilling operations may result in the following discharges: • 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.	• Increased 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. • Cutting of the wellhead may result in localised smothering of benthic communities as well as create localised and temporary increases in turbidity around the well. • It is expected that potential impacts to plankton species will be highly localised, within tens of metres, 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 will 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 NWBMs, no bulk discharges of 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 Fish Communities and Ancient Coastline at 125 m depth contour KEFs, which overlap the Operational Area, relate to ecological impacts to the seabed habitat and benthic communities. The extremely small portion of each KEF predicted to be impacted in combination with the predicted recovery of the affected benthic communities, mean that predicted impact is minor. • As only a small portion of each KEF overlap the Operational Area and in combination with the predicted recovery of the affected benthic communities, any potential impact is considered to have no lasting effect.	• 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. • NWBMs only 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 fluids will be returned to shore. • Drill cuttings returned to the MODU will be discharged below the water line to facilitate dispersion.

JDP3 Environment Plan			
Routine and non-routine discharges: cement, cementing fluids, subsea well fluids, produced water, unused bulk product and subsea chemicals	• Routine discharge of cement and cementing fluids to the seabed and marine environment. • Routine discharge of subsea well fluids (inc. BOP and well construction, well intervention / workover activity control fluids). • Produced / reservoir water disposal • 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 minor quantities of routine and non-routine planned discharges (including subsea control fluids, well displacement fluids), short discharge durations and the low toxicity and high dispersion in the open, offshore environment, any potential impacts on the marine environment are expected to be localised. • 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. • No bulk cement, bentonite or barite discharged without a documented environmental assessment. Discharging of excess product to the marine environment will be the last option. • Unused MEG/brine will be returned to port/staging point for disposal where practicable
Atmospheric emissions	• Atmospheric emissions and greenhouse gases will be generated by the MODU, project vessels and helicopters from internal combustion engines and incineration activities. • Emissions may arise from venting greenhouse gases in the unplanned event of a 'well kick'. This venting process ensures well integrity is maintained and emergency conditions are avoided.	• Emissions from MODU, project vessels, helicopters and well kick venting could result in temporary, localised reductions in air quality in the immediate vicinity. • Given the offshore location of the PAA, and the low volumes of atmospheric emission which will be generated, biodiversity, ecological integrity, social amenities, and human health will not be impacted and any potential impact to air quality is slight. • 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. • Manage vessel speed to reduce fuel combustion 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. • Mitigation measures to reduce gas venting volumes in the event of a well kick e.g., installation of a BOP.

JDP3 Environment Plan			
Light emissions	• Project vessels will use external lighting to navigate and conduct safe operations at night. • Vessel lighting will also be used to communicate the vessel's presence to other marine users (i.e. navigation/ warning lights).	• Light emissions have the potential to affect fauna such as marine turtles in two main ways: 1. Behaviour: artificial lighting has the potential to create a constant level of light at night that may 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. • The Operational Area may be occasionally visited by seabirds and overlaps the Wedgetail Shearwater Foraging Biologically Important Area. 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, with the exception of emergency events. • Flaring, if required, will be 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 integrity	• Accidental loss of hydrocarbons to the marine environment due to loss of well control may occur, caused by failure of well barriers. • A 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. • Modelling of a loss of well containment was undertaken with the outcome, EMBA, illustrated in Figure 2. • JULA04 Condensate, used as a representative analogue, is a mixture of volatile and persistent hydrocarbons with high proportions of volatile and semi-volatile components. In favourable evaporative conditions, about 43.6% of the oil mass should evaporate within the first 12 hours and up to a further ~22.9% could evaporate within the first 24 hours. • Potential impacts across the whole EMBA were assessed as including receptors such as plankton, fish, turtles, sea snakes, marine mammals, seabirds and migratory shorebirds, tourism, recreation, commercial fisheries, and cultural heritage (for example). • The consequence to potential receptors, taking into account receptor sensitivity, has the potential to result in major, long-term impacts or less.	**Preventing loss of well control** • Wells are intended to be 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:** • Develop a project specific Oil Pollution Emergency Preparation document (OPEP) including first strike response plan. • 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.

JDP3 Environment Plan			

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 turtles, 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.
			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.
			• Simultaneous Operations (SIMOPS) plans in place
			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.

Unplanned hydrocarbon release: bunkering	• Accidental loss of hydrocarbons to the marine environment during bunkering/refuelling may occur caused by partial or total failure of a bulk transfer hose or fittings due to operational stress or other integrity issues	• 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. • This unplanned marine diesel release may have the potential to result in changes in water quality and fauna behaviour. • Receptors considered in the risk assessment for this unplanned event included marine mammals, marine reptiles, fish, sharks, and rays. • Taking into account receptor sensitivity, the receptors were rated as having a potential consequence level of 'Minor' or less.	**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 Woodside and 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 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.

JDP3 Environment Plan			
Unplanned discharge: project 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 <100 litres. • 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 impact of 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. • No overboard disposal of bulk NWBM. • 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). • 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. • 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 and project vessels deck activities and equipment, 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 (<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.	• Chemicals will be selected with the lowest practicable environmental impacts and risks subject to technical constraints and approved through the Woodside chemical assessment process. • 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).
Unplanned discharge: hazardous and non-hazardous solid waste/ equipment	• Accidental, unplanned loss of hazardous or non-hazardous solid wastes/equipment to the marine environment may occur if dropped or blown overboard.	• The potential impacts of hazardous or non-hazardous solid wastes and equipment accidentally discharged to the marine environment include contamination of the environment as well as secondary impacts relating to potential contact of marine fauna with wastes. • 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 PAP, the types, size and frequency of wastes that could occur, and species present.	• Compliance with Marine Order 95 – marine pollution prevention—garbage. • Implement waste management procedures which provide for safe handling and transportation, segregation and storage and appropriate classification of waste generated. • Any 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.

JDP3 Environment Plan			
Physical presence (unplanned): vessel collision with marine fauna	• Accidental collision between project vessels and protected marine fauna. • The factors that contribute to the frequency and severity of impacts due to collisions vary greatly due to vessel type, vessel operation (specific activity, speed), physical environment (e.g. water depth) and the type of animal potentially present and their behaviours.	• Vessel movements have the potential to result in accidental collisions between the vessel (hull and propellers) and marine fauna. • 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 collisions with cetaceans are considered highly unlikely. • It is expected that marine turtles will respond to vessel presence by avoiding the immediate vicinity of the vessels, and combined with low vessel speed, this will reduce the likelihood of a vessel-turtle collision.	• Comply with regulatory requirements for interactions with marine fauna to reduce the likelihood of a collision occurring.
Physical presence (unplanned: seabed disturbance from dropped objects and loss of station keeping leading to anchor drag	• There is the potential for objects to be dropped overboard from the MODU or project vessels. • High energy weather events such as cyclones, occurring while the MODU or AHV is on station, can lead to excessive loads on the mooring lines, resulting in failure (either anchor(s) dragging or mooring lines parting). • A failure of mooring integrity may lead to the mooring lines and anchors attached to the MODU being trailed across the seabed. If mooring failure is sufficient, the MODU may move off station, increasing the likelihood of anchor drag across the seafloor.	• In the unlikely nature of anchor drag and the predicted small footprint of a dropped object, potential environmental effects would be limited to minor physical damage to seabed and benthic communities.	• 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 • Specifications and requirements for mooring systems enforced which require the system to have sufficient capability that a failure of single components will not cause progressive failure of the remaining anchoring arrangement. • Tracking of the MODU will be possible when the MODU is unmanned to ensure location is tracked at all times. • Project-specific Mooring Design Analysis and mooring system testing undertaken to reduce the likelihood of mooring failure or anchor drag.
Physical presence (unplanned): accidental introduction and establishment of invasive marine species (IMS)	• Vessels transiting to the Operational Area may be subject to marine fouling whereby organisms attach to the vessel hull. • Organisms may also be drawn into ballast tanks during onboarding of ballast water. • Submersible equipment may be subject to marine fouling.	• The deep offshore open waters of the Operational Areas, away from shorelines and/or critical habitat, more than 40 km from a shoreline and in waters more than 80 m deep, 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 (international vessels), as applicable. • Woodside's IMS risk assessment process will be applied to project vessels and immersible equipment entering the Operational Area.

Feedback

Woodside consults relevant persons in the course of preparing Environment Plans to notify them of the activity and to obtain relevant feedback to inform its planning for proposed petroleum activities in the region.

If you would like to comment on the proposed activities outlined in this information sheet, or would like additional information, please contact Woodside [redacted] 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 Environment Plan 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)* or the *Petroleum (Submerged Lands) (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.

1.53 Summary Consultation Information Sheet

Woodside Energy

CONSULTATION

SUMMARY INFORMATION SHEET

May 2023

JULIMAR DEVELOPMENT PROJECT PHASE 3 (JDP3) DRILLING AND SUBSEA INSTALLATION

This is a summary of the activity in plain English. More detailed information is included in the Activity Update - Julimar Development Project Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan Information Sheet.

Overview

Woodside is planning to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure. This will connect to the existing subsea Julimar Field Production System, located around 160 km north-west of Dampier and near to the Chevron-operated Wheatstone Platform. Woodside is planning to start the activities upon acceptance of the EP, and the aim is to start work in 2024.

A map of the location is shown in Figure 1.

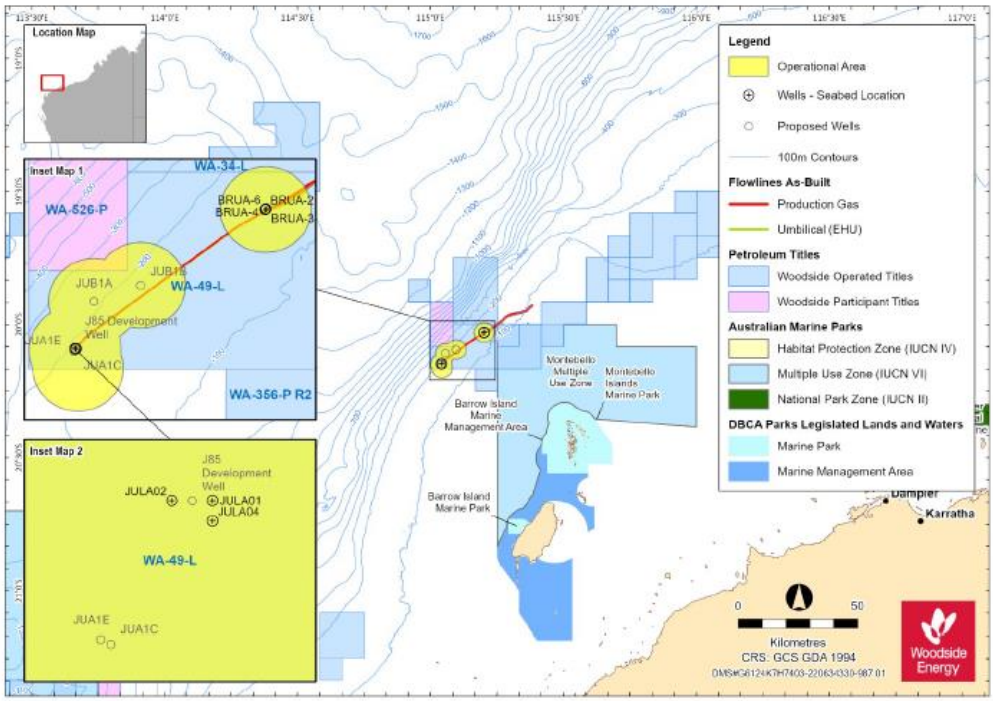


Figure 1. Petroleum Activity Program Operational Area

WORK PROGRAM

Drilling

For the drilling and completions activites, Woodside will conduct inspections and monitor the sea floor, drill the holes, and build the wells using large vessels and support boats. Once the drilling has taken place, completion activities will be carried out which will include installing equipment down the holes and on the sea floor on top of the wells.

Woodside plans to drill up to four wells in the Julimar field and one well in the Penfolds prospect, in about 120 to 210 m of water. This is expected to take approximately 60 days to complete per well.

If required, Woodside may conduct additional work on these wells to understand performance and maintain them, and/or alter them as required. A range of other activities may also be done on wells that are in place.

Subsea installation

Woodside plans to install subsea equipment to connect the new wells to the existing Julimar Development Project equipment. The new equipment will be tested and prepared but no gas or oil will be introduced at this stage.

Subsea installation and testing activities are expected to take approximately 100 days to complete.

Project vessels

The activity will be performed by a semi-submersible mobile offshore drilling unit (MODU), otherwise known as a drilling rig. MODU moorings may be pre-installed up to three months prior to MODU arrival on location. Up to three other vessels will typically be required to support the activity.

Commercial fishers and other marine users are allowed to enter the operational area but exclusion zones of up to 4 km in radius will be in place around the vessels at times.

Environmental Impacts and Management

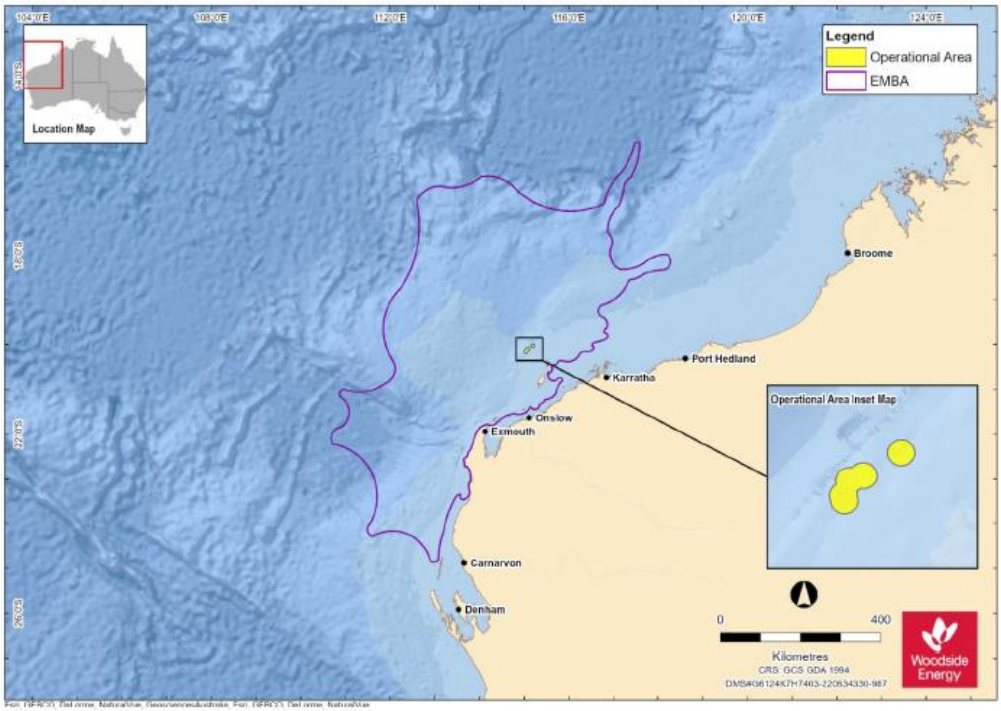
This work program includes Planned Activities but may also result in Unplanned Activities. Both Planned and Unplanned Activities may impact the environment. Woodside manages the work program to reduce impacts and risks to as low as reasonably practical.

Planned Activities are activities that Woodside knows will happen as part of this work program. For example, Planned Activities include other marine users being temporarily stopped from accessing the work area, and the marine vessels and drill rig used for the work may disturb the seabed, generate underwater noise, light emissions, atmospheric emissions, and routine discharges (such as sewage, waste, and deck drainage), and other authorised waste.

Unplanned Activities are not planned as part of the work program, but may be the result of an accident, incident, or emergency situation. It is highly unlikely that there will be an Unplanned Activity. Unplanned Activities might include a spill of fuel or oil, a release from 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.

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 Julimar Development Phase 3 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 or an oil release from one of the wells while drilling, the entire EMBA will not be affected. The part of the EMBA that is affected will only be known at the time of the event.



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 activities like this. Woodside has carefully planned this work program so that the risk of environmental impact is reduced to as low as reasonably practical and of an acceptable level. There are also strict government laws in place to protect the environment. Woodside complies with these laws and has systems in place to keep following these laws and rules for each project it undertakes.

If you would like information about Woodside's work to study and care for the environment, you can find it at https://www.woodside.com/sustainability/environment.

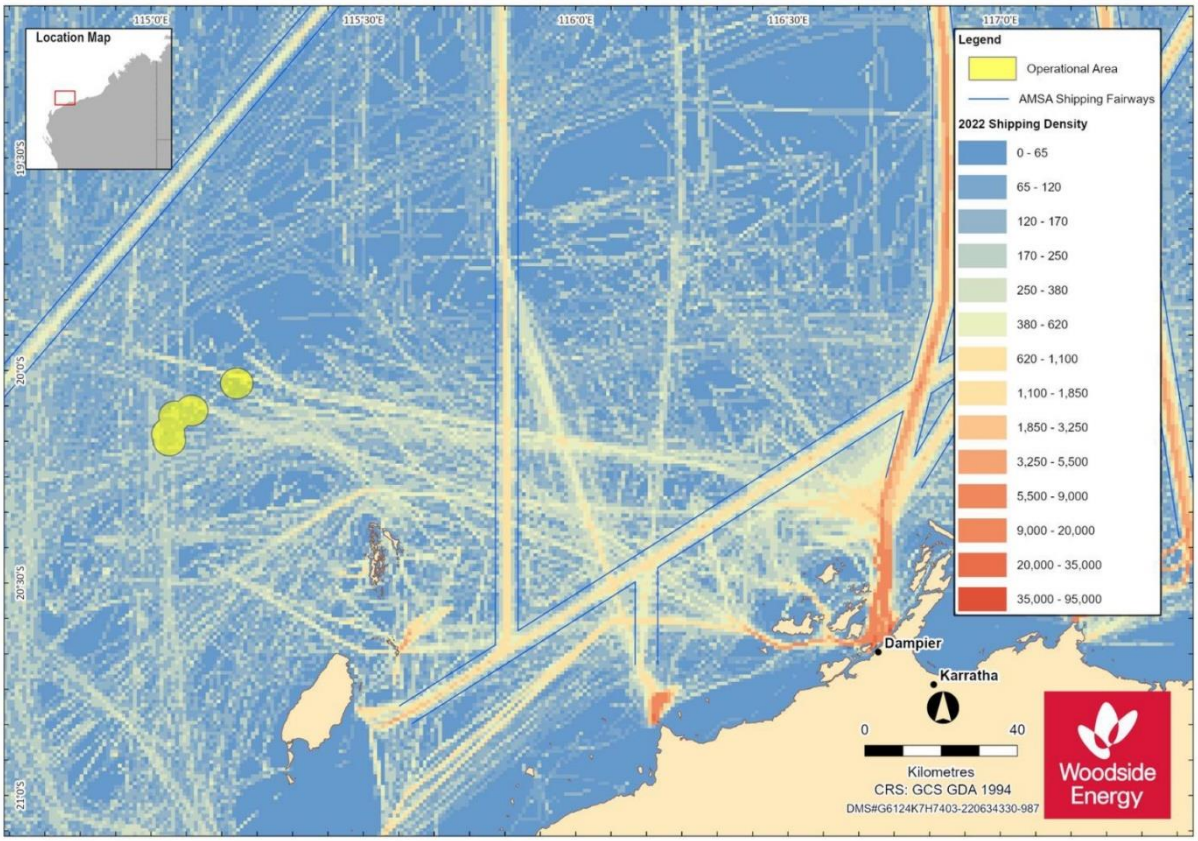
Providing Feedback

If you have an interest in the area of the "environment that may be affected" (EMBA) by this work program and would like more information or any concerns, you can tell Woodside by calling 1800 442 977 or send an email to Feedback@woodside.com.au.

If you would prefer to speak to the government directly, they can be contacted on +61 (0)8 6188 8700 or send an email to communications@nopsema.gov.au.

Further Information

You can find the details Consultation Information Sheet for proposed activity on our website:
https://www.woodside.com/sustainability/consultation-activities.



1.54 List of State Shipwrecks sent to DPLH (1 May 2023)

WA Historical Shipwrecks 0998							
NAME	COMMENTS	TYPE	UNIQUENO	WHEN_LOST	WHERE_LOST	LON	LAT
Benan		Ship	30329	1886/12/23	Point Cloates	113.6733	-22.7427
Manfred		Barque	30573	1879/01/24	Lacepedes	122.1283	-16.8567
Perth SS	Formerly the Penola SS	Steamship	30811	1887/09/17	Point Cloates	113.6403	-22.6942
Rapid		Ship	30859	1811/01/07	Ningaloo Reef	113.6833	-22.7333
Stefano	Found in 1997	Brig	31002	1875/10/27	Point Cloates	113.7195	-22.8288
Trial	First European wreck on the Australian coast	Ship	31072	1622/05/24	Trial Rocks	115.3737	-20.2872
Zvir SS	Accoding to Cards 2103 Tonn	Steamship	30715	11/27/1902	Point Cloates	113.626	-22.6092
Mildura SS	Most of the cattle perished	Steamship	31049	3/12/1907	North-West Cap	114.1667	-21.7857
Fin SS		Steamship	30619	2/15/1923	Point Cloates, F	113.6268	-22.6488
Lady Ann	Check Lats and Longs. Oil rig tender	Ship (non-sail)	30606	9/18/1982	24 miles north c	114.2	-21.4

1.55 Shipping lane map sent to AMSA and AHO (1 May 2023)

2. Additional Consultation

2.1 Email sent to Shire of Carnarvon (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **6 June 2023**.

2.2 Email sent to AIMS (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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2.3 Email sent to CSIRO (30 May 2023)

Dear [redacted]

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2.4 Email sent to Australian Border Force (ABF), Department of Industry, Science and Resources (DISR), Department of Transport (DoT), Australian Petroleum Production and Exploration Association (APPEA), Department of Energy, Mines, Industry Regulation and Safety (DEMIRS - *formerly DMIRS*), Protect Ningaloo (30 May 2023)

Dear Stakeholder

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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2.5 Email sent to Ningaloo Coast World Heritage Advisory Committee (NCWHAC) (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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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 **6 June 2023**.

Kind regards

Woodside Feedback

2.6 Email sent to Department of Primary Industries and Regional Development (DPIRD) (30 May 2023)

Dear [redacted] and [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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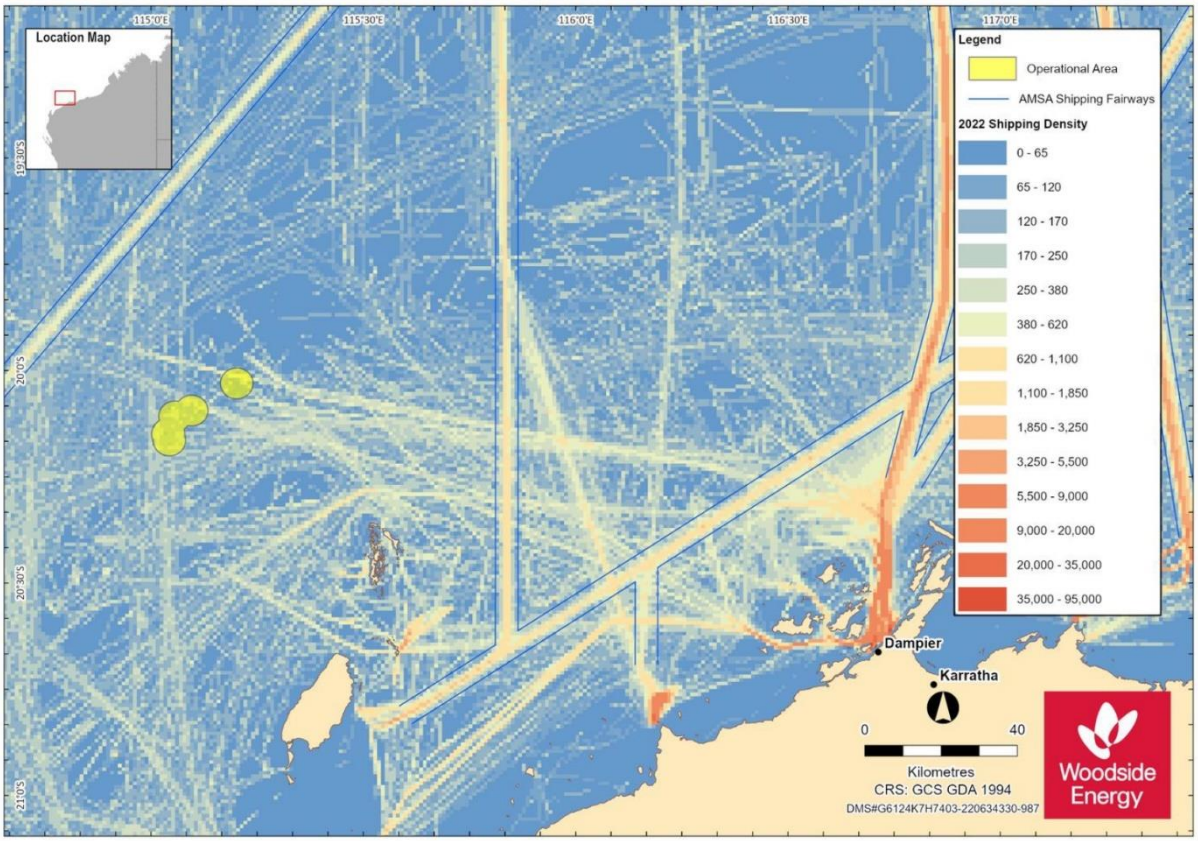

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Kind regards

Woodside Feedback

2.7 Email sent to Western Gas, Exxon Mobil Australia Resources Company, Shell Australia, BP Developments Australia, Carnarvon Energy, PE Wheatstone, Kyushu Electric Wheatstone, Eni Australia, Vermillion Oil & Gas Australia, Finder No 16, Jadestone, KUFPEC, Santos NA Energy Holdings / Santos Ltd / Santos WA Northwest / Santos Offshore / Santos WA Southwest / Santos (BOL) / Santos

WA PVG, Coastal Oil and Gas, Bounty Oil and Gas, OMV Australia, KATO Energy / KATO Corowa, Longreach Capital Investments / Beagle No. 1 Pty Ltd, INPEX Alpha, JX Nippon O&G Exploration (Australia) (30 May 2023)

Dear Titleholder

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Kind regards

Woodside Feedback

2.8 Email sent to Pilbara Trap Fishery, Pilbara Line Fishery, Pilbara Trawl Fishery and Exmouth Gulf Prawn Managed Fishery (30 May 2023)

Dear Fishery Stakeholder

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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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 **6 June 2023**.

Kind regards

Woodside Feedback

2.9 Email sent to Australian Hydrographic Office (AHO), Australian Maritime Safety Authority (AMSA) - Marine Safety (30 May 2023)

Dear AHO / AMSA

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to

210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.
- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.
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 **6 June 2023**.

Kind regards

Woodside Feedback

2.10 Email sent to Australian Maritime Safety Authority (AMSA) – Marine Pollution (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

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Kind regards

Woodside Feedback

2.11 Email sent to Western Australian Fishing Industry Council (WAFIC) (30 May 2023)

Dear [redacted] and [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

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Kind regards

Woodside Feedback

2.12 Email sent to North West Slope and Trawl Fishery, Western Deepwater Trawl Fishery, Western Tuna and Billfish Fishery, Commonwealth Fisheries Association (CFA), Australian Southern Bluefin Tuna Industry Association (ASBTIA), Tuna Australia (30 May 2023)

Dear Fishery Stakeholder

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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Kind regards

Woodside Feedback

2.13 Email sent to Exmouth Recreational Marine Users, Karratha Recreational Marine Users, Recfishwest, Marine Tourism Association, WA Game Fishing Association (30 May 2023)

Dear Stakeholder

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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Kind regards

Woodside Feedback

2.14 Email sent to Western Rock Lobster Council (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Kind regards

Woodside Feedback

2.15 Email sent to Department of Climate Change, Energy, the Environment and Water (DCCEEW) (30 May 2023)

Dear DCCEEW

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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Kind regards

Woodside Feedback

2.16 Email sent to Department of Defence (DoD) (30 May 2023)

Dear Department of Defence

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Kind regards

Woodside Feedback

2.17 Email sent to Western Australian Museum (30 May 2023)

Dear Western Australian Museum

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Kind regards

Woodside Feedback

2.18 Email sent to Town of Port Hedland (30 May 2023)

Dear Town of Port Hedland

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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Kind regards

Woodside Feedback

2.19 Email sent to to Western Australian Marine Science Institution (WAMSI) (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Kind regards

Woodside Feedback

2.20 Email sent to Carnarvon Chamber of Commerce and Industry (30 May 2023)

Dear Carnarvon Chamber of Commerce and Industry

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Kind regards

Woodside Feedback

2.21 Email sent to Australian Conservation Foundation (ACF), Australian Marine Conservation Society (AMCS), Conservation Council of Western Australia (CCWA), Greenpeace Australia Pacific (GAP) and 350 Australia (350A) (30 May 2023)

Dear Stakeholder

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Woodside Feedback

2.22 Email sent to Port Hedland Chamber of Commerce and Industry (30 May 2023)

Dear Port Hedland Chamber of Commerce and Industry

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Kind regards

Woodside Feedback

2.23 Email sent to Cape Conservation Group (CCG) (30 May 2023)

Dear [redacted]

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Woodside Feedback

2.24 Email sent to University of Western Australia (UWA) (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

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Subsea installation and commissioning activities

- Woodside also plans to install subsea infrastructure to connect the JDP3 wells to the existing Julimar Development Project Phase 1 and Phase 2 infrastructure and the third-party operated Wheatstone Platform and onshore LNG plant to process the gas. Subsea infrastructure includes Xmas trees, flowlines and umbilicals, and a manifold.
- Proposed activities also include pre-commissioning and cold commissioning activities, including verification of subsea control systems and function testing of valves and instruments. The JDP3 production system is anticipated to have a design life of around 25 years.

A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website.

You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **6 June 2023**.

Kind regards

Woodside Feedback

2.25 Email sent to Shire of Exmouth (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

Drilling activities

- Woodside plans to drill up to four wells (JUA1C, JUA1E, JUB1A and J-85 development well1) in the Julimar field and one well (JUB1B) in the Penfolds prospect, located in permit area WA-49-L.

- If required, Woodside may intervene or workover any of the JDP3 development wells drilled under this EP, and the JULA or Brunello Manifold production wells to monitor and maintain their integrity.

Subsea installation and commissioning activities

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Kind regards

Woodside Feedback

2.26 Email sent to Exmouth Community Liaison Group (30 May 2023)

Dear Exmouth Community Liaison Group

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website.

You can also subscribe to receive updates on our consultation activities by subscribing here. 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 **6 June 2023**.

Kind regards

Woodside Feedback

2.27 Email sent to Onslow Chamber of Commerce and Industry (30 May 2023)

Dear [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **6 June 2023**.

Regards, [redacted]

2.28 Email sent to Shire of Ashburton (30 May 2023)

Dear [redacted] and [redacted]

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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A Consultation Information Sheet is attached, which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures. These are also available on our website. You can also subscribe to receive updates on our consultation activities by subscribing here.
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 **6 June 2023**.

Regards, [redacted]

Email sent to Karratha Community Liaison Group (CLG) (1 June 2023)

Dear CLG,

Woodside previously consulted you (email below) on its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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You can also subscribe to receive updates on our consultation activities by subscribing here.

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 **6 June 2023**.

Kind regards,

[redacted]

2.30 Letter sent to Marine Aquarium Managed Fishery, Mackerel Managed Fishery (Area 2), Onslow Prawn Managed Fishery, Western Australian Sea Cucumber Managed Fishery (30 May 2023)

Please direct all responses/queries to:
Woodside Feedback
T: 1800 442 977
E: Feedback@woodside.com.au

30 May 2023

1

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 Stakeholder

JULIMAR DEVELOPMENT PROJECT PHASE 3 (JDP3) DRILLING AND SUBSEA INSTALLATION ENVIRONMENT PLAN

Woodside previously consulted you (correspondence dated 28 April 2023) regarding its plans to submit an Environment Plan (EP) to develop the Julimar Development Project Phase 3 (JDP3) wells and subsea infrastructure, which will connect to the existing Julimar Field Production System.

Proposed activities will occur in Commonwealth waters approximately 160 km west-north-west of Dampier, Western Australia and in water depths of between approximately 120 to 210 m. Activities will predominantly be within the WA-49-L title area with some overlap with neighbouring Chevron operated title areas WA-5-R, WA-76-R and WA-526-P.

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Woodside is writing to you to follow up on feedback with respect to the proposed activities. You were previously sent a Consultation Information Sheet (also available on our website woodside.com), which provides additional background on the proposed activities, including summaries of potential key impacts and risks, and associated management measures.

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 **6 June 2023**.

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

Woodside Energy
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au

www.woodside.com

2.31 Letter sent to Gascoyne Recreational Marine Users and Pilbara/Kimberley Recreational Marine Users (30 May 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

30 May 2023

1

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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 **6 June 2023**.

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
Mia Yellagonga
Karlak, 11 Mount Street
Perth WA 6000
Australia

T: 1800 442 977
E: feedback@woodside.com.au

www.woodside.com

2.32 Geotargeted social media campaigns (May – November 2023)

Facebook Campaign – May - November 2023

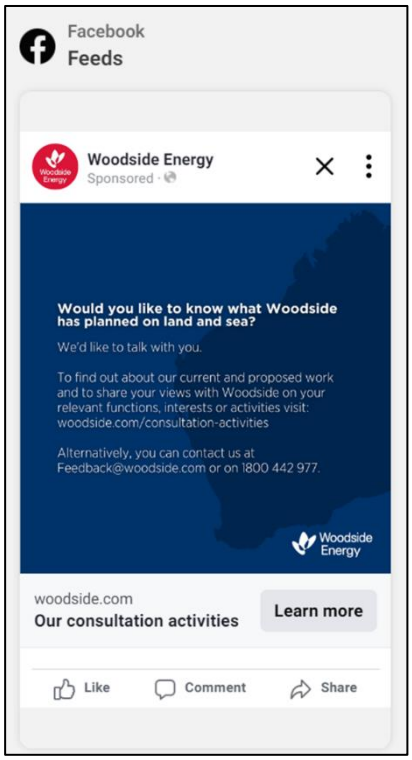
A Facebook information campaign was targeted along the coastline from Geraldton to Derby to ensure it reached all communities adjacent to the EMBA. Geotargeting locations are distributed along the coast, with 80 km radiuses around towns, cities and shires. Geotargeting points were also included for spaces between towns, cities and shires to ensure no areas were missed – you'll see below there are latitude and longitude references for those locations.

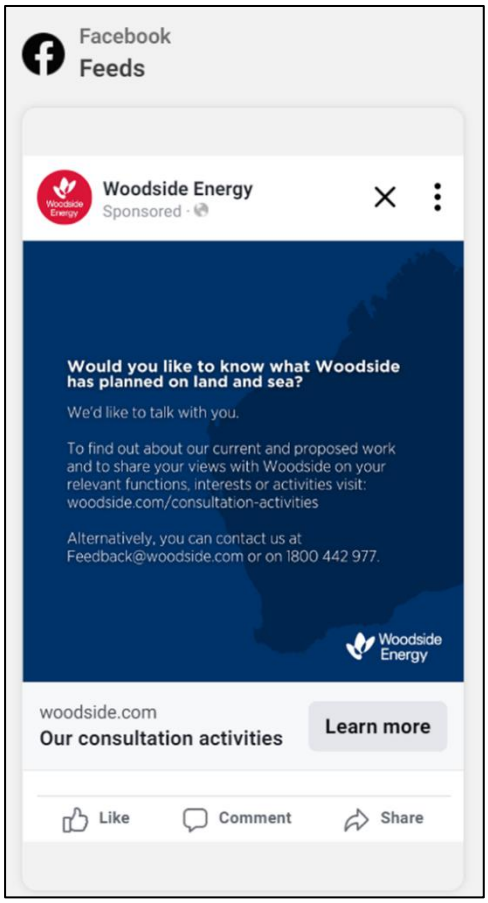
As at Wednesday, 1 November 2023
Ad reach: 106,480 users
Impressions: 972,443 views
Clicks through to *Consultation Information* page: 4,218 link clicks

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)



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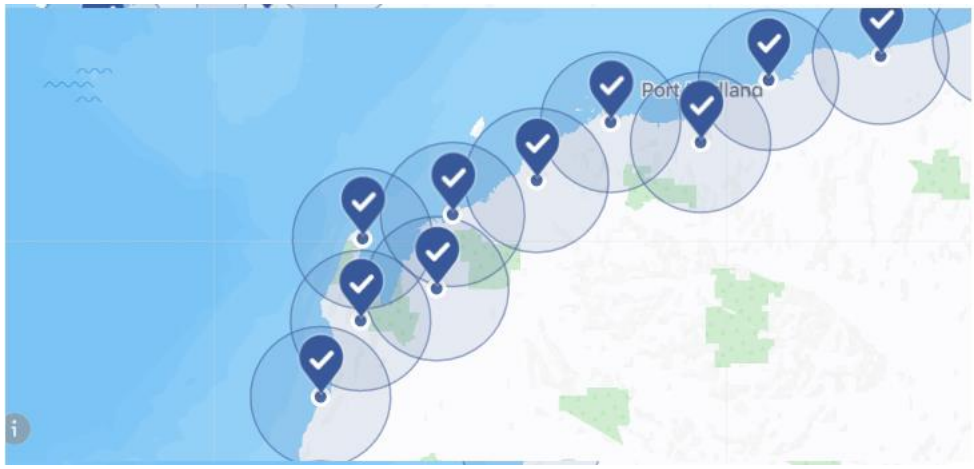

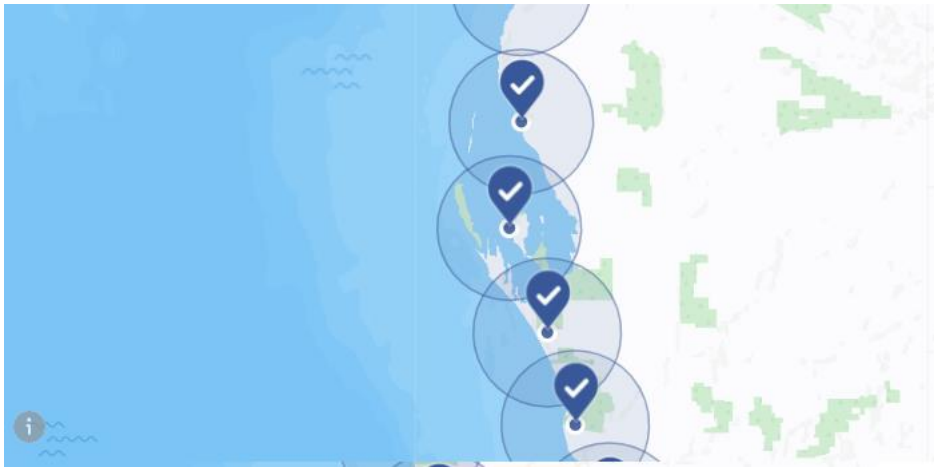

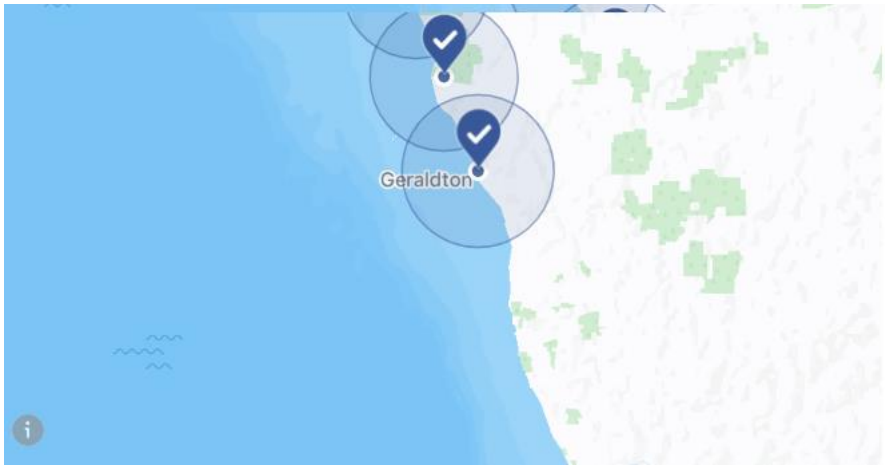

2.33 Geotargeted social media campaign (June 2023)

Facebook Campaign – June 2023

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 11.30am 30 June 2023
Reach: 41,118
Impressions: 285,366
Link clicks: 1,236
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)
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Would you like to know what Woodside has planned on land and sea?
We'd like to talk with you.
To find out about our current and proposed work and to share your views with Woodside on your relevant location, activities or interests visit: woodside.com/consultation-activities.
Alternatively, you can contact us at Feedback@woodside.com.au or on 1800 442 977.
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Woodside Energy
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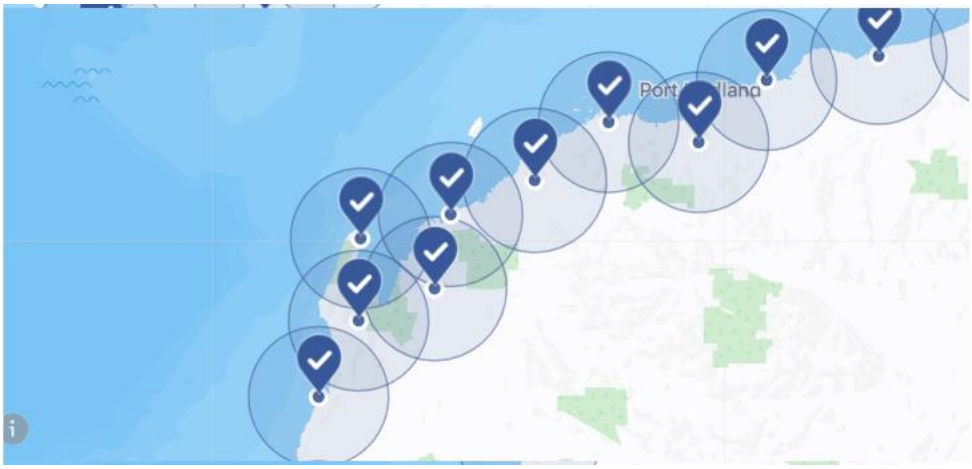
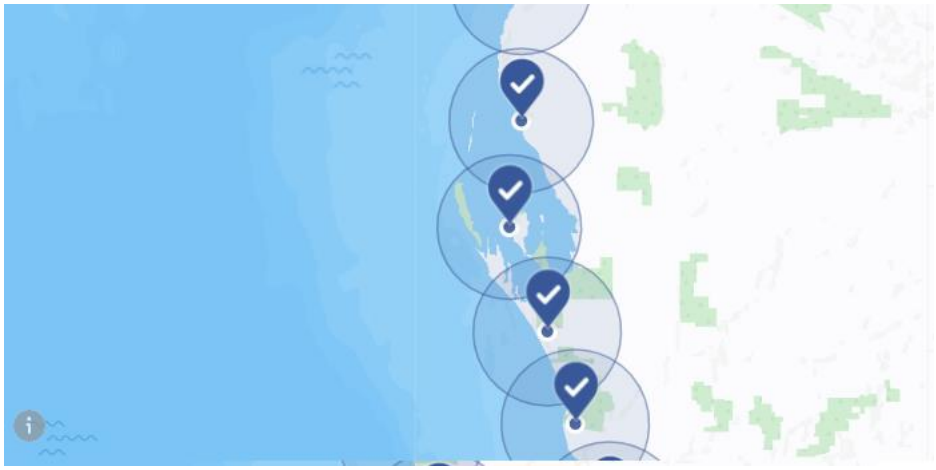
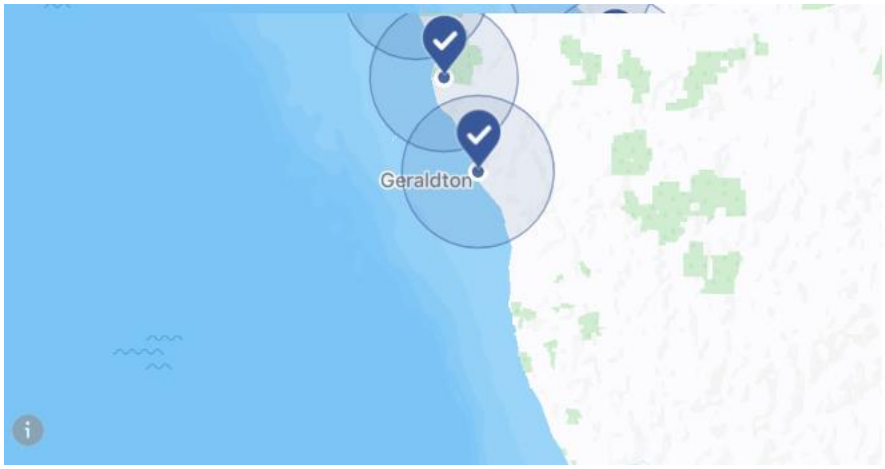
Broome





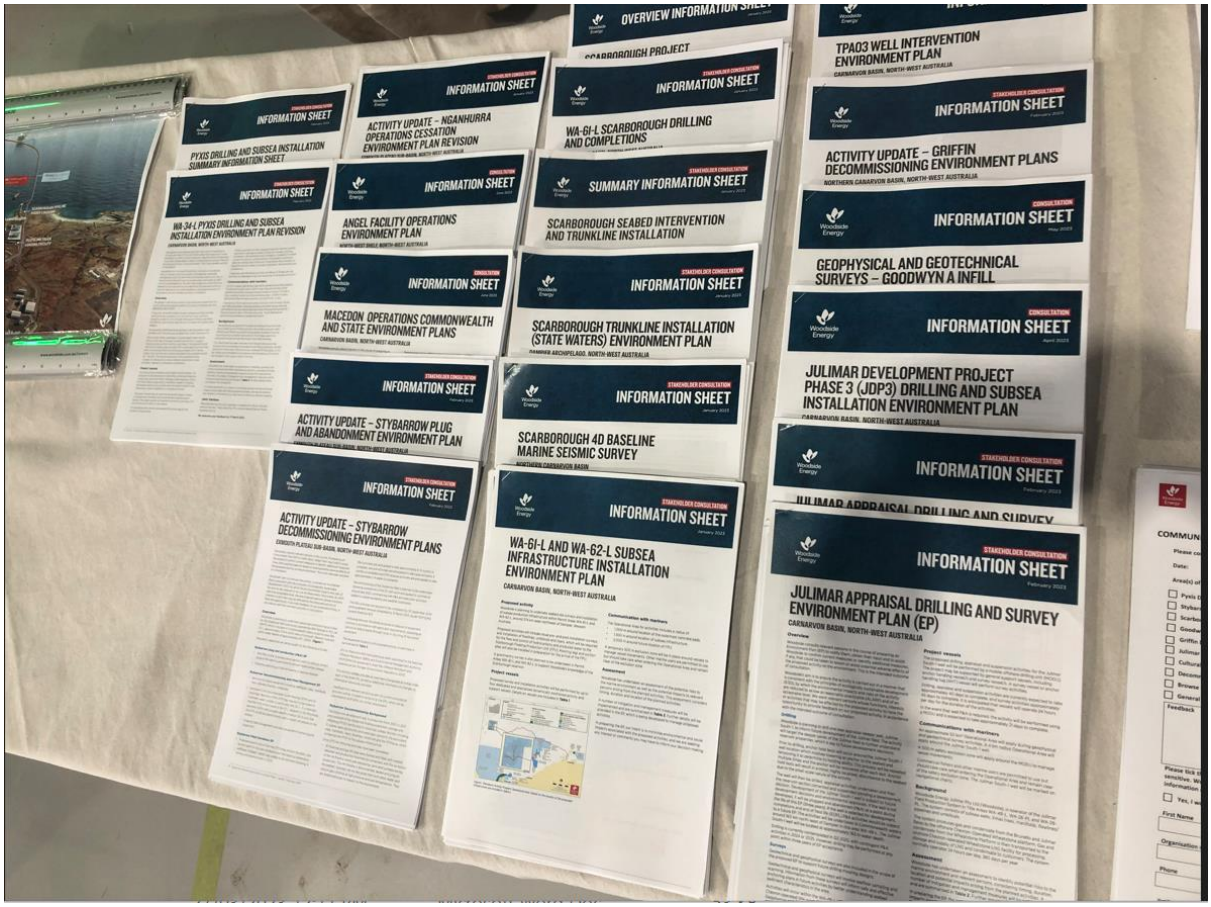


2.34 Community Information Sessions and CLG meeting(June - August 2023)

2.34.1 Exmouth Community Information Session (17 June 2023)

Location	**Exmouth**
Date	**17 June 2023**
Description of the consultation	Woodside supported the PHI Helicopters Community Open Day at the Exmouth Aerodrome. Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. Copies of the Consultation Information Sheets and Summary Consultation 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 feedback. A number of Environment Plan Consultation Information Sheets were available to attendees including the JDP3 EP Consultation Information Sheet.
Advertising and invitations	Ahead of the event, Woodside advertised the session via the means below to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • From 15−17 June 2023, Woodside commenced a geotargeted social media campaign in Exmouth and surrounding areas (**Record of Consultation, reference 2.34.1**) advertising the Community Information Session.
Estimated number of individuals consulted	• An estimated 300 community people attended the event (adults and children).
Summary of Feedback, Objection or Claim	
General questions from ~5 community members included: • Whales - what Woodside is doing to protect whales, what the impact to whales might be. • The Scarborough FPU and nature of this i.e. is it DP or moored to the seabed, was it like an FPSO. • General interest questions on Scarborough project – location, activities (i.e. trunkline installation, construction work at Pluto gas plant (within existing footprint)), trunkline size and routing – and why the location was chosen, field life and start up timing. • Turtle nesting and lighting controls. • Funding for whale shark research. Many of the EP consultation information sheets were taken by attendees. Two attendees said they were taking the information sheets so they could see pipeline routes (for fishing opportunities), specifically mentioning permit numbers they were after.	

Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response
Whilst feedback was received, there were no objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).



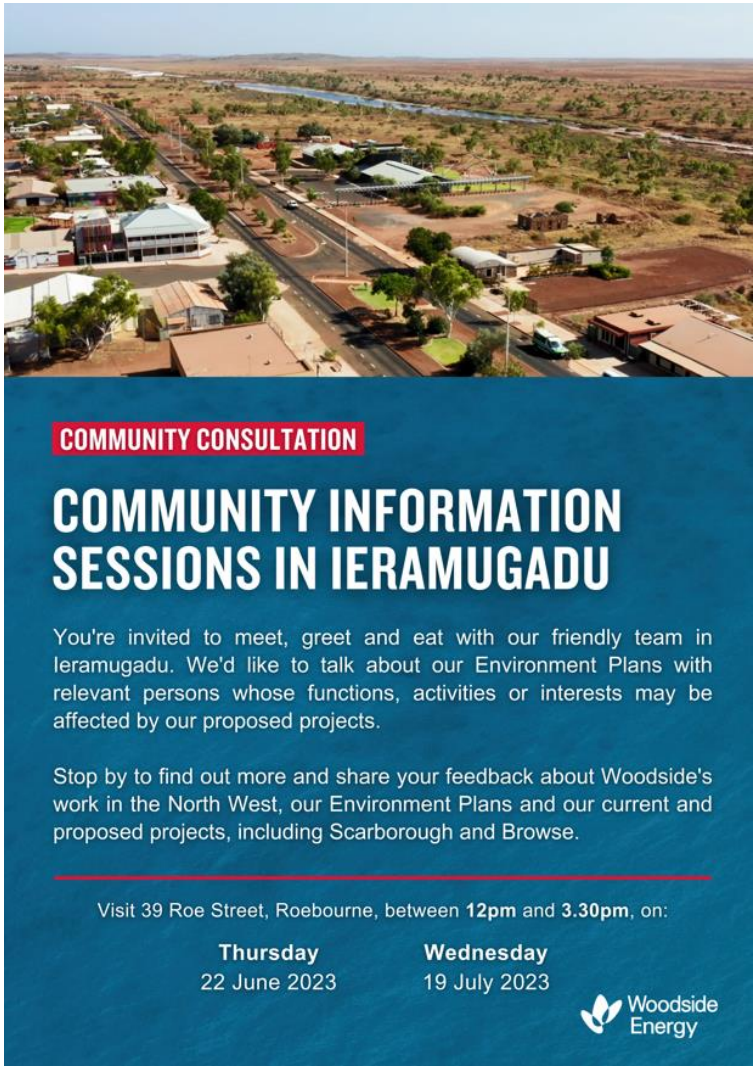
2.34.2 Roebourne Community Information Session (22 June 2023)

Location	Roebourne
Date	**22 June 2023**
Description of the consultation	A Community Information Session was held in Roebourne. The consultation information session was hosted by members from Woodside's Corporate Affairs and Environment teams and was open for all community members to receive information regarding Woodside's Environment Plans and proposed and planned activities. A number of Environment Plan Consultation Information Sheets were available to attendees including the JDP3 EP Consultation Information Sheet.

Advertising and invitations	Ahead of the event, Woodside advertised the session via the means below to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following:
	• From 15−17 June 2023, Woodside commenced a geotargeted social media campaign in Roebourne and surrounding areas (**Record of Consultation, reference 2.34.2**) advertising the Community Information Session.
	• Woodside distributed posters advertising the community information session locally, including:
	  ○ Front door and front window of Woodside Roebourne office.
	  ○ Online distribution via the Roebourne Community Calendar.
	  ○ Roebourne Police Station provided with printed copy.
	• Woodside staff also visited the following offices to advise of the community information session:

	○ Ngarluma and Yindjibarndi Foundation Ltd (NYFL) ○ Ngarliyarndu Bindirri Aboriginal Corporation ○ Yinjaai-Barni Art ○ Foundation Foods
Estimated number of individuals consulted	• N/A

Summary of Feedback, Objection or Claim
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 Energy's Assessment of Merits of Feedback, Objection or Claim and its Response
There were no feedback, objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).



2.34.3 Karratha Community Information Sessions (28 and 29 June 2023)

Location	**Karratha – Shopping Centre, Woodside office**
Date	**28,29 June 2023**
Description of the consultation	Community Information Sessions were held in Karratha. Representatives from Woodside, including project and environment personnel equipped to answer technical questions, attended the event. A number of Environment Plan Consultation Information Sheets were available to attendees including the JDP3 EP Consultation Information Sheet.
Advertising and invitations	Ahead of the event, Woodside advertised the sessions via the means below to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • Ahead of the 28 June 2023 event, a story was posted on Woodside's Facebook page (**Record of Consultation, reference 2.34.5**), sharing details of its shopping centre stand where Consultation Information Sheets regarding planned and proposed activities were available, including the activities proposed under this EP. • Ahead of the 29 June 2023 event, the Community Information Session was advertised in the Pilbara News (**Record of Consultation, reference 2.34.4**), geotargeting a social media campaign in Karratha and surrounding areas and posting the event details on Woodside's Facebook page (**Record of Consultation, reference 2.34.5**). • Woodside advertised the session by distributing posters advising of the event details in the local community and visiting offices to raise awareness, including the offices of local Traditional Custodian groups.
Estimated number of individuals consulted	• Estimated number of people consulted: 10-20
Summary of Feedback, Objection or Claim	
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. • Employment opportunities provided by the resources sector • General interest in Woodside EPs	
Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
Whilst feedback was received, there were no objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).	

2.34.4 Newspaper advertisement – Pilbara News (28 June 2023)

Pilbara NEWS
Wednesday, June 28, 2023
pilbaranews.com.au
NEWS 7

Rio reaches $1b Range milestone

Rio Tinto iron ore chief executive Simon Trott and China Baowu vice-president Hou Angui.

CHEYANNE ENCISO

Rio Tinto has spent $1 billion with WA businesses as it progresses the development of its Western Range joint venture with China Baowu Steel Group.

Simon Trott, iron ore chief executive of Rio Tinto, said the $1b spend marked a considerable milestone.

"Rio Tinto spends billions of dollars with local suppliers across Western Australia and the Pilbara every year, helping support thriving communities across the State by providing local jobs for local people," he said.

The 25 million tonnes-a-year Western Range project will help sustain production of Rio's flagship Pilbara blend product from its existing Paraburdoo mining hub as the Eastern Range project depletes. China Baowu said it was pleased to see the Western Range project progressing smoothly.

Premier Roger Cook said significant projects such as the Western Range reinforced WA as an attractive and secure destination for business and investment.

"I want to commend Rio Tinto and Baowu on this latest project milestone and acknowledge their efforts in investing in WA to ensure WA businesses and workers benefit most," he said.

Rio in March reported it had spent $8.6b with more than 2400 WA and Indigenous businesses in 2022 as part of its local buying program.

The figure included $618m with Pilbara-based businesses, $504m with Indigenous companies across WA, and $439m with businesses run by traditional owners.

Here at Pilbara Ports Authority, we are committed to advancing an inclusive and productive workplace where people are valued and respected.

We are proud of the talent and diversity of our workforce. Our people are key to our current and future success. We are seeking individuals, who strive for excellence in all they do and seek out opportunities for growth. In return, we provide generous support for training and professional development.

If this sounds like a workplace you would thrive in, take a look at our current vacancies.

• **Administration Officer – Maintenance – Port Hedland**

Find out more about PPA careers and youth training online via **careers.pilbaraports.com.au**

PILBARA PORTS AUTHORITY

FIND OUT MORE ABOUT OUR PROPOSED ACTIVITIES

WOULD YOU LIKE TO KNOW WHAT WOODSIDE HAS PLANNED ON LAND AND SEA?

We'd like to talk about our Environment Plans with relevant persons whose functions, activities or interests may be affected by our proposed projects.

Drop in to our office to find out more and share your feedback about Woodside's work in the North West, our Environment Plans and our current and proposed activities, including Scarborough.

Thursday, 29 June 2023
Between 9.00am - 2.00pm
The Quarter HQ Level 3
24 Sharpe Avenue
Karratha WA 6714

You can also access our consultation information and provide feedback by scanning the QR code.

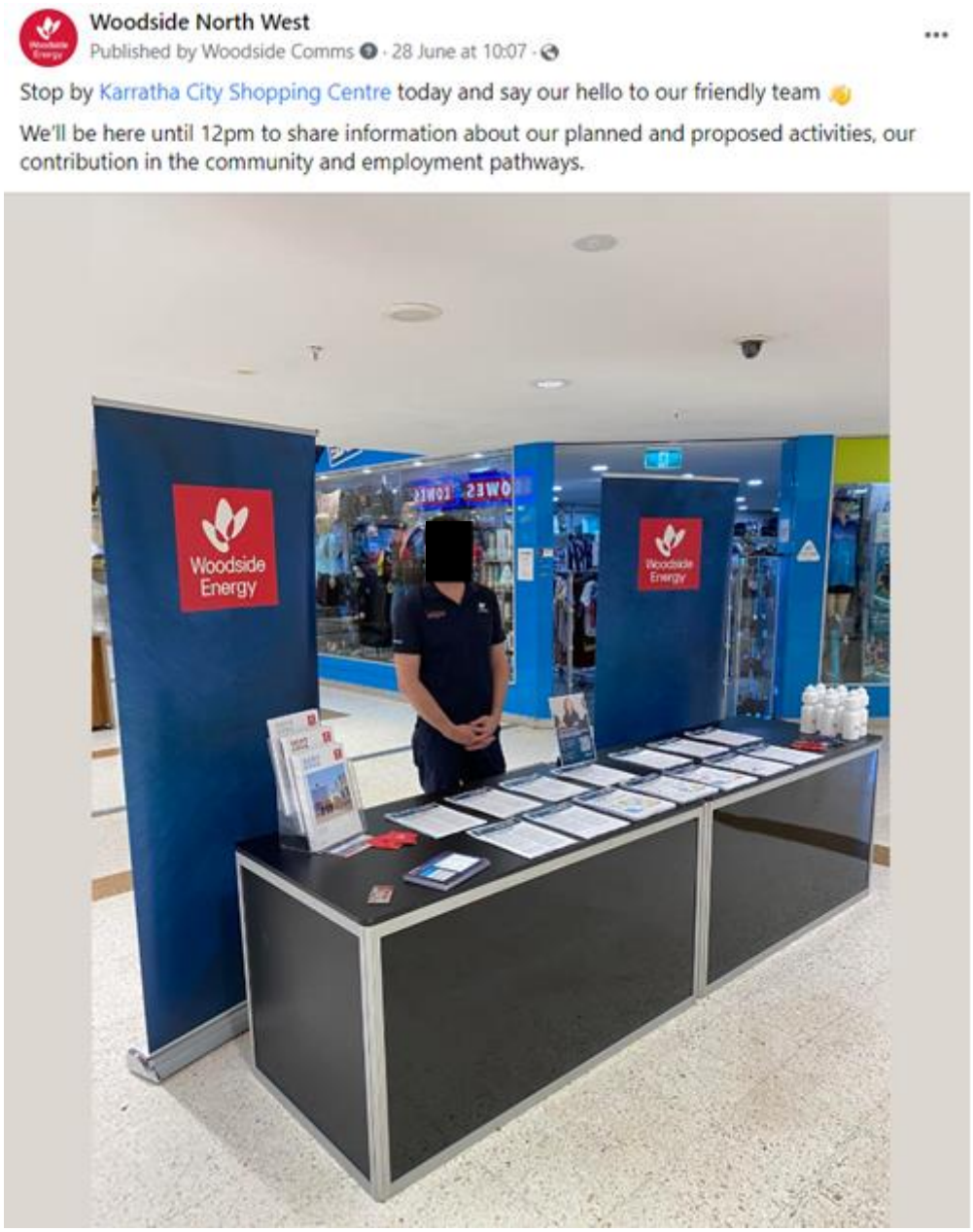
Woodside Energy

2.34.5 Facebook post (28 June 2023)

Facebook Post – June 2023

On 28 June 2023, Woodside posted a story on its Woodside North West Facebook account, sharing details of its shopping centre stand where Consultation Information Sheets regarding is planned and proposed activities were available, including the activities proposed under this EP.

Platform/channel: Woodside North West (Facebook)
Date: 28 June 2023
Reach: 1,464 viewers
Impressions: 1,464 views

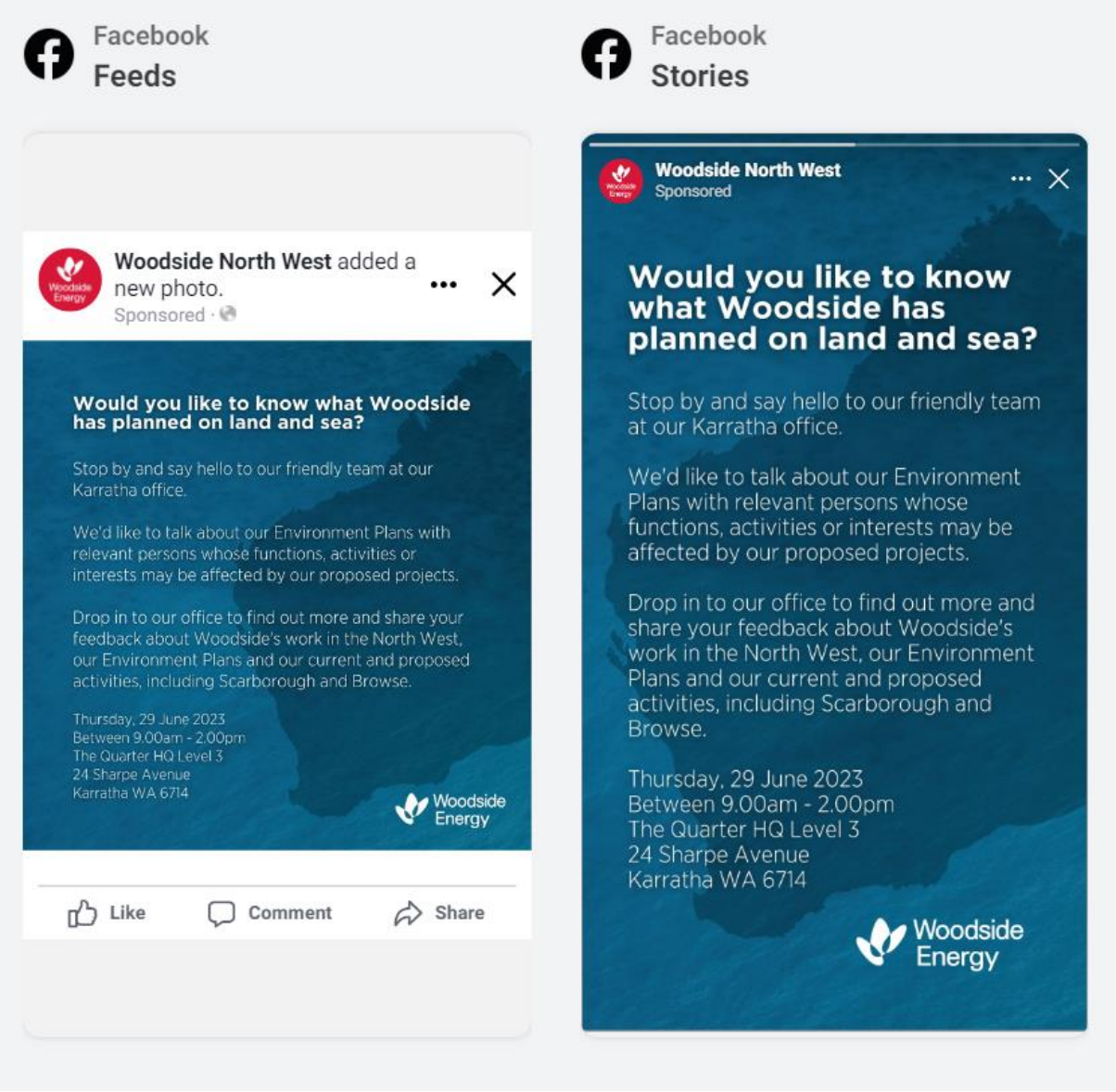


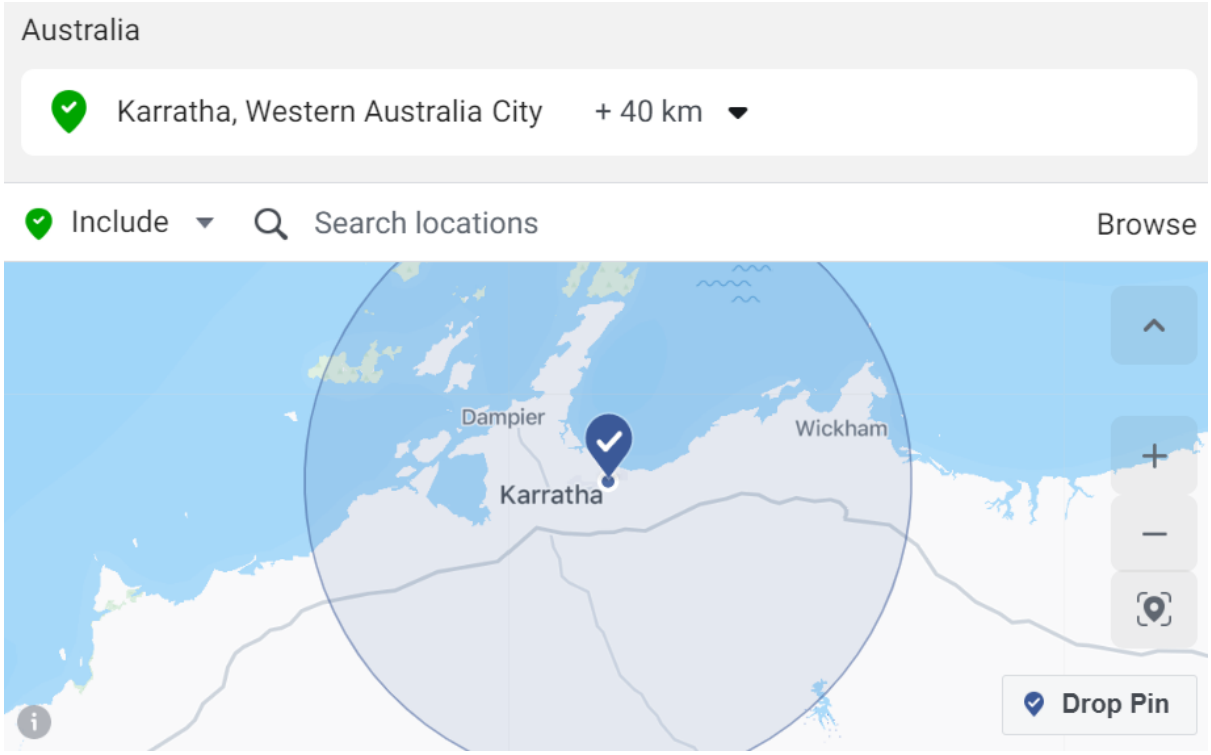
2.34.6 Geotargeted Social Media Campaign (29 June 2023)

On 29 June 2023, Woodside held a drop-in session at its Karratha town office. The drop-in session was hosted by one of Woodside's Senior Environmental Advisers and was open for all community members to receive information regarding Woodside's Environment Plans and proposed and planned activities.

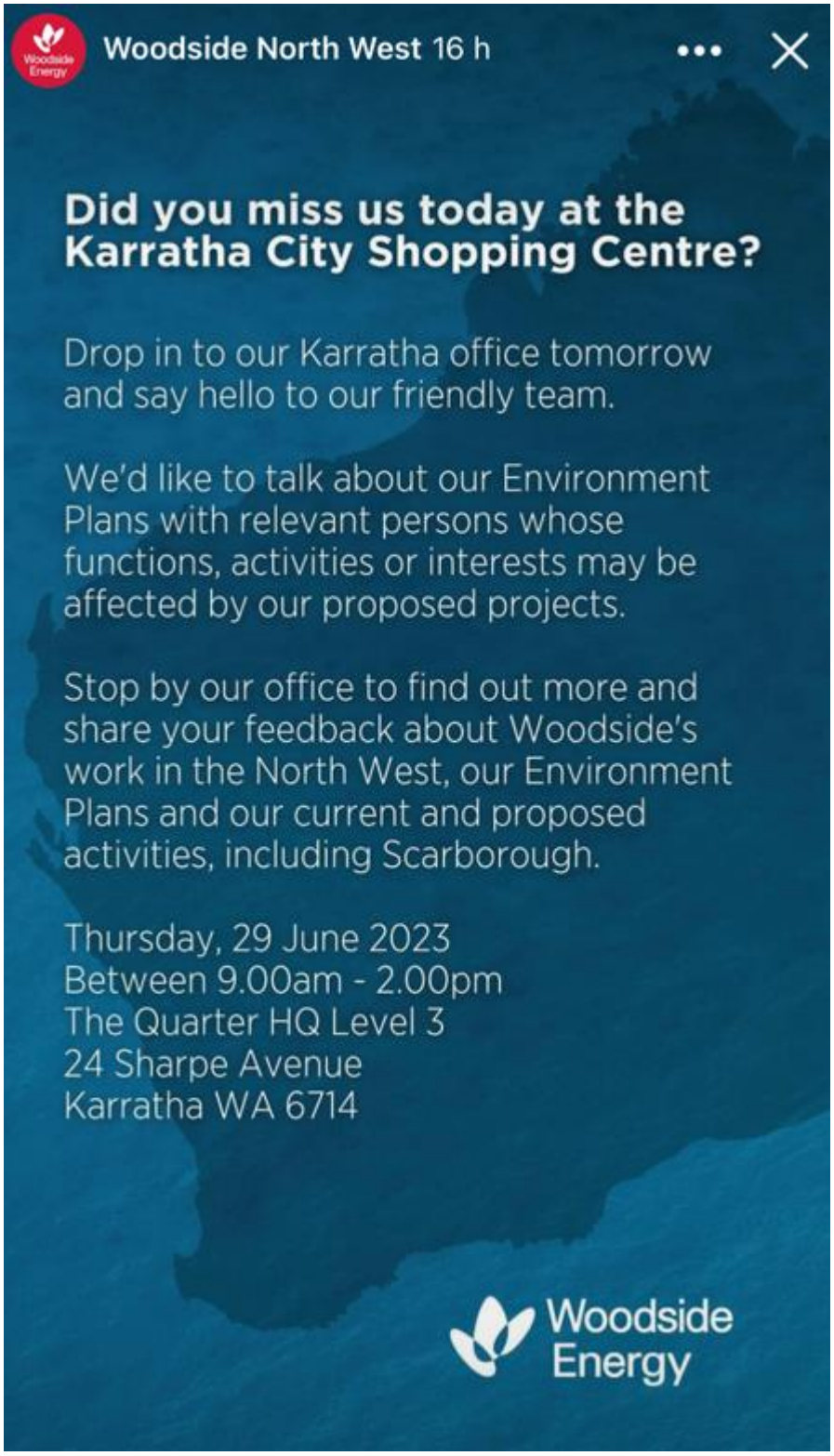
Dates: 26 June 2023 – 29 June 2023
Geotargeting: 40km radius around Karratha
Reach: 19,240 viewers
Impressions: 22,931 views

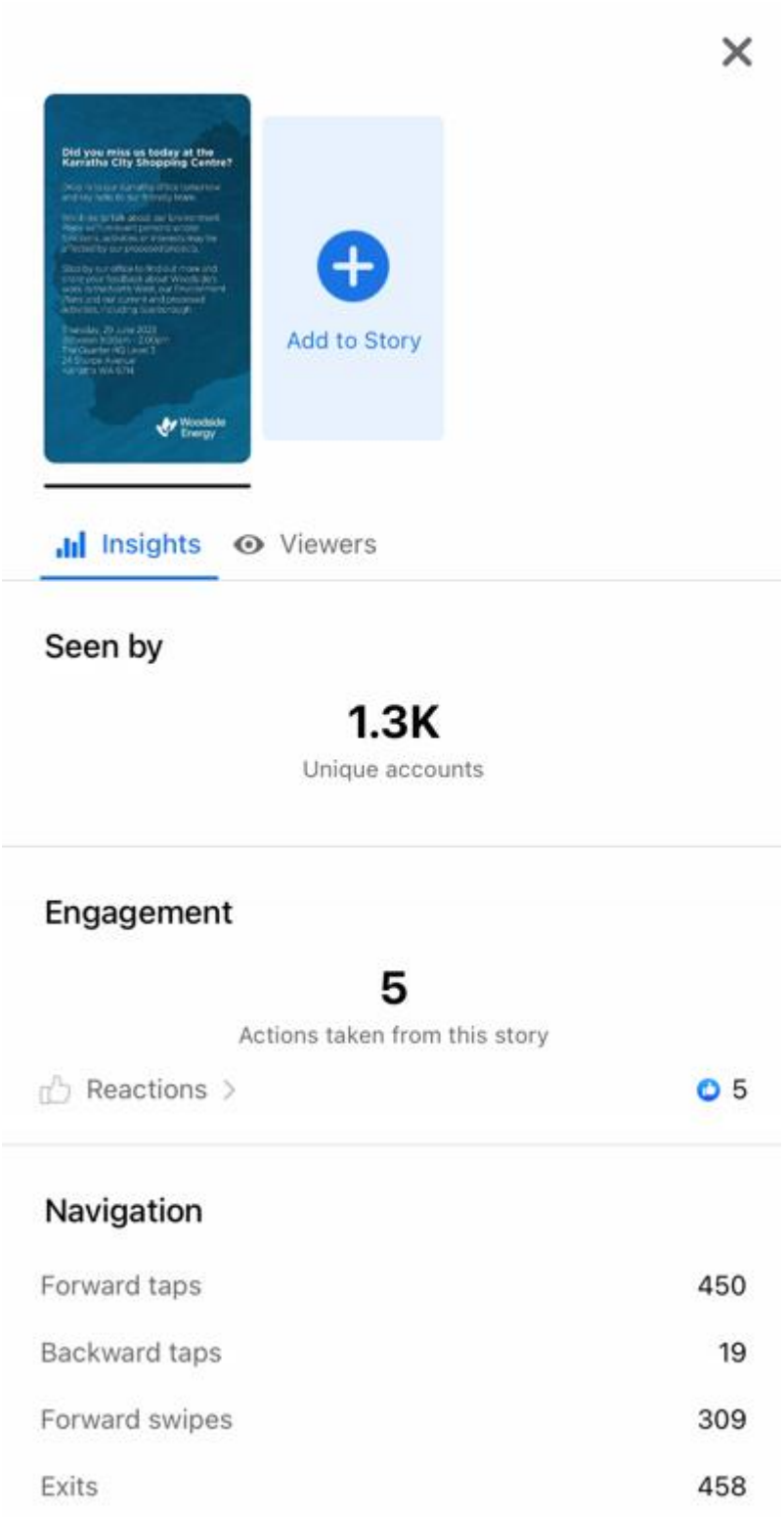
Campaign name	Ad set name	Delivery	Reach	Impressions	Frequency	Attribution setting	Results
EP Drop in session - KTA	All	Recently completed Campaign	19,240	22,931	1.19	7-day click or 1-day view	19,240 Reach

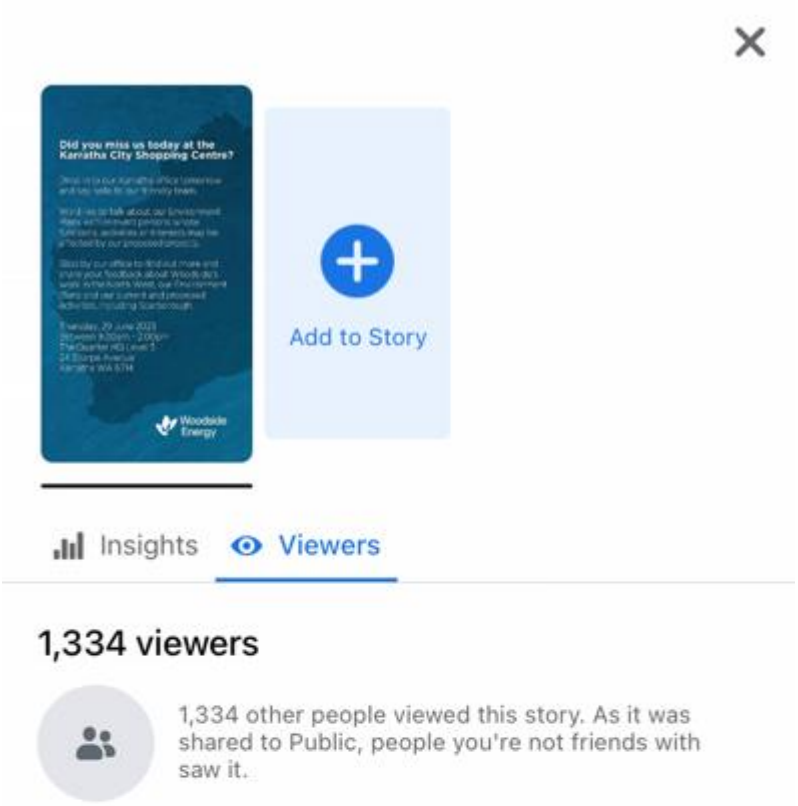




On 28 June 2023, Woodside posted a story on its Woodside North West Facebook account, sharing details of its drop-in session.
Reach: 1,366 viewers
Impressions: 22,931 views
Geotargeting: 40 km radius around Karratha


Woodside North West 16 h
Did you miss us today at the Karratha City Shopping Centre?
Drop in to our Karratha office tomorrow and say hello to our friendly team.
We'd like to talk about our Environment Plans with relevant persons whose functions, activities or interests may be affected by our proposed projects.
Stop by our office to find out more and share your feedback about Woodside's work in the North West, our Environment Plans and our current and proposed activities, including Scarborough.
Thursday, 29 June 2023
Between 9.00am - 2.00pm
The Quarter HQ Level 3
24 Sharpe Avenue
Karratha WA 6714
Woodside Energy


Did you miss us today at the Karratha City Shopping Centre?
Add to Story
Insights
Viewers
Seen by
1.3K
Unique accounts
Engagement
5
Actions taken from this story
Reactions
5
Navigation
Forward taps 450
Backward taps 19
Forward swipes 309
Exits 458


Did you miss us today at the Karratha City Shopping Centre?
Add to Story
Insights
Viewers
1,334 viewers
1,334 other people viewed this story. As it was shared to Public, people you're not friends with saw it.

2.34.7 Presentation to Karratha Community Liaison Group meeting (29 June 2023)

ENVIRONMENT PLAN CONSULTATION

- Changes to Commonwealth Environment Plan (EP) consultation requirements.
- Woodside is now consulting based on the **environment that may be affected (EMBA)** by a proposed petroleum activity rather than within the Operational Area.
- The EMBA is the largest spatial extent where unplanned events, no matter how unlikely, could potentially have an environmental consequence.
- Any person or organisation who does not wish to continue to receive EP consultation materials where they have only been assessed as 'relevant' for unplanned events in the EMBA, under the EP consultation requirements, please advise us in writing and we will not send further information.
- However, you should be aware that this request will need to be recorded in our EP documents and will be publicly available.
- We will be holding a drop-in session after this meeting for anyone in community who would like to know more about any of our EPs.

29 | Karratha Community Liaison Group | June 2023

ENVIRONMENT PLAN CONSULTATION

Consultation with Karratha CLG

Previously consulted

- Ngarnhurra RTM Decommissioning
- Griffin Field Decommissioning
- Stybarrow Field Decommissioning
- Scarborough Activities
- Pluto Well (WA-34-L)
- Julimar Appraisal Well
- TPA03 Well Intervention
- JDP3
- NWS Geotech/Geophys Survey
- Angel Operations

Lookahead for 2023[1,2]

- Macedon Commonwealth and State Operations
- NWS / Julimar wellhead decommissioning
- Browse State wellhead decommissioning
- Ngujima-Yin Floating Production Storage and Offloading Facility Operations
- Pyrenees Facility Operations
- Scarborough Operations
- Scarborough State Trunklines
- NRC Operations
- Vincent Phase V Drilling
- Macedon Infill Drilling

[1] Subject to planning and scheduling.
[2] Woodside will assess the relevance of Karratha CLG during the development of each environment plan.

PART OF A BETTER FUTURE Woodside Energy

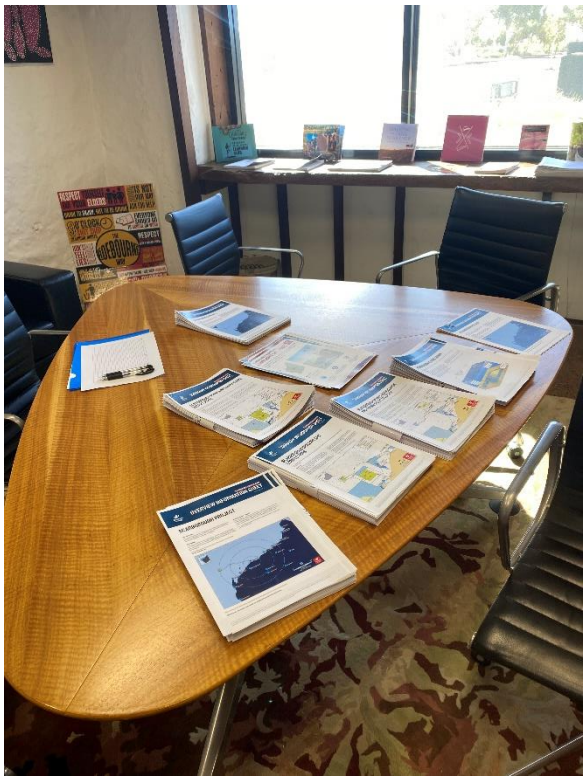
30 | Karratha Community Liaison Group | June 2023

2.34.8 Roebourne Community Information Session (19 July 2023)

Location	**Roebourne**
Date	**19 July 2023**
Description of the consultation	A Community Information Session was held in Roebourne. The consultation information session was hosted by members from Woodside's Corporate Affairs and Environment teams and was open for all community members to receive information regarding Woodside's Environment Plans and proposed and planned activities. A number of Environment Plan Consultation Information Sheets were available to attendees including the JDP3 EP Consultation Information Sheet.
Advertising and invitations	Ahead of the event, Woodside advertised the session via the means below to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • From 15−17 June 2023, Woodside commenced a geotargeted social media campaign in Roebourne and surrounding areas (**Record of Consultation, reference 2.34.2**) advertising the Community Information Session. • Woodside distributed posters advertising the community information session locally, including: o Front door and front window of Woodside Roebourne office, with the open sign and fact sheets on display inside (**Record of Consultation, reference 2.34.8**) o On the noticeboard at Roebourne Community Resource Centre (inside the Ieramugadu Store (NYFL's Foundation Foods). o Roebourne CRC o Pilbara Community Legal Service o NBAC o WAPOL o BP • Woodside staff also visited the following offices to advise of the community information session and provide posters: o Ngarluma and Yindjibarndi Foundation Ltd (NYFL) o Yinjaai-Barni Art Group o Yandi for Change o NYFL o WY Program o Roebourne Library o Yindjibarndi Ranger office o Ashburton Aboriginal Corporation o A poster was also put up at Cossack.
Estimated number of individuals consulted	• N/A
Summary of Feedback, Objection or Claim	
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 Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
There were no feedback, objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests	

or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).

Posters at Woodside's Roebourne Office:



2.34.9 Karratha FeNaCING Festival (5 and 6 August 2023)

Location	**Karratha – FeNaCING Festival**
Date	**5, 6 August 2023**
Description of the consultation	Woodside had a stand at the annual FeNaCING Festival held in Karratha. Members of Woodside's Corporate Affairs and Operations teams actively engaged with the community to discuss proposed Environment Plan activities. The stand included Consultation Information Sheets for a number of Environment Plans including JDP3 EP.
Advertising and invitations	Ahead of the event, Woodside advertised the session via the means below to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • Advertisement in the Pilbara News on 2 August 2023 (**Record of Consultation, reference 2.34.9**). • A social media story appeared on the Woodside Nort West Facebook page on 2 August 2023 (**Record of Consultation, reference 2.34.9**). • Directly inviting local Traditional Custodian groups (**Record of Consultation, Table 1**).
Estimated number of individuals consulted	Woodside estimates that over 2,000 people visited the Woodside stand based on the number of completed consultation forms and questionnaires.

Summary of Feedback, Objection or Claim
Community discussions centred on: • Update of Woodside activities and employment and contracting opportunities • All community members were encouraged to provide their views on Woodside's activities through the Woodside feedback form on the Woodside website, or to subscribe to Woodside updates. An iPad was available for stakeholders to do this on the spot.
Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response
Whilst feedback was received, there were no objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).

Pilbara News Advertisement – 2 August 2023

PROVIDE YOUR FEEDBACK AT FeNaCING FESTIVAL

Are you interested in what Woodside has planned on land and sea?

Join our friendly team at FeNaCING Festival and find out more about our Environment Plans and projects, including Scarborough and Browse.

We look forward to sharing information about our current and proposed activities and providing the opportunity to discuss your relevant functions, activities or interests and receive your input.

Follow us @woodsidenorthwest
www.woodside.com

Woodside Energy

Melski's murals brought to life

DANIEL SPENCE

The artist was brought to the school to create murals.

Tambrey Primary School has successfully brought renowned artist Mel McVee, popularly known as Melski, and her sister Tash to create three vibrant murals around the school premises.

With funding support from corporate entities like Woodside, FMG, and Pilbara Real Estate, as well as community contributions from Jetwave Marine, Santos, Yara, and QUBE Energy, the school raised more than $20,000 to bring this art project to life.

Home to nearly 700 students, with a third of them having Indigenous backgrounds, school Deputy Principal Toni Whitbread and visual arts specialist Felicity Collins said the mission of the project was to celebrate diversity and create a sense of belonging by reflecting students' culture through artwork.

The school's mission was to celebrate diversity and create a profound sense of belonging by reflecting the students' culture through artwork.

What particularly attracted the school to Mel's artwork was its unique paint-by-numbers style, which allowed students to actively participate in the mural creation process.

Eager to engage the entire school community, the school declared a special "paint week," during which more than 650 students enthusiastically joined hands to contribute to the murals.

Throughout the week, students not only participated in the creation of the murals but also enjoyed immersive art sessions in the park, indulging in painting, drawing, collaging, and chalk drawings under the enchanting winter weather.

The entire experience served to nurture the students' creativity and appreciation for art, leaving a lasting impact on their artistic aspirations.

Ms Collins said she was thrilled to see the whole school coming together for a week of collaborative art.

"We were delighted to see students immersed in a week of collaborative art," she said.

"Students not only contributed to the creation of the mural but also with their involvement in the immersive art in the park session — which included painting, drawing collaging and chalk drawings — while all outside soaking up the winter weather."

this is your chance to make a change

Chevron's Community Spirit Fund is offering up to **$15,000** towards local projects.

Beyond supplying affordable, reliable, ever-cleaner energy — we believe we have an important role to play in helping local communities build a vibrant and prosperous future.

We do this by investing in programs which contribute to areas of health and wellbeing, education, environment and building thriving communities.

We're calling for applications for the Chevron Community Spirit Fund, offering donations of up to $15,000 to not-for-profit organisations operating in the following Northwest locations:

- Carnarvon
- Coral Bay
- Dampier
- Denham
- Exmouth
- Karratha
- Onslow
- Port Hedland
- Roebourne
- Shark Bay

Applications are open now until 13 August 2023.
To apply, head to **australia.chevron.com**

the human energy company Chevron

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Story on the Woodside North West Facebook Page – 2 August 2023

Environment Plan Banner

2.34.10 Passion of the Pilbara, Onslow (18 August 2023)

Location	**Onslow – Passion of the Pilbara festival**
Date	**18 August 2023**
Description of the consultation	Members of Woodside's Corporate Affairs engaged with the community to discuss proposed Environment Plan activities. The stand included Consultation Information Sheets for a number of Environment Plans including the JDP3 EP.
Advertising and invitations	Ahead of the event, Woodside advertised the session via the means below to assist individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • The consultation opportunity was promoted prior to the Festival in a story on the Woodside North West Facebook page on 17 August 2023. (**Record of Consultation, reference 2.34.10**)
Estimated number of individuals consulted	• Woodside estimates approximately 100 people visited the Woodside stand.

Summary of Feedback, Objection or Claim

Community discussions centred on:

- Update of Woodside activities and employment opportunities
- General Scarborough project update and operations. A Scarborough operations map and Floating Production Unit images were available (see below). There was general community interest and support for the project. Discussions included:
    - Support for the project and dissatisfaction about protester activity against the project
    - Number of jobs during construction
    - Location of activities (noting activity was not off the coast of Onslow)
- General interest on the Browse project included:
    - Awareness that Carbon Capture Storage concept is feasible and has been included in the development concept.
- One individual asked in relation to the Scarborough Project what Woodside was doing in relation to the protecting environment.
- Community members were encouraged to provide their views on Woodside's activities through the Woodside feedback form on the Woodside website, or to subscribe to Woodside updates.

Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response

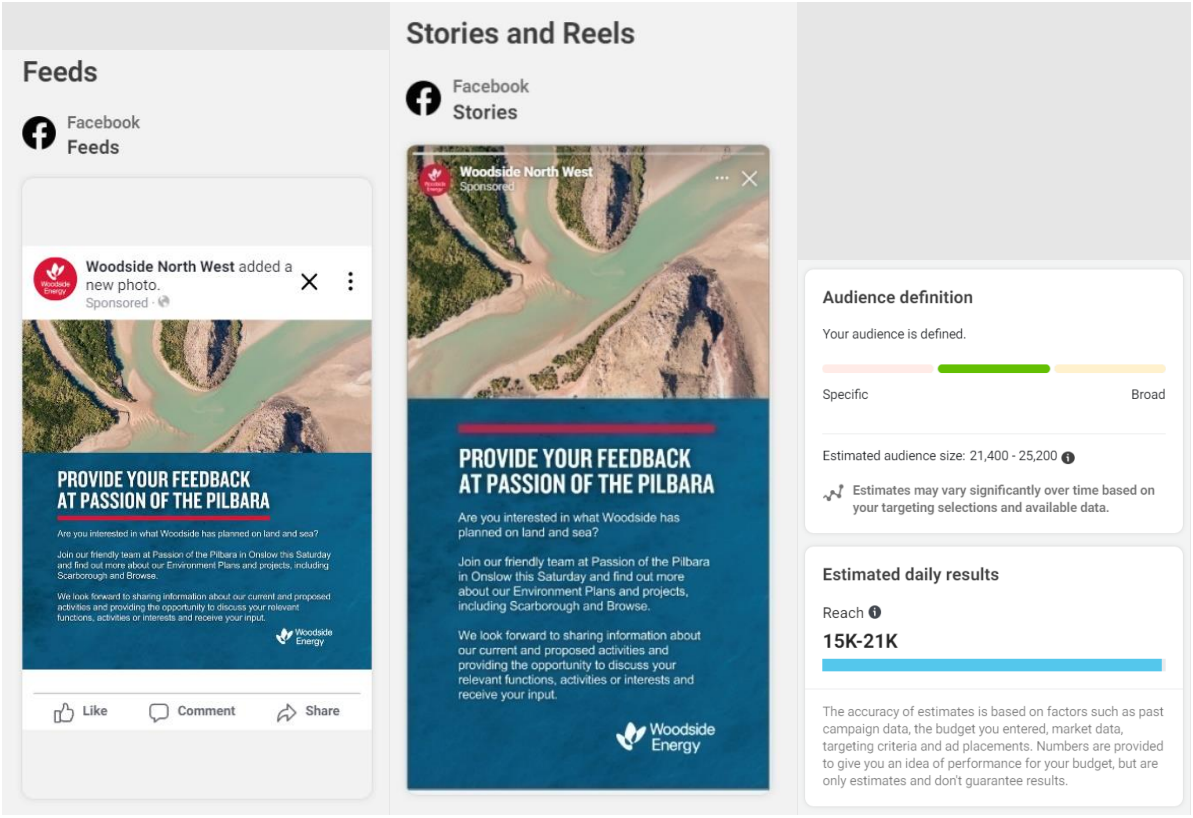
Whilst feedback was received, there were no objections or claims.

The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).

Passion of the Pilbara Facebook Post (17 August 2023)

Woodside North West Facebook Page (17 August 2023)

Woodside Facebook Post and Story (17 August 2023)



Woodside Marquee

Woodside Information Sheets

2.35 Pilbara Community Information Sessions (September 2023)

Location	Karratha, Port Hedland, and Roebourne
Date	18 – 20 September 2023
Description of the consultation	Woodside hosted community consultation sessions in Karratha, Port Hedland and Roebourne to enable community members to understand Woodside's proposed activities and how it may affect them, ask questions, and provide their feedback. Woodside Project, Corporate Affairs, First Nations and Environment representatives were available to answer questions. A number of Environment Plan Consultation Information Sheets were available to attendees including the JDP3 Consultation Information Sheet.
Advertising and invitations	Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • Advertisement in the Pilbara News on 13 September 2023 (**Record of Consultation, reference 2.35.1**). • Geotargeted social media campaign advertising in Karratha (Reach 22,095), Port Hedland (reach 26,487), and Roebourne (reach 22,134) (+80 kms) from 6 to 16 September 2023 (**Record of Consultation, reference 2.35.2**). • An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website), Scarborough Project banner, and Browse Project banners were displayed stand along with current EP factsheets.
Estimated number of individuals /	18 September – Karratha. Estimated number of people consulted: 20 19 September – Port Hedland. Estimated number of people consulted: 20 20 September– Roebourne. Estimated number of people consulted: 0

organisations consulted	
Summary of Feedback, Objection or Claim	
Community discussions centred on: • Update of Woodside activities and employment and contracting opportunities. General Woodside activities on the North West Shelf including the location of operations. Woodside noted the need for additional gas and the role Browse could play at the Karratha Gas Plant. • Some individuals had worked on a Woodside operations / project of knew family and friends that had. • General overview of what an EMBA was. All community members were encouraged to provide their views on Woodside's activities through the Woodside feedback form on the Woodside website, or to subscribe to Woodside updates. An iPad was available for stakeholders to do this on the spot.	
Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
Whilst feedback was received, there were no objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).	

2.35.1 Pilbara News Advertisement – 13 September 2023

Pilbara NEWS
Wednesday, September 13, 2023
pilbaranews.com.au
NEWS 5

Mayor runs again as candidates put forward pitches

City of Karratha Mayor Peter Long. Picture: Tom Zaunmayr

DANIEL SPENCE

Nominations have closed for the 2023 Karratha mayoral and councillor elections, with the list of candidates running to be the city's next mayor being released.

Peter Long — who has been in the position since 2011 — will be running again and said, if re-elected, he would continue to provide Karratha with intelligent, safe and inclusive leadership.

"I am a full-time mayor, always able to receive you and your ideas," he said. "I love the Pilbara and our community."

Regional Development Australia Pilbara chief executive and former local government minister Tony Simpson is also running for mayor.

His vision is to join forces with State and Federal entities to progress childcare, health and housing solutions.

"I would work to draw major brand investments in retail and leisure to provide more options for residents. Identify land for a foreshore entertainment hub and infuse Karratha with festivals and quality entertainment," he said.

Brenton Johannsen — who ran for the seat of Durack at the recent Federal election under One Nation — said he would donate the entire mayoral allowance to charity.

"I will be a committed full-time mayor, my goal is to visit all businesses and resident groups on a regular basis to touch base and discuss any new issues," he said.

Mr Johannsen said his aims would be neighbourhood safety, more opportunities for locals, ratepayer discounts for local facilities, moving airport smokers' areas, and eco-friendly weed management.

As a sitting councillor, radio announcer, parent and former local business owner mayoral candidate Pablo Miller said he had got to know the people of Karratha.

"As your mayor, I will continue to not only listen but be a strong advocate for our community," he said. Mr Johannsen said he was interested in expanding opportunities for young people and families, growing local and cultural tourism, supporting businesses and bolstering mental health services.

The owner of the North West Brewing Co Daniel Scott has a vision as mayor to grow Karratha's economy.

His plan is to create an education and sporting precinct between the TAFE and St Luke's College, with accommodation for secondary and tertiary students.

His plans also include a new home for the Pilbara Universities Centre, and a sporting hub for rugby, soccer, hockey and gymnastics.

Those running for council include Daniel Scott, Kieran Dart, Wayne Mothershaw, Mr Johannsen, Sarah Roots, George Levissianos, Bradley Davey, Mr Simpson, James Corea, Joseph Almonte and Geoff Harris.

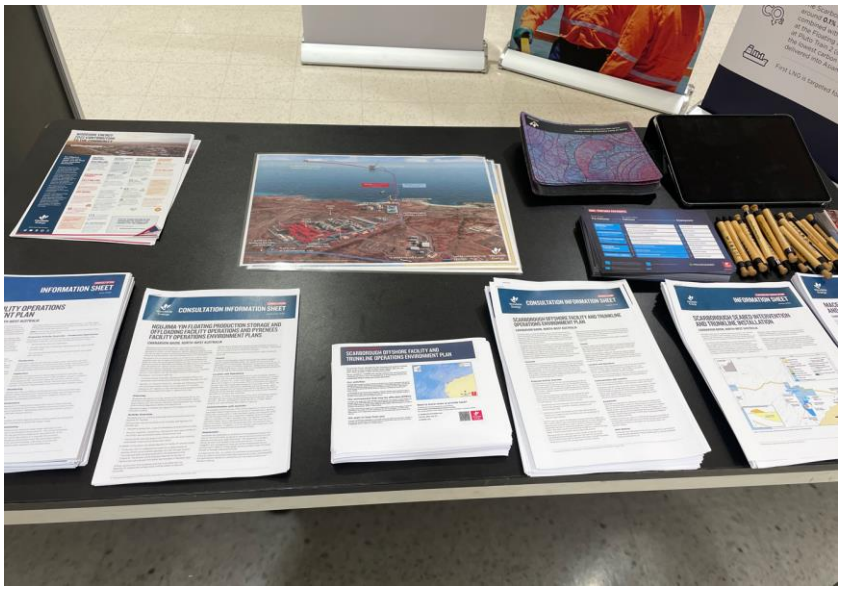
Elections will be held for the four vacancies on October 21st.

2.35.2 Social Media – 6 - 16 September 2023

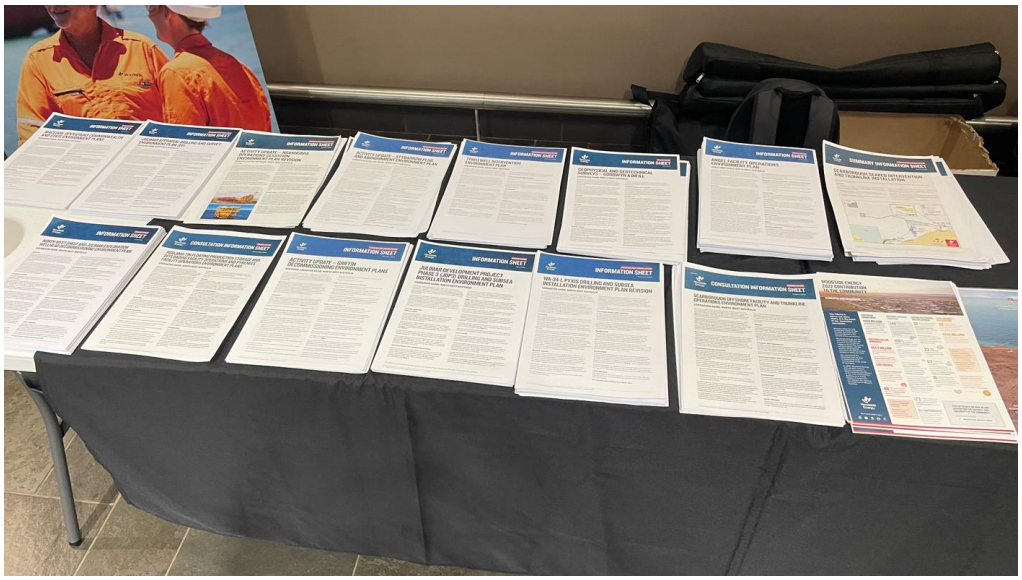
Social media reach:

Location	**Reach**
Karratha	22,095
Port Hedland	26, 487
Roebourne	22,134

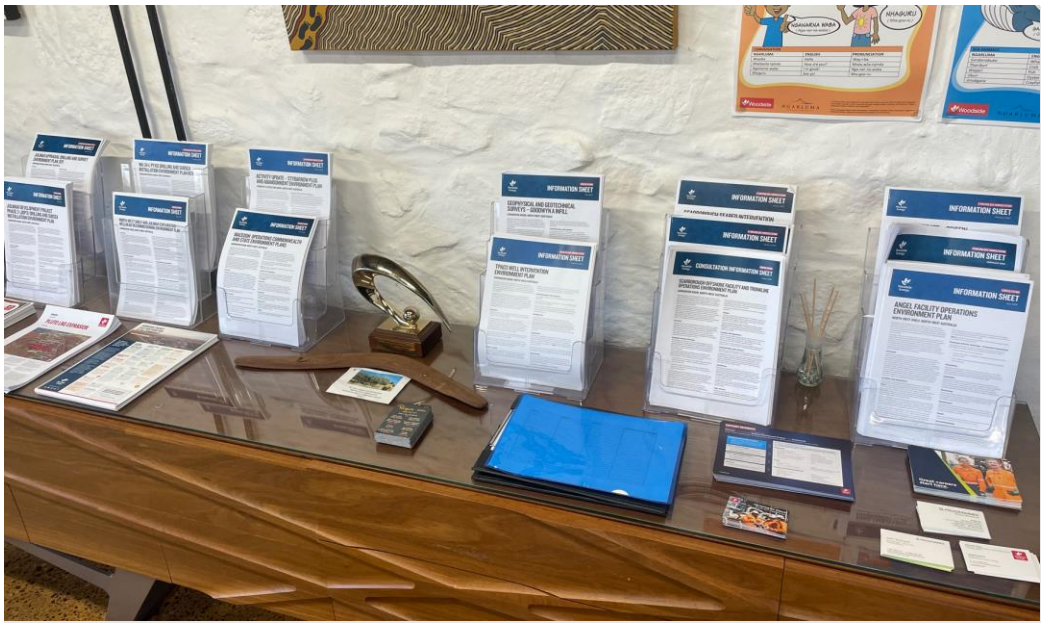
2.35.3 Karratha Shopping Centre – 18 September 2023



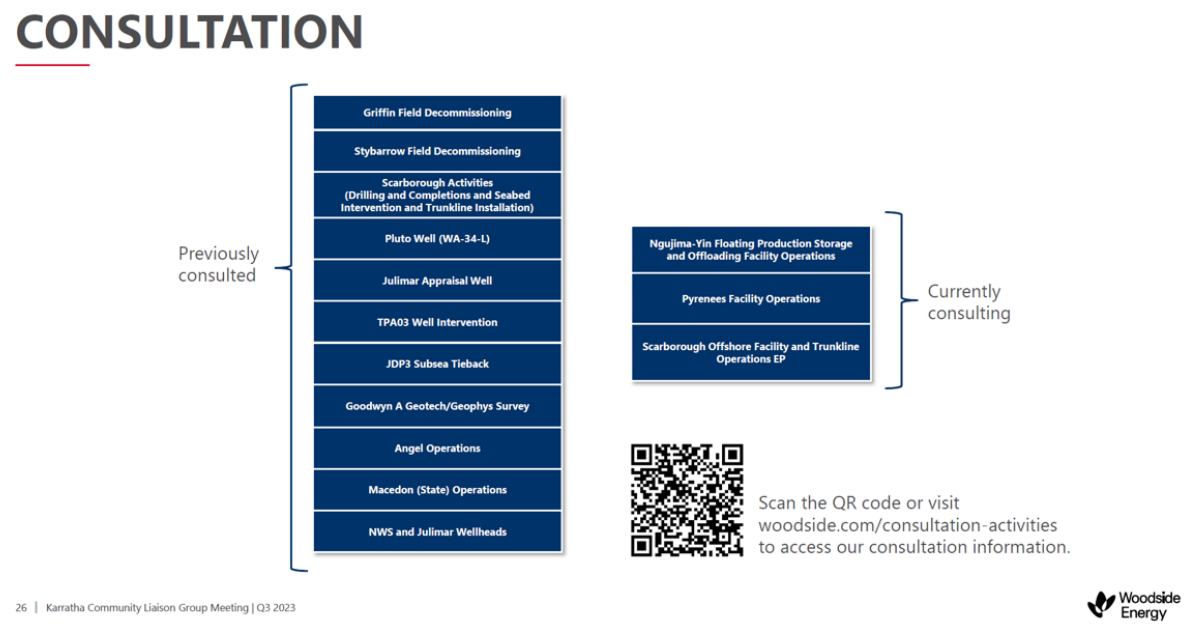
2.35.4 South Hedland Square – 19 September 2023

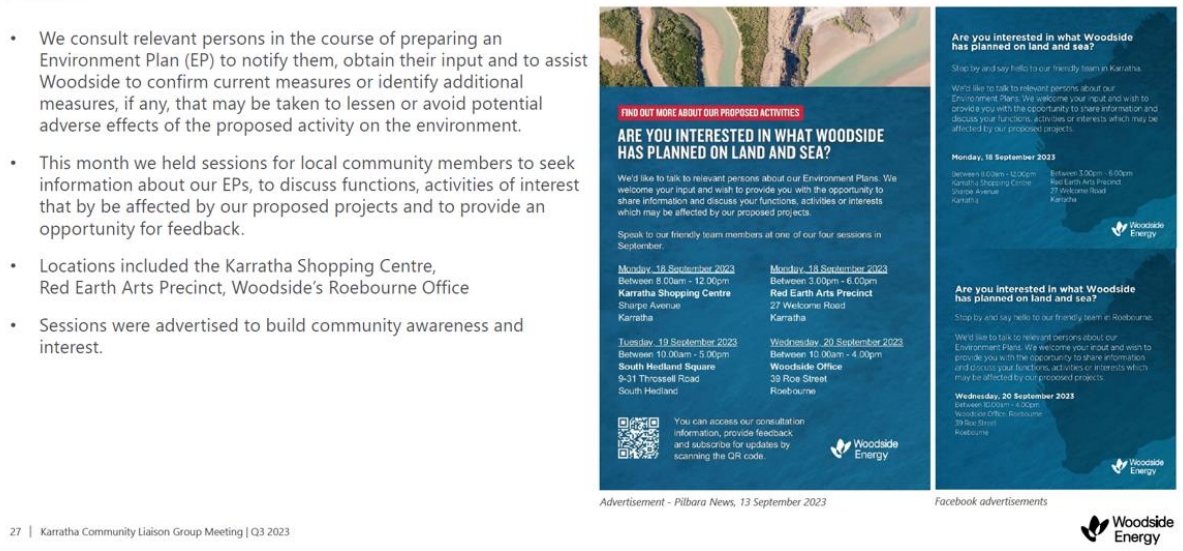


2.35.5 Roebourne – Woodside Office – 20 September 2023



2.36 Karratha Community Liaison Group Meeting (29 September 2023)





2.37 Community Information Sessions (October 2023)

Location	**Exmouth**
Date	23 October 2023
Description of the consultation	Woodside hosted a community consultation session in Exmouth to enable community members to understand Woodside's proposed activities and how it may affect them, ask questions, and provide their feedback. Woodside Project, Corporate Affairs, First Nations, Environment, and Biodiversity and Science representatives were available to answer questions.

	A number of Environment Plan Consultation Information Sheets were available to attendees including the JDP3 EP Consultation Information Sheet.
Advertising and invitations	Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • Advertisement in the Pilbara News on 4 October 2023 (**Record of Consultation, reference 2.37.2**). • Geotargeted social media campaign advertising in Exmouth and surrounding areas (+80 kms) from 2 to 9 October 2023 (**Record of Consultation, reference 2.37.3**). • Directly inviting local Traditional Custodian groups (**Record of Consultation, Table 1**). • An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website) was displayed at Woodside's stand along with current EP factsheets.
Estimated number of individuals / organisations consulted	Exmouth – 2 (Exmouth Chamber of Commerce and Industry) Four individuals attended the information session. One from Gascoyne Green Energy, two Shire Councillors and a representative from Exmouth's Chamber of Commerce and Industry.
Summary of Feedback, Objection or Claim	
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. All stakeholders expressed they had seen the geotargeted ads on social media. General interest in Woodside activities and interest in the social benefits to the local Exmouth community. This included encouragement for Woodside to promote and share the positive outcomes of Woodside's presence and an offer from the Chamber to share information amongst its members. General interest to understand what is involved in a marine seismic survey (MSS). Woodside presented its video on MSS. General interest to understand the interaction of whales and MSS, and what mitigation measures are put in place for our activities. Interest to understand how Woodside undertakes community consultation	
Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
Whilst feedback was received, there were no objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).	

2.37.1 Carnarvon and Denham Community Information Sessions (16 and 17 October)

Location	**Carnarvon and Denham - Community Consultation Roadshow**
Date	16 and 17 October 2023
Description of the consultation	Woodside hosted community consultation sessions in Carnarvon and Denham to enable community members to understand Woodside's proposed activities and how it may affect them, ask questions, and provide their feedback. Woodside Project, Corporate Affairs and Environment representatives were available to answer questions. A number of Environment Plan Consultation Information Sheets were available to attendees including the JDP3 EP Consultation Information Sheet.
Advertising and invitations	Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • Advertisement in the Pilbara News on 4 October 2023 (**Record of Consultation, reference 2.37.2**). • Directly inviting local Traditional Custodian groups (**Record of Consultation, Table 1**). • An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website) was displayed along with current EP factsheets (**Record of Consultation, reference 2.37.3**).

Estimated number of individuals / organisations consulted	16 October - Carnarvon – 3 17 October - Denham – 2 (Shire of Shark Bay)
Summary of Feedback, Objection or Claim	
• General interest in Woodside activities in the Pilbara • Discussion with the Shire of Shark Bay: Explained purpose of consultation for EPs Noted consultation based on an EMBA and no activities planned in Shark Bay Provided an overview of Woodside activities Shire advised it will provide a list of other relevant persons to consult, recognising the need to consult the community more broadly	
Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
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. Whilst feedback was received, there were no objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).	

2.37.2 Pilbara News Advertisement – 4 October 2023

Pilbara NEWS
Wednesday, October 4, 2023
pilbaranews.com.au
NEWS 13

MinRes in $24m deal with local company

DANIEL SPENCE

Local Pilbara Indigenous-owned business Djeloanna Pty Ltd has been awarded a $24 million contract by Mineral Resources as part of the company's flagship Onslow Iron project.

It is the largest contract MinRes has ever signed with an Indigenous-owned business, as well as the first contract awarded to Djeloanna Pty Ltd, which is a Robe River Kuruma business. The Robe River Kuruma people are the traditional owners of the land on which the Ken's Bore mine site is located.

The four-year contract is for exploration earthworks at Ken's Bore mine site, east of Onslow, including constructing access tracks, building drill pads, road maintenance and general earthworks.

Djeloanna Pty Ltd will employ about 10 people as part of the contract including a project manager, mechanics, operators and administration staff.

MinRes managing director Chris Ellison and Djeloanna business owner Bevan Wally. Picture: Russell James

Djeloanna Pty Ltd owner Bevan Wally, who grew up on country, said: "The support provided by MinRes has given us the confidence and capacity to help establish and grow our business. MinRes have shown us action and given us commitments. It's unreal for them to invest and give us a go."

MinRes managing director Chris Ellison said that the company was proud to partner with businesses such as Djeloanna that had such a strong connection to country.

"Providing practical guidance and support, such as guaranteeing finance for equipment and plant, helps to build local capability and ensure Indigenous-owned businesses share in our success," he said.

At the contract signing ceremony in Perth, Mr Wally presented traditional gifts to Mr Ellison, including boomerangs, a shield and a long stick.

Schools to get a staff cash boost

DANIEL SPENCE

Pilbara schools will benefit from a multi-million-dollar cash injection from the State Government to recruit and retain staff.

Education Minister Tony Buti said the success of last year's temporary Regional Attraction and Incentive Package meant an additional 18 schools would benefit from $16.49 million worth of incentive packages.

Schools in the Pilbara who will receive a boost include Broome Senior High School, Carnarvon Community College, Karratha Senior High School, Hedland Senior High School, Tom Price Senior High School and Newman Senior High School.

The incentive helps rural schools to attract and recruit teachers and retain staff and school administrators at schools by providing additional financial incentives.

Staff members will receive between $5000 and $17,000 for working in rural and remote public schools for the 2024 school year.

The incentives will be paid in two instalments: the first at the start of the 2024 school year, the balance paid at the end of the 2024 school year.

Dr Buti said schools in regional and remote areas faced additional challenges when recruiting and retaining teachers.

"This significant investment will bring greater continuity for regional and remote students, their families, and the whole community," he said. The temporary Regional Attraction and Retention Incentive was initially allocated to 48 regional and remote schools.

Government of Western Australia
Department of Health

Fluoridation for the Newman drinking water system

Community water fluoridation helps protect teeth against decay and is a safe and effective way of improving oral health. More than 92 per cent of the Western Australian population, including the Perth metropolitan area and most large regional communities in the Pilbara and other parts of Western Australia, has benefited from fluoridation of drinking water for more than 40 years.

Fluoridation equipment has been installed at the water treatment plant servicing Newman and is now operational. As with similar plants located throughout Western Australia, the Department of Health will monitor the performance of the water treatment plant to ensure compliance with the Australian *Drinking Water Guidelines* and the *Fluoridation of Public Water Supplies Act 1966*.

For more information please contact the Department of Health by email to ehinfo@health.wa.gov.au or call 08 9222 2000 or visit health.wa.gov.au and search fluoridation.

Dr Andrew Robertson
Chief Health Officer

SUPPORTING OUR LOCAL COMMUNITIES

The MinRes Community Fund supports our commitment to making meaningful contributions to the communities in which we operate.

Grants of up to **$10,000** are available to eligible local organisations to support programs and events that help create strong, vibrant and healthy communities.

Applications are open to groups operating in the **Pilbara and Goldfields-Esperance regions** or within the **Shires of Yilgarn, Irwin** and **Mingenew**.

Applications accepted between 1 to 31 October 2023.

TO APPLY
visit **mineralresources.com.au/our-sustainability/community**
or email **communities@mrl.com.au**

MINERAL RESOURCES

FIND OUT MORE ABOUT OUR PROPOSED ACTIVITIES

ARE YOU INTERESTED IN WHAT WOODSIDE HAS PLANNED ON LAND AND SEA?

We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.

Speak to our friendly team members at one of our sessions in October.

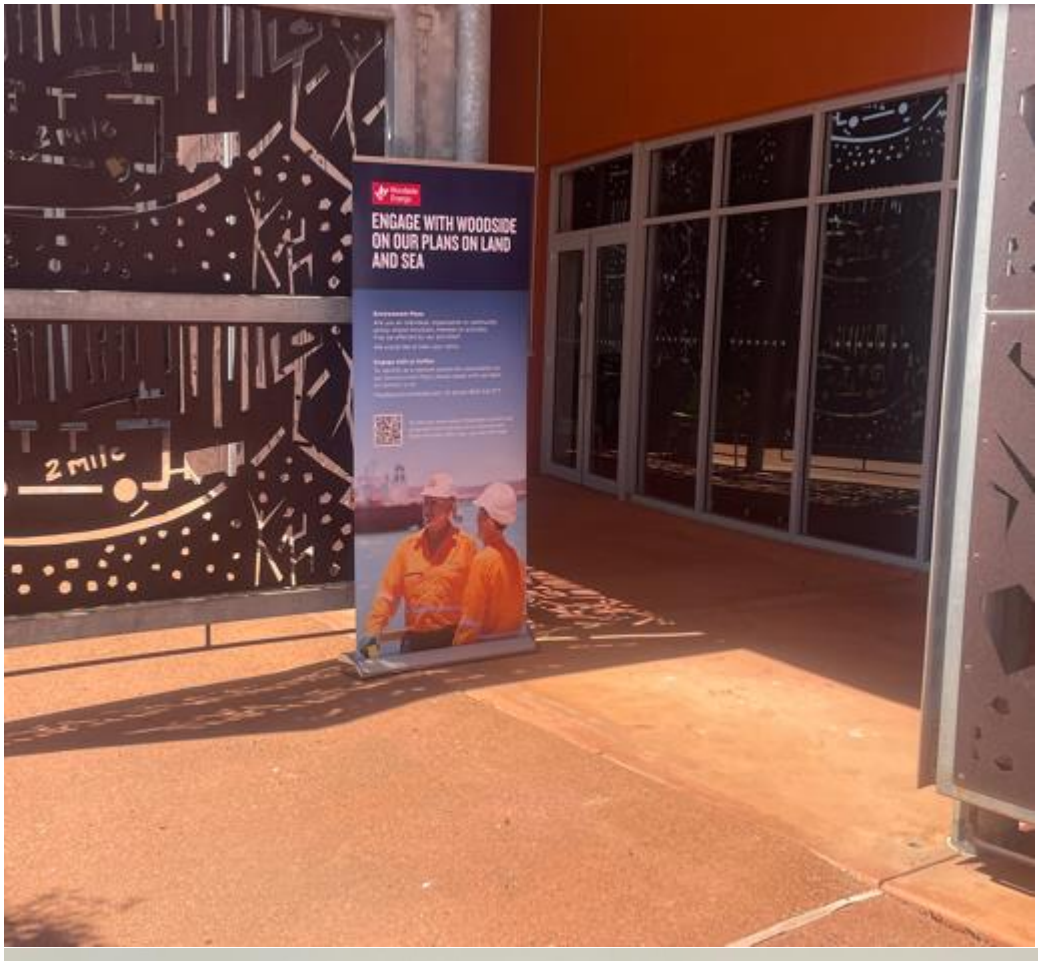
Monday, 16 October 2023
Between 10.00am - 2.00pm
Gwoonwardu Mia
146 Robinson Street
Carnarvon

Tuesday, 17 October 2023
Between 9.00am - 1.00pm
Denham Town Hall
Hughes Street
Denham

You can access our consultation information, provide feedback and subscribe for updates by scanning the QR code.

Woodside Energy

2.37.3 Banners and consultation sheets – 16 October 2023



2.37.4 Exmouth Community Information Session (23 October 2023)

Location	Exmouth
Date	23 October 2023
Description of the consultation	Woodside hosted a community consultation session in Exmouth to enable community members to understand Woodside's proposed activities and how it may affect them, ask questions, and provide their feedback. Woodside Project, Corporate Affairs, First Nations, Environment, and Biodiversity and Science representatives were available to answer questions. A number of Environment Plan Consultation Information Sheets were available to attendees including the JDP3 EP Consultation Information Sheet.
Advertising and invitations	Woodside advertised the sessions to enable individuals to self-identify, become aware of the community consultation, and enable individuals to provide feedback on proposed activities, through the following: • Advertisement in the Pilbara News on 4 October 2023 (**Record of Consultation, reference 2.37.5**). • Geotargeted social media campaign advertising in Exmouth and surrounding areas (+80 kms) from 2 to 9 October 2023 (**Record of Consultation, reference 2.37.6**). • Directly inviting local Traditional Custodian groups (**Record of Consultation, Table 1**). • An EP consultation banner with QR code (linked to the Consultation Activities page on the Woodside website) was displayed at Woodside's stand along with current EP factsheets.
Estimated number of individuals / organisations consulted	Exmouth – 2 (Exmouth Chamber of Commerce and Industry) Four individuals attended the information session. One from Gascoyne Green Energy, two Shire Councillors and a representative from Exmouth's Chamber of Commerce and Industry.
Summary of Feedback, Objection or Claim	
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. All stakeholders expressed they had seen the geotargeted ads on social media. General interest in Woodside activities and interest in the social benefits to the local Exmouth community. This included encouragement for Woodside to promote and share the positive outcomes of Woodside's presence and an offer from the Chamber to share information amongst its members. General interest to understand what is involved in a marine seismic survey (MSS). Woodside presented its video on MSS. General interest to understand the interaction of whales and MSS, and what mitigation measures are put in place for our activities. Interest to understand how Woodside undertakes community consultation	
Woodside Energy's Assessment of Merits of Feedback, Objection or Claim and its Response	
Whilst feedback was received, there were no objections or claims. The community information sessions were part of Woodside's broader consultation approach to enable self-identification, and provide relevant persons with the opportunity to assess any impacts on their functions, interests or activities, and provide feedback on proposed activities, which is consistent with the intended outcome of consultation (see **Section 5.2** of the EP).	

2.37.5 Pilbara News Advertisement (11 October 2023)

Pilbara NEWS
Wednesday, October 11, 2023
pilbaranews.com.au
NEWS 5

Animal flight policy criticised

CAIN ANDREWS

A prominent pet adoption agency has slammed Qantas' animal flight policy claiming it will lead to the unnecessary deaths of hundreds of animals.

Over the past year, animal adoption agency Saving Animals From Euthanasia's regional branches in Broome, Newman, Hedland and Karratha collectively rescued 1826 animals with 62.8 per cent or 958 of them requiring air transport to get to their new homes.

But with Qantas now enforcing a "no-fly" policy for animals when temperatures are forecast to reach more than 35C SAFE founder Sue Hedley said rescue animals that required air transport might have to be destroyed.

"It is crucial to recognise that this policy alteration could have dire consequences for these animals. If they are unable to reach their destination and find new homes, they may tragically face euthanasia as an alternative," she said.

Ms Hedley said SAFE had engaged with Qantas to try to find alternative solutions such as waivers or only allowing animals on early morning flights on days over 35C but was knocked back by the company.

"In over 20 years of operation, SAFE has never had a death during transportation from regional areas to Perth, no matter the temperature," she said.

"Unfortunately, we have been advised that the policy will remain and that no exceptions will be made.

Sue Hedley & Salem. Pic: Helen Osler

"We firmly believe that the risks associated with this policy extend far beyond those related to flying on a day when temperatures may reach 35C later in the day."

A Karratha woman, who only wishes to be identified as Simone, was told her two dogs would not be allowed to catch a Qantas flight on October 5 because of the policy.

According to Simone, at the last minute she was told her dogs could not catch the flight despite being told the night before her dog would be able to fly.

"It's ridiculous we're here with our dogs everything's packed, and we're going away as well.

"With the way things are in Karratha with the shortage of space available there's no one to look after our pets," she said

"It's not just inconvenient, it's unethical as they're not even adhering to their own policy.

Simone's dogs faced being bumped off a Qantas flight because of the airline's heat policy.

"I get it's about animal safety but what is ridiculous is that the policy clearly states 35C and above and it (was) only 23C."

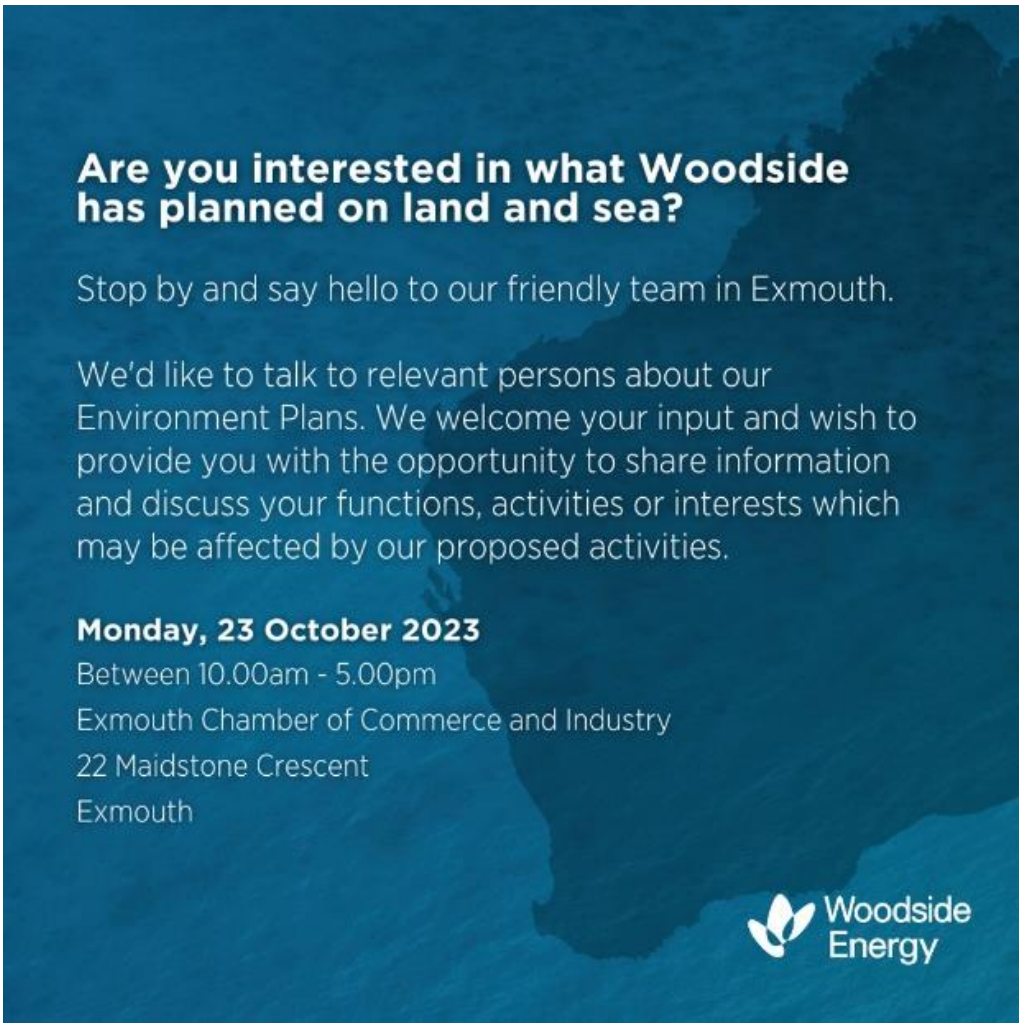
Qantas eventually made an exception for Simone and her dogs on the day, however, she claims she was told by those at the airport to not tell Ms Hedley about the incident.

Last year, temperatures in Karratha exceeded 35C on 108 days, with a consecutive period of 42 days over 35C between February 12 and March 26.

Responding to questions about the policy, a Qantas spokesperson said the policy was led by the International Pet and Animal Association and the International Air Transport Association."Qantas takes the safety and welfare of pets and animals who travel with us extremely seriously," the spokesperson said.

"This is why we don't transport pets when temperatures exceed 35C or fall below 5C, due to the stress and anxiety this could cause."

2.37.6 Social media tile and story (2 – 9 October 2023)




Are you interested in what Woodside has planned on land and sea?
Stop by and say hello to our friendly team in Exmouth.
We'd like to talk to relevant persons about our Environment Plans. We welcome your input and wish to provide you with the opportunity to share information and discuss your functions, activities or interests which may be affected by our proposed activities.
Monday, 23 October 2023
Between 10.00am - 5.00pm
Exmouth Chamber of Commerce and Industry
22 Maidstone Crescent
Exmouth
Woodside Energy

APPENDIX G. PROGRAM OF ONGOING ENGAGEMENT WITH TRADITIONAL CUSTODIANS

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Proposed Program of Ongoing Engagement with Traditional Custodians

This Program of Ongoing Engagement with Traditional Custodians ("Program") has been developed to demonstrate Woodside's commitment to ongoing engagement and support of Traditional Custodians' capacity to care for and manage Country, including Sea Country, and has been directly informed by Traditional Custodians' feedback regarding their capacity to engage and consult on Environment Plans.

It is a living document designed to evolve with ongoing consultation and feedback from Traditional Custodians and, at a minimum, will be subject to annual review. In addition to this Program, Woodside will continue to participate in, and support collective industry engagement with Traditional Owners on the development of a future, sustainable, industry wide Program. Through the Program, Woodside actively supports Traditional Custodians' capacity for, and involvement in, ongoing engagement and feedback on environment plans.

The Program has been developed so that Traditional Custodians can, on an ongoing basis, provide Woodside with feedback relating to the possible consequences of an activity to be carried out under an environment plan on their functions, interests and activities as they relate to cultural values. This feedback will be evaluated in conjunction with Traditional Custodians and, where necessary, avoidance or mitigation strategies in will be developed in collaboration with Traditional Custodians. How the Program is implemented with specific Traditional Custodians will depend on their stated needs and priorities

The Program is underpinned by Woodside's First Nations Communities Policy (woodside.com), the objective of which is to ensure Woodside partners and engages with First Nations communities to create positive economic, social and cultural outcomes that leave a lasting legacy. Woodside does this through building respectful relationships and partnerships with First Nations communities where we are active, in the areas where they are most interested in. We acknowledge the unique connection that First Nations communities have to land, waters and the environment.

The Program will include, as agreed with relevant communities, reasonable commitment to:

1. **Support for ongoing dialogue and engagement**

Woodside will support the capacity of Traditional Custodians to participate in ongoing dialogue and engagement about the environment plans and to enable the ongoing and future identification of cultural values potentially impacted by Woodside's activities. Woodside further commits to agreeing consultation protocols with individual Traditional Custodians to ensure the material provided is appropriate in level of detail such that the potential for cultural impact from Woodside activities can be determined and as required measures can be adopted to avoid or minimise impact.

In addition, Woodside will receive feedback on cultural values from an individual person or organisation that identifies as a Traditional Custodian, at any stage during the development and implementation of activities. This feedback will be evaluated, in conjunction with the Traditional Custodian individual or group and if required, control measures will put in place to avoid impacts to cultural values, or where avoidance is not possible, to minimise and mitigate the impacts to an acceptable level.

Where cultural values are identified post activity completion, any controls relevant to value management will be implemented during the next relevant activity.

2. Support for the identification and recording of cultural features

Woodside will support Traditional Custodians to record and articulate their Sea Country values and will invest in cultural assessments codesigned with Traditional Custodians, where required, to inform potential risks to cultural values from our petroleum activities.

This may include supporting cultural mapping by Traditional Custodians to identify and map significant cultural features including archaeological sites and other cultural values. The scoping of the mapping process will be codesigned with Traditional Custodians.

Woodside understands that cultural knowledge remains the intellectual property of Traditional Custodians and will agree with Traditional Custodians at the outset how that information from surveys will be used to feedback into and inform the environment plan's design and implementation.

In addition, Woodside applies the Cultural Heritage Management Procedure 2019, updated in 2023, to the Program which*:*

- provides a process for the identification, protection, and management of Cultural Heritage taking into account relevant standards, in particular, the United Nations Declaration on the Rights of Indigenous Peoples, the Charter for the Protection and Management of the Archaeological Heritage, the Convention for the Safeguarding of the Intangible Cultural Heritage, and the Convention on the Protection of the Underwater Cultural Heritage;
- applies to underwater cultural heritage and, consistent with current practice, provides for the commissioning of (where appropriate) both archaeological and ethnographic assessments of cultural values over the submerged landscape; and
- the process includes the following:
    - early engagement with relevant Traditional Custodians
    - identification of potential heritage, this could include desktop and field surveys undertaken with the Traditional Custodians.
- the development of cultural management strategies; and, where it is determined cultural heritage may be impacted, the development of Cultural Heritage Management Plans codesigned with Traditional Custodians and implemented by Woodside's First Nations team which:
    - focus on avoidance or minimisation of impacts; and
    - provide regular reviews and for inclusion of new information and further development of the Cultural Heritage Management Plan.

Woodside is committed to continue to receive feedback on cultural values for the life of an environment plan, the inclusion of new information and the development of avoidance or mitigation strategies in collaboration with Traditional Custodians. This information will be recorded via the Woodside Management of Knowledge Process and any potential impacts to the accepted Environment Plan evaluated via the Woodside Management of Change Process.

3. Building capacity for the ongoing protection of country

Woodside will support measures to increase the capability and capacity of the Traditional Custodian groups. This is guided by Woodside's Indigenous Affairs Strategy 2019 ("Strategy"), which is designed to enable the building and maintaining of relationships with Traditional Custodians to leave a lasting legacy, including strengthening of Traditional Custodians' capacity to care for and manage Country, including Sea Country. The Strategy was developed with inputs from Traditional Custodians and contains four pillars that direct Woodside's social investment, policies relating to economic development, procurement and employment, and Woodside's agreement making and implementation of agreements. The pillars are:

1. Culture and Heritage Management: support social outcomes through protection, recognition and respect for culture and heritage;
2. Economic Participation: provide training, jobs, and business opportunities;

3. Capability and capacity: ensure strong corporate governance, leadership development and education initiatives to support self-determination; and
4. Safer and Healthier Communities: partner with Aboriginal people and service providers to maximise safer and healthier community outcomes.

Woodside is committed to an ongoing relationship between Woodside and the Traditional Custodian groups. Through consultation with Traditional Custodians Woodside will continue to:

- establish support for Indigenous ranger programs via social investment;
- establish support for Indigenous oil spill response capability via investigating training models;
- establish support for identification and recording of cultural values and the management of that information by Traditional Custodians;
- establish support for programs identified by the Traditional Custodians as important to them and as agreed by Woodside.

4. Support for capacity and capability in relation to governance

Pillar 3 of the Indigenous Affairs Strategy 2019 focuses on ensuring strong corporate governance, leadership development and education initiatives to support self-determination. To enable this, Woodside will support measures to increase the capability and capacity of the Traditional Custodian groups, including in relation to governance and management systems.

The nature of this support will be informed by the individual needs of Traditional Custodian groups, but may include:

- funding or other support for community meetings, particularly where consultation with representative bodies lies outside of that body's core business and cultural authority or mandate needs to be secured,
- resourcing internal expertise so that information is managed consistently and internally, including ensuring appropriate record keeping of consultation to provide stakeholders with a lasting record of discussions, and
- development or upgrade of IT systems to manage information.

5. Program Reporting and Review of Effectiveness

Woodside will undertake an annual review of the Program to assess its effectiveness and adapt the Program accordingly. The annual review will also include an assessment of appropriateness of the methods used to undertake ongoing consultation with Traditional Custodians.
Progress of the Program will be reported annually in line with annual sustainability reporting via the Woodside website.

6. Current Status

Following distribution of this proposed Program, Woodside is now participating in a number of specific ongoing consultation activities with Traditional Custodian Relevant Persons. Specific ongoing activities are tabulated below:

Traditional Custodian Relevant Person	Ongoing Consultation Description	Forward Plan	Estimated Timeframes
Buurabalayji Thalanyji Aboriginal Corporation (BTAC)	BTAC proposed a Collaboration Agreement in May 2023, Woodside agreed in principle, and exchanged correspondence to understand details of the proposal. The Collaboration Agreement would enable support for BTAC to undertake an ethnographic assessment to articulate values, and ensure appropriate cost recovery	Woodside and BTAC have executed a Costs Acceptance Letter. Woodside has developed a Collaboration Agreement which is currently under internal Woodside review. Once settled internally it will be put to BTAC for their consideration.	The draft Collaboration Agreement will be provided to BTAC for consideration in November 2023. Woodside will follow up on a monthly basis for at least six months with BTAC once they are in receipt of the draft proposed Collaboration Agreement from Woodside, or until the Agreement is in place.
Yamatji Marlpa Aboriginal Corporation (YMAC)	In June 2023, YMAC provided Woodside a proposed draft Framework Agreement, and a proposal to fund in-house expertise to support consultation and implement the Collaboration Framework. In July 2023, Woodside agreed in principle to the proposed Collaboration Framework and the funding proposal and requested a meeting to work together on details. Woodside provided the Proposed Program of Ongoing Consultation to complement the proposed Collaboration Framework.	Woodside will continue to communicate with YMAC, seeking to collaborate and reach agreement on the proposed Collaboration Framework and funding agreement. At the point of EP submission, Woodside is seeking a meeting with YMAC at YMAC's earliest convenience.	Woodside will follow up with YMAC on a monthly basis for at least six months, seeking to progress the Collaboration Framework and funding agreement.
Wirrawandi Aboriginal Corporations (WAC)	In August 2023, WAC proposed a Framework Agreement with Woodside to provide a streamlined, formalised approach to consultation between WAC and Woodside. Woodside has confirmed receipt of the proposed framework from WAC.	Woodside is in contact with the WAC CEO and is currently developing a response to the proposed Framework Agreement put forward by WAC. WAC do not object to Woodside progressing environmental plans on the proviso that both parties enter into an Agreement suitable to each party. WAC have suggested a timeframe to settle the Agreement over the next 2-3 months. Woodside will be aiming to reach agreement within a shorter timeframe.	Ongoing Framework Agreement settled in 2023.
Ngarluma Aboriginal Corporation (NAC)	In September 2023, NAC proposed a Joint Working Group to practically manage consultation processes. It was proposed that the group would meet monthly for 2023 and quarterly thereafter, meetings would include NAC CEO and NAC Directors and potentially independent SME/s, the proposal was that Woodside draft a Framework Agreement, and included a request for funding for this approach. Woodside provided in-principle support for the proposal.	Woodside has provided in-principle support for NAC's proposal and is currently developing a draft Framework Agreement which once settled internally will be sent to NAC for their response.	In accordance with NAC's proposed timeframe, Woodside aims to prepare a draft Framework Agreement, settle internally and then meet to discuss in 2023.
Nganhurra Thanardi Garrbu Aboriginal Corporation (NTGAC)	In a meeting during August 2023, NTGAC proposed a Framework Agreement. This included terms for ongoing	Woodside and NTGAC/YMAC have agreed in writing to develop a Framework Agreement. Woodside have been responding to queries from NTGAC who have passed	Woodside will follow up with NTGAC on a monthly basis for at least six months, seeking to

	engagement such as frequency of consultation, participation, and content. NTGAC has also requested Woodside provide funding for an in-house environmental scientist to review material. Woodside agreed in principle to this approach, and has requested a first draft of the Framework Agreement for consideration. Woodside have agreed to pay for YMAC's in-house scientist to attend NTGAC meetings to advise NTGAC.	information provided by Woodside onto their Environmental Scientist. Woodside are awaiting a proposed draft of a Framework Agreement and general report. YMAC's preference is to prepare the drafts, Woodside have offered to assist with drafting and remain ready to respond on receipt of documents.	progress the Framework Agreement and General report.
Yinggarda Aboriginal Corporation (YAC)	In August 2023, YAC requested Woodside provide a draft Framework Agreement for their consideration. Woodside has provided a draft Framework Agreement to YAC for review.	Woodside's Proposal suggests meeting with YAC every 3 months to progress matters. The Proposal suggests committing to work continuing between meetings with each party nominating focal points. A Scope of Work and schedule of rates is included to re-imburse the cost of ongoing consultation. Woodside's Proposal includes timeframes for anticipated milestones and has suggested the Proposal be in place for an initial 2-year period. Woodside has provided the draft Framework Agreement to YAC; they have advised that they will seek direction from the YAC Board on the proposal.	Woodside will continue following up with YAC on a monthly basis for at least six months, seeking to progress the Framework Agreement.
Robe River Kuruma Aboriginal Corporation (RRKAC)	RRKAC have noted that they are insufficiently resourced to engage further and respond to Woodside regarding EPs. Woodside assesses that a Framework Agreement could address this.	Woodside has on several occasions written to RRKAC offering to fund consultation meetings. Woodside will offer RRKAC a Framework Agreement which will propose funding, scope of work and timeframes to assist with consultation and ongoing consultation. If RRKAC are open to the proposal, it is intended to put forward a draft Framework Agreement to RRKAC within the next 2 months.	Woodside will follow up with RRKAC monthly for at least six months, seeking to progress a Framework Agreement.
Ngarluma Yindjibarndi Foundation Limited (NYFL)	NYFL and Woodside have an existing Agreement in place which enables quarterly communication about Woodside activities. NYFL has said they are working with other First Nations organisation and representative Bodies developing a Framework Agreement.	Woodside has not yet seen a draft of the Framework Agreement. Woodside's expectation is that it will outline principles of engagement, details of resourcing, timeframes to meet agreed outcomes etc. Woodside look forward to receiving a draft Agreement and will engage with NYFL to settle on the details of any proposal.	Woodside will continue to follow up monthly with NYFL for at least six months, seeking to progress a Framework Agreement.
Yindjibarndi Aboriginal Corporation	Yindjibarndi have advised that they are represented by NYFL for consultation on oil and gas matters. NYFL and Woodside have met to discuss the consultation framework to be used by NYFL as representatives of Yindjibarndi. Woodside will seek to use the Framework Agreement proposed by NYFL (above) for ongoing consultation with Yindjibarndi.	Per NYFL above.	Per NYFL above.
Kariyarra Aboriginal Corporation (KAC)	In September 2023 KAC proposed an agreement which would include meeting arrangements, ongoing consultations, specialist advice and contact protocols.	Woodside support funding request that are reasonable and will seek to reach agreement on a funding proposal put forward by KAC. Woodside agrees that a Framework Agreement is a sound tool to set out ongoing consultation with KAC, funding arrangements and social investment opportunities that KAC would want explored. Woodside will propose a first draft of an agreement and put to KAC in the	Woodside will continue to follow up monthly with KAC for at least six months, seeking to progress a Framework Agreement.

		first instance. Woodside will prepare a draft agreement within the next two months to for KAC's consideration.	
Bardi and Jawi Niimidiman Aboriginal Corporation (BJNAC)	In June 2023, BJNAC provided Woodside a draft resourcing protocol for consultation. Woodside noted that the draft protocol was drafted with a focus on land based activities that fall within the BJNAC native title determination, as opposed to offshore activities. In October 2023, BJNAC and Woodside met to review the resourcing protocol, which resulted in some small changes being agreed. BJNAC and Woodside agreed that both organisations were on the same page for ongoing consultation.	Woodside supports funding request that are reasonable.. Woodside agrees that the resourcing protocol is a sound tool to set out ongoing consultation with BJNAC, funding arrangements and employment, training and contracting opportunities that BJNAC want to explore. Woodside is awaiting BJNAC's revised protocol.	Woodside will continue to follow up monthly with BJNAC for at least six months, seeking to progress a Resourcing Protocol.
Karajarri Traditional Lands Association (KTLA)	.On 19 April 2023 and 2 May 2023, KTLA said they would seek funding support from Woodside and were developing paperwork/proposal for sending to Woodside.	Woodside supports funding requests that are reasonable. Woodside is awaiting KTLA's proposal.	Woodside will continue to follow up monthly with KTLA for at least six months, seeking to progress a Framework Agreement.

APPENDIX H. OIL SPILL PREPAREDNESS AND RESPONSE STRAETEGY SELECTION AND EVALUATION

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CONTROLLED DOCUMENT Oil Spill Preparedness and Response Mitigation Assessment for Julimar Development Phase 3 Drilling and Subsea Installation Environment Plan	

Controlled Ref No: JU0000AF1401792334	**Revision: 0**

Name	**Signature**	**Date**
Prepared by: Abby Findlay (***Recommender*** – Person creating/editing document content)		
Approved by: Zoe Beverley (***Decider*** – Person validating document content)		
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3.		

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Revision	**Description**	**Date**	**Prepared by**	**Approved by**
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Oil Spill Preparedness and Response Mitigation Assessment for Julimar Development Phase 3 Drilling and Subsea Installation

Corporate HSE

Hydrocarbon Spill Preparedness

December 2023
Revision 0

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FIGURES

TABLES

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EXECUTIVE SUMMARY

Woodside Energy (Julimar) Ltd (Woodside) has developed its oil spill preparedness and response position for the Julimar Development Phase 3 Drilling and Subsea Installation project, 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 Scenario	**Credible Scenario-01 (CS-01): Unplanned hydrocarbon release – loss of well containment from J85 Development well (20° 09' 52.289" S, 115° 02' 35.331" E)** 75,453 m^3 over 63 days[1] of JULA04 condensate. 6.5% residual component or 4904.4 m^3	Section 2.2
	Credible Scenario-02 (CS-02): A short-term (instantaneous) uncontrolled surface release of Marine Diesel Oil (MDO). Instantaneous release of 2000 m^3 of MDO. 5% residual component or 100 m^3	
Hydrocarbon Properties	**Julimar (JULA-04) Condensate** Julimar (JULA-04) Condensate (API 45.7) contains a high proportion (~6.5% by mass) of hydrocarbon compounds that will not evaporate at atmospheric temperatures. The unweathered mixture has a dynamic viscosity of 1.742 cP at 20°C. The pour point of the whole oil (< 380°C) ensures that it will remain in a liquid state over the annual temperature range observed on the North West Shelf. The mixture is composed of hydrocarbons that have a wide range of boiling points and volatilities at atmospheric temperatures, and which will begin to evaporate at different rates on exposure to the atmosphere. Evaporation rates will increase with temperature, but in general about 43.6 % of the oil mass should evaporate within the first 12 hours (BP < 120°C); a further 22.9 % should evaporate within the first 24 hours (180°C < BP < 265°C); and a further 27.1 % should evaporate over several days (265°C < BP < 380°C).	Section 2.2.1 and Section 6.8 of the EP Appendix A of the First Strike Plan

[1] *The 63-day Drilling Time Estimate used for the spill modelling is based on drilling and setting the 9-5/8" Liner at a total depth of ~4500mMD prior to attempting well interception and kill. Further modelling and relief well work has indicated the well could be intercepted at ~2600mMD. As such the total estimate stated in sections of this document relevant to relief well drilling, and also in the WOMP, is reduced to 48.9 days due to a substantial reduction in drilling timing.*

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<table>
<tr><td></td><td colspan="3">Marine Diesel Oil (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. The aromatic content of the oil is approximately 3%.</td><td></td></tr>
<tr><td>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 CS-01 and 200 replicate simulations were completed for CS-02 to test for trends and variations in the trajectory and weathering of the spilled oil, with an even number of replicates completed using samples of metocean data that commenced within each calendar quarter.</td><td>Section 2.2</td></tr>
<tr><td></td><td></td><td>CS-01: Hydrocarbon release – J85 Development well
75,453 m^3 of JULA04 Condensate over 63 days</td><td>CS-02: Hydrocarbon release – Vessel Collision
Instantaneous release of 2000 m^3 of MDO</td><td></td></tr>
<tr><td></td><td>Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m^2)</td><td>Barrow Island (day 12.9)</td><td>Montebello AMP (3 hours)</td><td></td></tr>
<tr><td></td><td>Minimum time to shoreline contact (above 100 g/m^2)</td><td>Montebello Islands (including the Marine Park and Hermite Island) (Day 28.1 – 11 m^3).</td><td>No contact at threshold</td><td></td></tr>
<tr><td></td><td>Largest volume ashore at any single Response Priority Area (RPA) (above 100 g/m^2)</td><td>Montebello Islands (including the Marine Park and Hermite Island) (11 m^3 – day 28.1).</td><td>No contact at threshold</td><td></td></tr>
<tr><td></td><td>Largest total shoreline accumulation (above 100 g/m^2) all shorelines</td><td>Barrow Island (7 m^3 – day 29.3)
Montebello Islands MP/Hermite Island (11 m^3 – day 28.1)
Total: 18 m^3</td><td>No contact at threshold</td><td></td></tr>
</table>

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	Minimum time to entrained/dissolved hydrocarbon contact with the offshore edges of any receptor polygon (at a threshold of 100 ppb)	Montebello AMP (day 2.5)	Montebello AMP (3 hours)	
Net Environmental Benefit Analysis	Operational monitoring, source control, protection and deflection, shoreline clean-up, oiled wildlife response, are all identified as potentially having a net environmental benefit (dependent on the actual spill scenario) and carried forward for further assessment.			Section 4
ALARP evaluation of selected response techniques	The evaluation of the selected response techniques shows the proposed controls reduced the risk to an ALARP and acceptable level for the risk presented in Section 2, without the implementation of considered additional, alternative or improved control measures.			Section 8 and 9

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1 INTRODUCTION

1.1 Overview

Woodside Energy (Julimar) Ltd (Woodside) has developed its oil spill preparedness and response position for the Julimar Development Phase 3 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 Julimar Development Phase 3 Drilling and Subsea Installation Environment Plan (EP)
- Oil Pollution Emergency Arrangements (OPEA) (Australia)
- The Julimar Development Phase 3 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.

The purpose of this document is to demonstrate that the risks and impacts from an unplanned hydrocarbon release and the associated response operations are controlled to As Low as Reasonably Practicable (ALARP) and acceptable levels.

1.3 Scope

This document demonstrates that the risks and impacts from an unplanned hydrocarbon release, and the associated response operations, are controlled to ALARP and acceptable levels. It achieves this by evaluating response options to address the potential environmental risks and impacts resulting from an unplanned loss of hydrocarbon containment associated with the PAP described in the 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. It should be read in conjunction with the documents listed in Table 1-1. The location of the PAP is shown in Figure 3-1 of the EP.

1.4 Oil spill response document overview

The documents outlined in Table 1-1 and Figure 1-1 are collectively used to manage the preparedness and response for a hydrocarbon release.

The Oil Pollution First Strike Plan (FSP) contains a pre-operational Net Environmental Benefit Analysis (NEBA) summary, 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.

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The process to develop an Incident Action Plan (IAP) begins once the Oil Pollution FSP is underway. The IAP includes inputs from the Operational Monitoring operations and the operational NEBA (Section 4). Planning, coordination and resource management are initiated by the 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 so that the response techniques implemented continue to result in a net environmental benefit (Section 4).

The response will continue as described in Section 5 until the response termination criteria have been met.

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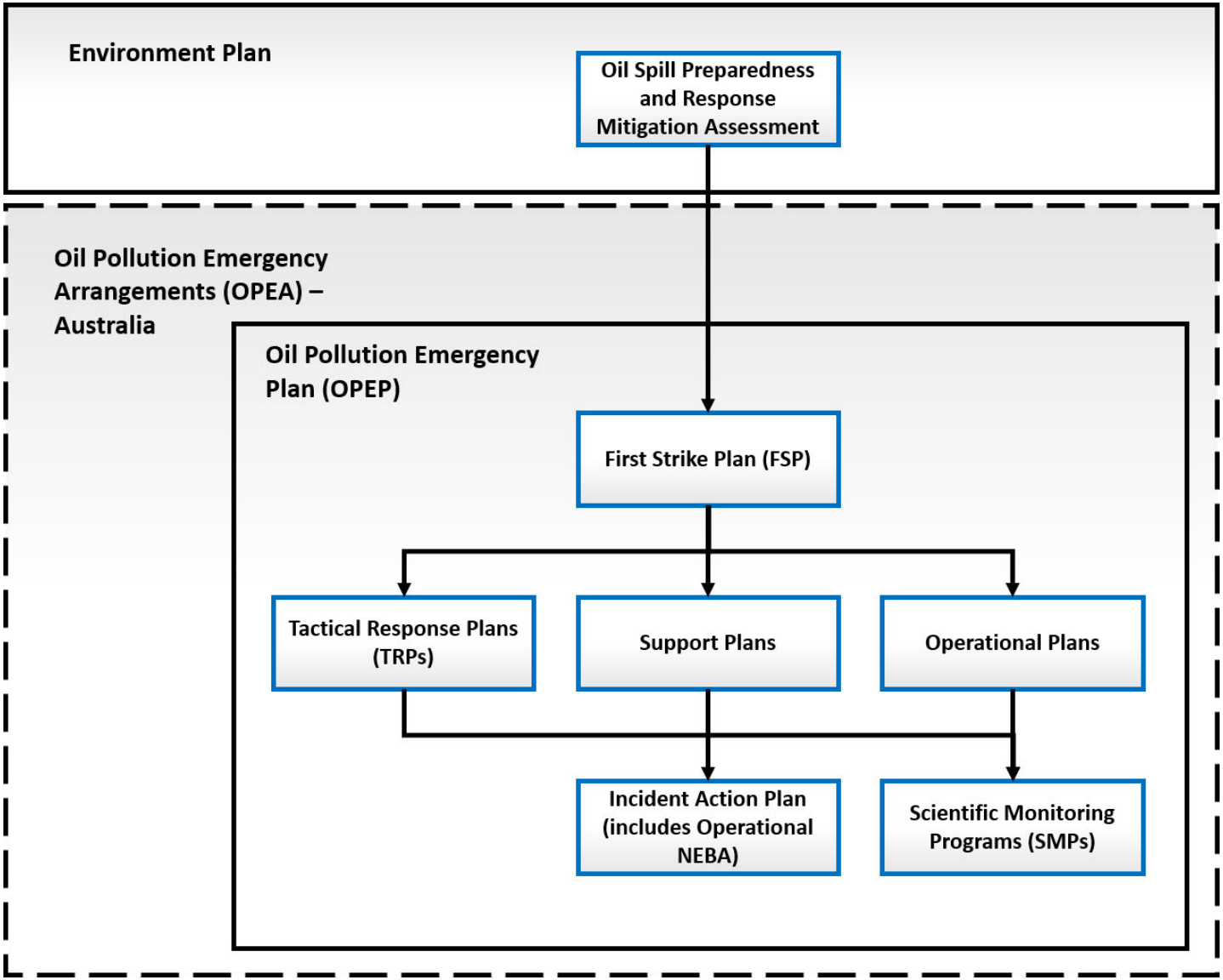

Figure 1-1: Woodside hydrocarbon spill document structure

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Table 1-1: Hydrocarbon Spill preparedness and response – document references

Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
Julimar Development Phase 3 Drilling and Subsea Installation Environment Plan (EP)	Demonstrates that potential adverse impacts on the environment associated with the Julimar Development Phase 3 Drilling and Subsea Installation (during both routine and non-routine operations) are mitigated and managed to As Low As Reasonably Practicable (ALARP) and will be of an acceptable level.	NOPSEMA Woodside internal	EP Section 6 (Identification and evaluation of environmental risks and impacts, including credible spill scenarios) EP Section 6 (Performance outcomes, standards and measurement criteria) EP Section 7 (Implementation strategy – including emergency preparedness and response, and Reporting and compliance)	
Oil Pollution Emergency Arrangements (OPEA) Australia	Describes the arrangements and processes adopted by Woodside when responding to a hydrocarbon spill from a petroleum activity.	Regulatory agencies Woodside internal	All	
Oil Spill Preparedness and Response Mitigation Assessment for the Julimar Development Phase 3 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.	
Julimar Development Phase 3 Drilling and Subsea Installation Oil Pollution First Strike Plan	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 Incident Action Plan (IAP) specific to the event is developed.	Site-based IMT for initial response, activation and notification. CIMT for initial response, activation and notification. CIMT: Control function in an ongoing spill response	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. Recommended pre-planned tactics.	

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Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
	Oil Pollution First Strike Plans are intended to be the first document used to provide immediate guidance to the responding Incident Management Team (IMT).	for activity-specific response information.	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 Section 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 Vessel Shipboard Oil Pollution Emergency Plan (SOPEP)
Tactical Response Plans	Provides options for response techniques in selected RPAs. Provides site, access and deployment information to support a response at the location.	CIMT: Planning Section to help develop IAPs, and Logistics Section to assist with determining resources required.	Indicative response techniques. Access requirements and/or permissions. Relevant information for undertaking a response at that site.	For full list of relevant Tactical Plans for the Julimar Development Phase 3 Drilling and Subsea Installation oil spill response, refer to **ANNEX E: Tactical Response Plans**.

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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 Sections.	Technique for mobilising and managing additional resources outside of Woodside's immediate preparedness arrangements.	Logistics Support Plan Aviation Support Plan Marine Support Plan Accommodation & Catering Plan – Australia Transport Management Plan – Australia Waste Management Plan – Australia Health and Safety Support Plan Hydrocarbon Spill Responder Health Monitoring Guidelines People and Global Capability (Surge Labour Requirements) Support Plan (Land Based) Security Support Plan Stakeholder Engagement Support Plan

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Document	Document overview	Stakeholders	Relevant information	Document subsections (if applicable)
				Guidance for Hydrocarbon Spill Claims Management Communications Support Plan – Australia

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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 Julimar Development Phase 3 Drilling and Subsea Installation First Strike Plan 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.

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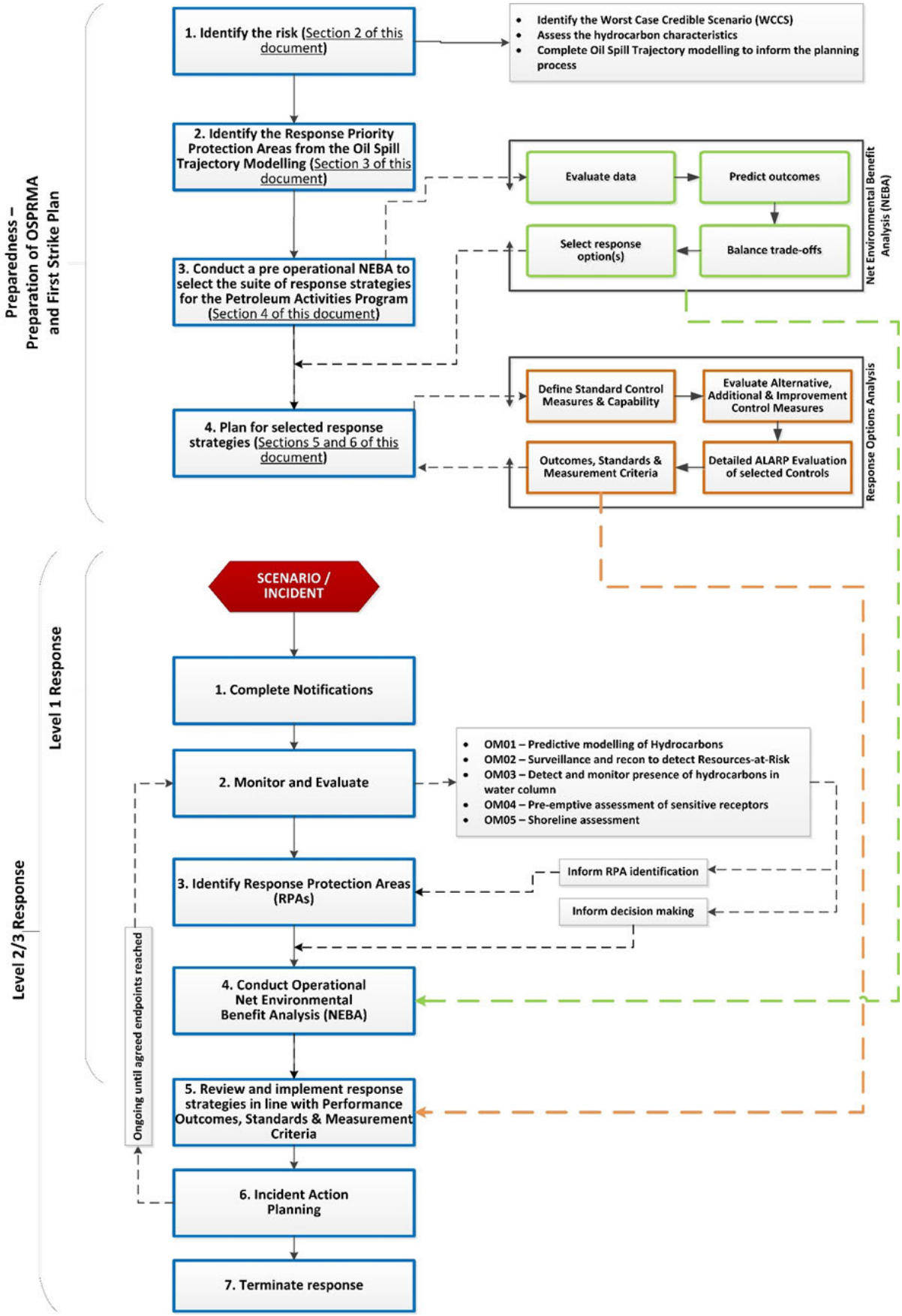

Figure 2-1: Response planning and selection process

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2.1 Response planning process outline

This document is expanded below to provide additional context on the key steps in determining capability, evaluating ALARP and hydrocarbon spill response requirements.

Section 1. INTRODUCTION

Section 2. RESPONSE PLANNING PROCESS

- identification of worst-case credible scenario(s) (WCCS)
- spill modelling for WCCS.

Section 3. IDENTIFY RESPONSE PROTECTION AREAS (RPAs)

- areas predicted to be contacted at concentration >100 g/m^2.

Section 4. NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)

- pre-operational NEBA (during planning/ ALARP evaluation): this must be reviewed during the initial response to an incident to 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 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

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2.1.1 Response Planning Assumptions

Figure 2-2 illustrates the initial steps of a response to an oil spill event and, where available, the indicative timing. For the latter stages, the timing will be specific to the selective response option.

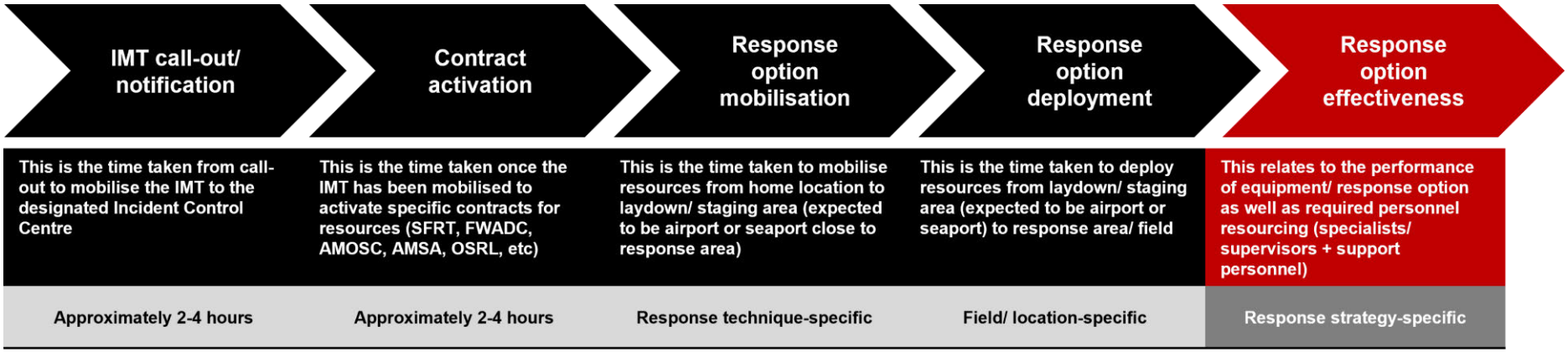

Figure 2-2: Response planning assumption – timing, resourcing and effectiveness

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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 Sections 6.8.2 and 6.8.3 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.

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Table 2-1 presents the credible scenarios for the PAP. The WCCS for the activity is then used for response planning purposes, as all other scenarios are of a lesser scale and extent. By demonstrating capability to manage the response to the WCCS, Woodside assumes other scenarios that are smaller in nature and scale can also be managed by the same capability. Response performance measures have been defined based on a response to the WCCS.

The unplanned hydrocarbon release – loss of well containment from J85 Development Well scenario (CS-01) has been modelled and is considered to determine the WCCS for response planning purposes as all other scenarios are of a lesser scale and extent. The hydrocarbon release caused by vessel collision (e.g. CS-02) is considered the worst case when responding to floating hydrocarbons, given the large volume released over a short period of time.

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Table 2-1: Petroleum Activities Program credible spill scenarios

Credible Spill Scenarios	Scenario selected for planning purposes	Scenario description	Maximum credible volume released (liquid m^3)[1]	Incident level	Hydrocarbon type	Residual proportion	Residual volume (m^3)
Credible Spill Scenario-01 (CS-01) (WCCS)	Yes	Unplanned hydrocarbon release – loss of well containment from J85 Development well over 63 days[2]	75,453 m^3	3	Julimar condensate (JULA-04)	6.5%	4904.4 m^3
Credible Spill Scenario-02 (CS-02)	Yes	Unplanned hydrocarbon release – vessel collision (instantaneous)	2000 m^3	3	MDO	5%	100 m^3
Credible Spill Scenario-03 (CS-03)	No	Unplanned hydrocarbon release – bunkering (instantaneous)	50 m^3	1	MDO	5%	2.5 m^3

[2] *The 63-day Drilling Time Estimate used for the spill modelling is based on drilling and setting the 9-5/8" Liner at a total depth of ~4500mMD prior to attempting well interception and kill. Further modelling and relief well work has indicated the well could be intercepted at ~2600mMD. As such the total estimate stated in sections of this document relevant to relief well drilling, and also in the WOMP, is reduced to 48.9 days due to a substantial reduction in drilling timing.*

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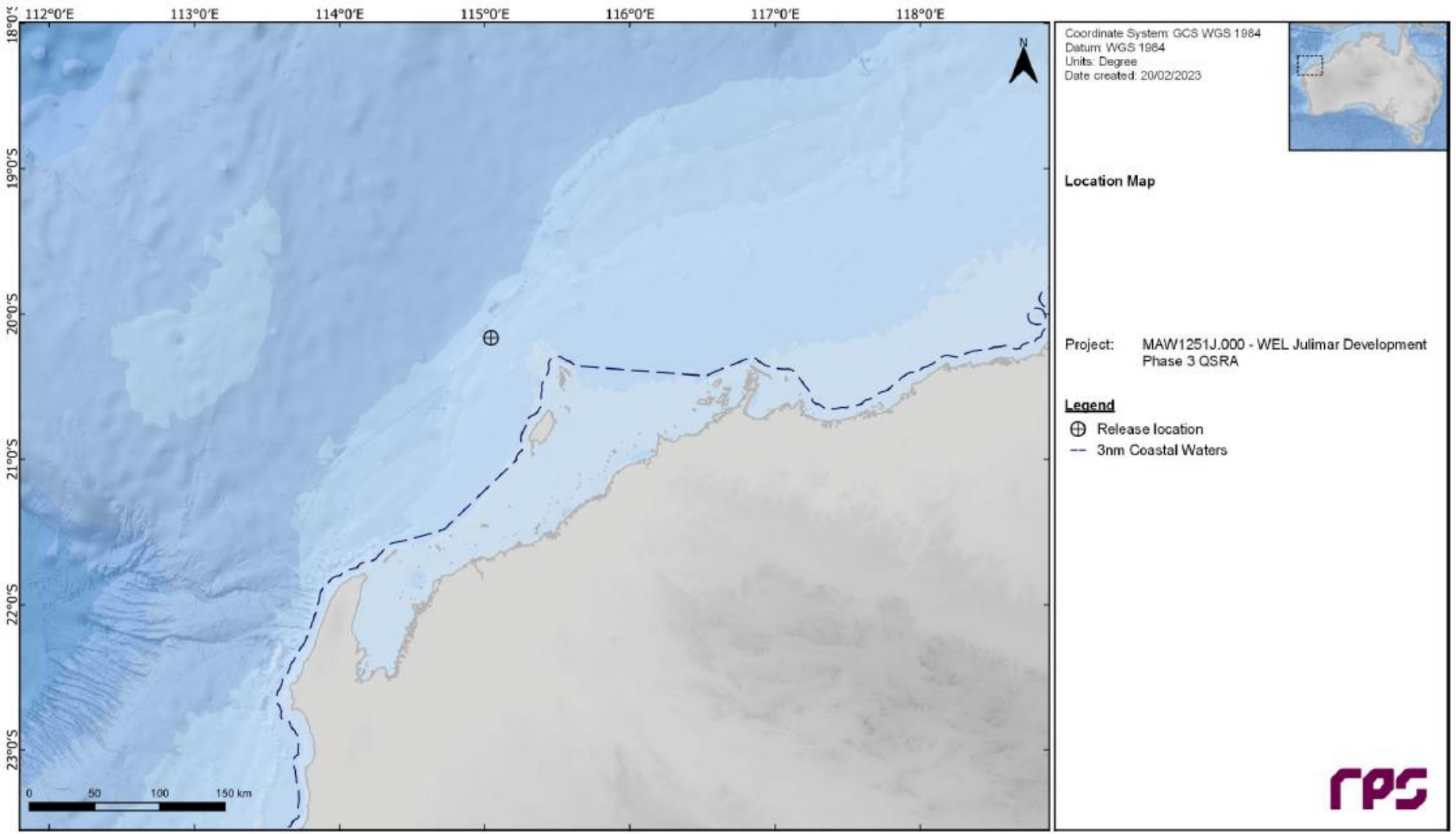

Figure 2-3: Location of Julimar Development Phase 3 Drilling and Subsea Installation PAP

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2.2.1 Hydrocarbon characteristics

Hydrocarbon characteristics, including modelled weathering data and ecotoxicity, are included in Section 6.8 of the EP.

JULA04 Condensate

JULA04 Condensate (API 45.7) contains a relatively high proportion (~6.5% by mass) of hydrocarbon compounds that will not evaporate at atmospheric temperatures. These compounds are expected to persist in the marine environment.

The unweathered mixture has a dynamic viscosity of 1.742 cP. The pour point of the whole oil (<380°C) ensures that it will remain in a liquid state over the annual temperature range observed on the North West Shelf. The mixture is composed of hydrocarbons that have a wide range of boiling points and volatilities at atmospheric temperatures, and which will begin to evaporate at different rates on exposure to the atmosphere. Evaporation rates will increase with temperature, but in general 43.6% of the oil mass should evaporate within the first 12 hours (BP < 180 °C); up to a further 22.9% could evaporate within the first 24 hours (180 °C < BP < 265 °C); and a further 27.1% should evaporate over several days (265 °C < BP < 380 °C).

Around 8.8% by mass is highly soluble and highly volatile. A further 11.1% 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 Oil

Marine Diesel Oil (MDO) is typically classed as an International Tanker Owners Federation (ITOPF) Group I/II oil. Group I oils are non-persistent and tend to dissipate completely through evaporation within a few hours and do not normally form emulsions.

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. 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

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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

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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.

Deterministic modelling is undertaken where initial stochastic modelling has indicated that floating oil is present at an impact threshold of >50 g/m^2 and/or where there is shoreline accumulations at an impact threshold of >100 g/m^2. Whilst the stochastic modelling for this PAP predicts some contact at the trigger threshold concentrations, this is limited in scale with a significant time period prior to contact. Deterministic modelling was therefore not required and stochastic modelling has been used to scale the response.

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.

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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 2-3: 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 vary over

[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.

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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).

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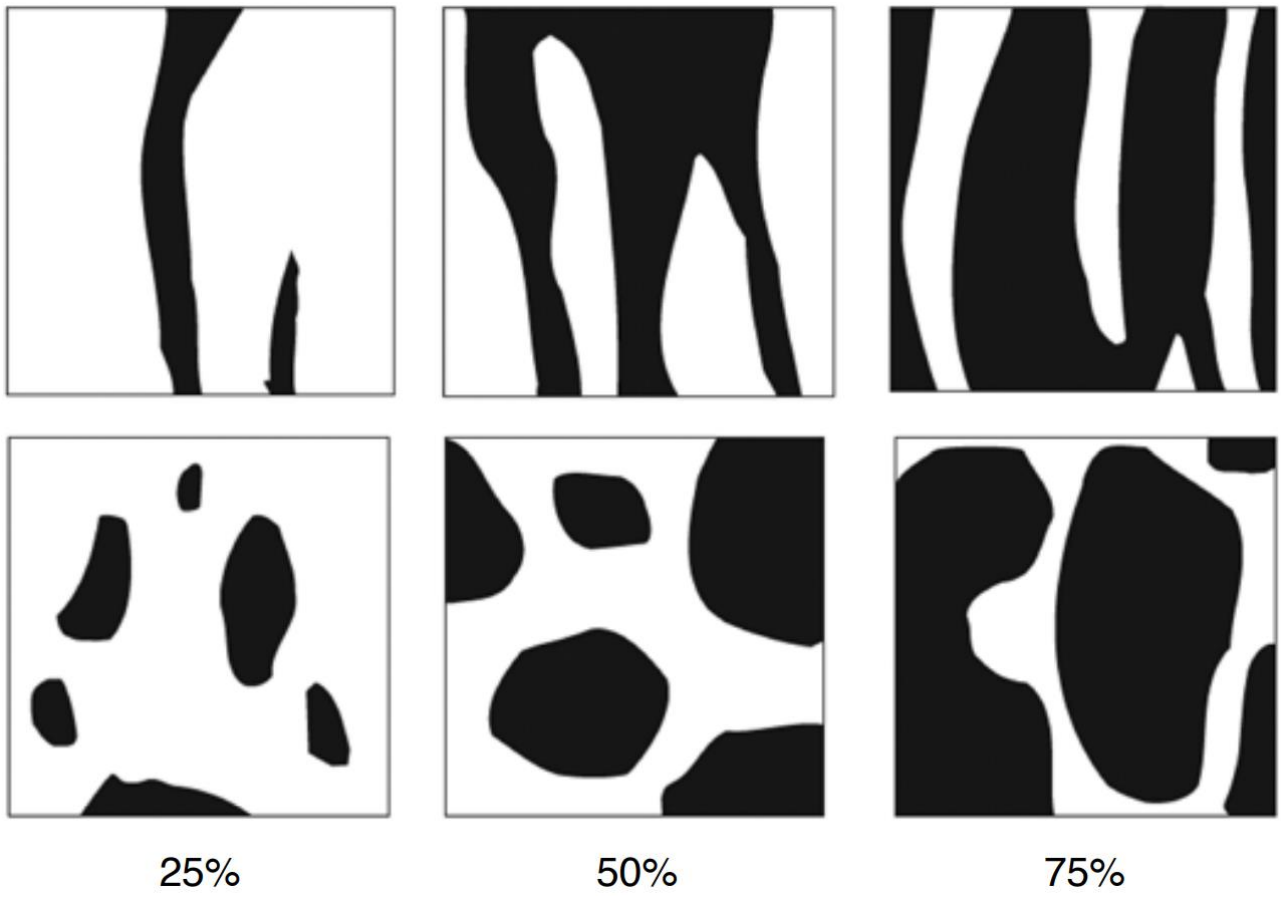

Figure 2-4: Proportion of total area coverage (AMSA, 2014)

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.

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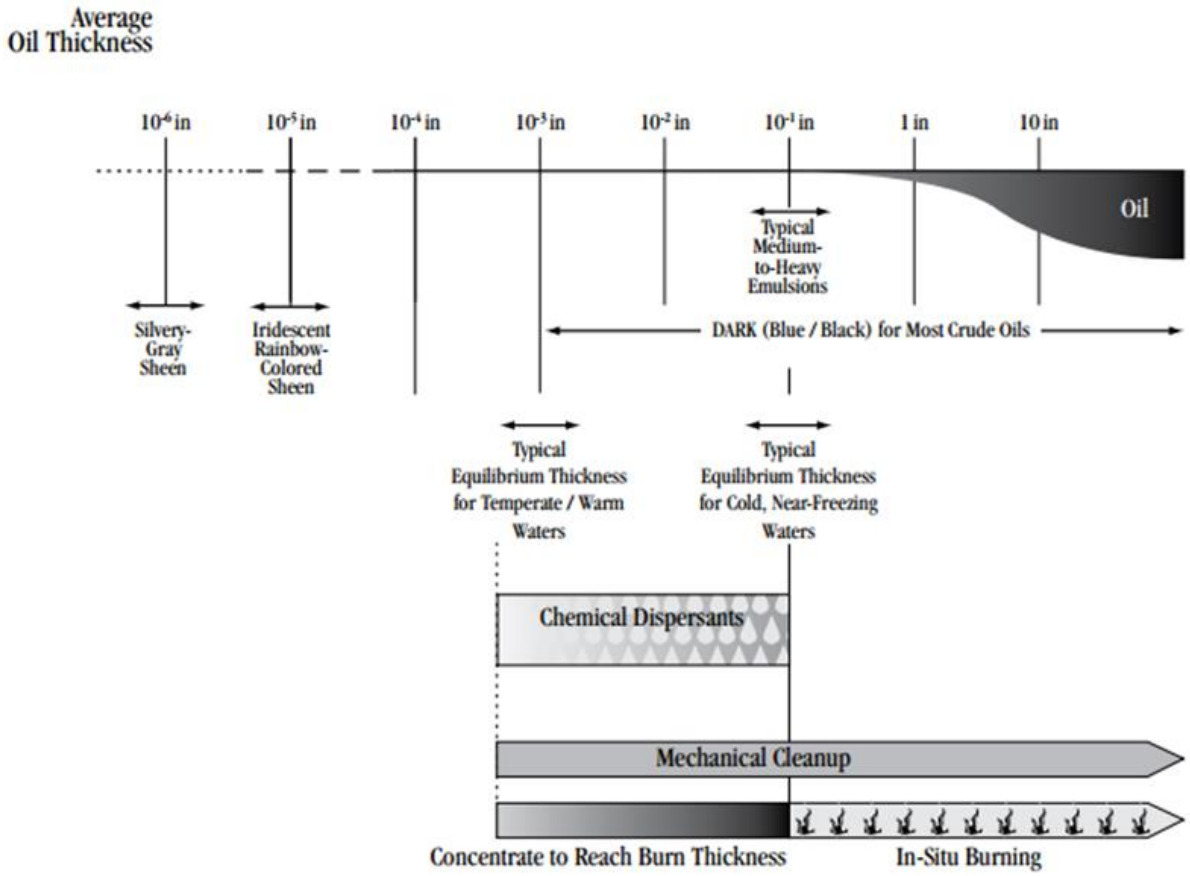

Figure 2-5: Oil thickness versus potential response options (from Allen & Dale 1996)

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.

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2.3.3.2 Surface hydrocarbon viscosity

Table 2-4: 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 2-5).

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2.3.4 Spill modelling results

Details of the scenario and modelling inputs are included along with stochastic results in Table 2-5.

The selected deterministic runs used to represent the WCCS are:

- Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a 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).

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Table 2-5: Worst case credible scenario modelling results

Scenario description	Results	
	Credible Scenario-01 (CS-01)	**Credible Scenario-02 (CS-02)**
WCCS – total volume released Refer to Section 2.1.1 for detailed hydrocarbon characteristics	Unplanned hydrocarbon release – loss of well containment from J85 Development Well (WCCS) over 63 days[5] Subsurface – 59,453 m^3 over 58 days Surface – 6000 m^3 over 5 days	A short-term (instantaneous) uncontrolled surface release of MDO Oil (MDO). Instantaneous release of 2000 m^3 of MDO
WCCS – residual volume remaining post-weathering	6.5 % residue or 4904.4 m^3 22 m^3 per day	5% residue or 100 m^3
Location	20° 09’ 52.289” S, 115° 02’ 35.331” E	20° 01’ 53” S, 115° 12’ 11” E
Stochastic modelling results		
Minimum time to floating hydrocarbon contact with the offshore edge(s) of any shoreline receptor polygon (at a concentration of 10 g/m^2)	Barrow Island (day 12.9)	Montebello AMP (3 hours)
Minimum time to commencement of hydrocarbon accumulation at any shoreline receptor (at a concentration of 100 g/m^2)	Montebello Islands (including the Marine Park and Hermite Island) (day 28.1 – 11 m^3).	*No contact at threshold*
Maximum cumulative hydrocarbon volume accumulated at any individual shoreline receptor (at a concentration of 100 g/m^2).	Montebello Islands (including the Marine Park and Hermite Island) (11 m^3 – day 28.1).	*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)	Barrow Island (7 m^3 – day 29.3) Montebello Islands (including the Marine Park and Hermite Island) (11 m^3 – day 28.1) Total: 18 m^3	*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)	Montebello Australian Marine Park (AMP) (2.5 days)	Montebello AMP (3 hours)
The full list of response protection areas (RPAs) predicted from modelling is available in Table 3-1		

[5] *The 63-day Drilling Time Estimate used for the spill modelling is based on drilling and setting the 9-5/8” Liner at a total depth of ~4500mMD prior to attempting well interception and kill. Further modelling and relief well work has indicated the well could be intercepted at ~2600mMD. As such the total estimate stated in sections of this document relevant to relief well drilling, and also in the WOMP, is reduced to 48.9 days due to a substantial reduction in drilling timing.*

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The stochastic modelling results for the WCCS results have been used as the basis for response planning and are included in Table 3-1.

Modelling predicts the following:

2.3.4.1 Julimar Development Phase 3 Drilling and Subsea Installation (CS-01)

- Floating oil at the 10 g/m^2 threshold is predicted at Montebello Marine Park (7.3 days).
- Fastest shoreline contact at 100 g/m^2 is at Montebello Islands (including the Marine Park and Hermite Island) (28.1 days).
- Montebello AMP is predicted to receive fastest entrained oil concentrations at the 100 ppb threshold after 2.5 days.
- Response operations cannot be implemented if the safety of response personnel cannot be guaranteed. Safety circumstances that limit the execution of this control measure include volatile concentrations of hydrocarbons in the atmosphere, high winds (>20 knots), waves and/or sea states (>1.5m waves) and high ambient temperatures.

2.3.4.2 Julimar Development Phase 3 Drilling and Subsea Installation (CS-02)

- Floating oil at the 10 g/m^2 threshold is predicted at Montebello AMP (3 hours).
- No shoreline receptors are predicted to be contacted by oil at response thresholds (>100 g/m^2). Shoreline contact at 10 g/m^2 is limited to Pilbara Islands – Southern Island Group (15 days).
- Montebello AMP is predicted to receive fastest entrained oil concentrations at the 100 ppb threshold after 3 hours.
- Spreading and weathering of the surface oil occurs rapidly due to the loss of light, volatile components and the spreading will reduce the effectiveness and available surface area for containment and recovery and surface dispersant operations as shown in the figures below.
- Response operations cannot be implemented if the safety of response personnel cannot be guaranteed. Safety circumstances that limit the execution of this control measure include volatile concentrations of hydrocarbons in the atmosphere, high winds (>20 knots), waves and/or sea states (>1.5m waves) and high ambient temperatures.

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3 IDENTIFY RESPONSE PROTECTION AREAS (RPAs)

In a response, operational monitoring programs – including trajectory modelling and vessel/aerial observations – would be used to predict RPAs that may be impacted. For the purposes of planning and appropriately scaling a response, modelling has been used to identify RPAs as outlined below in Figure 3-1.

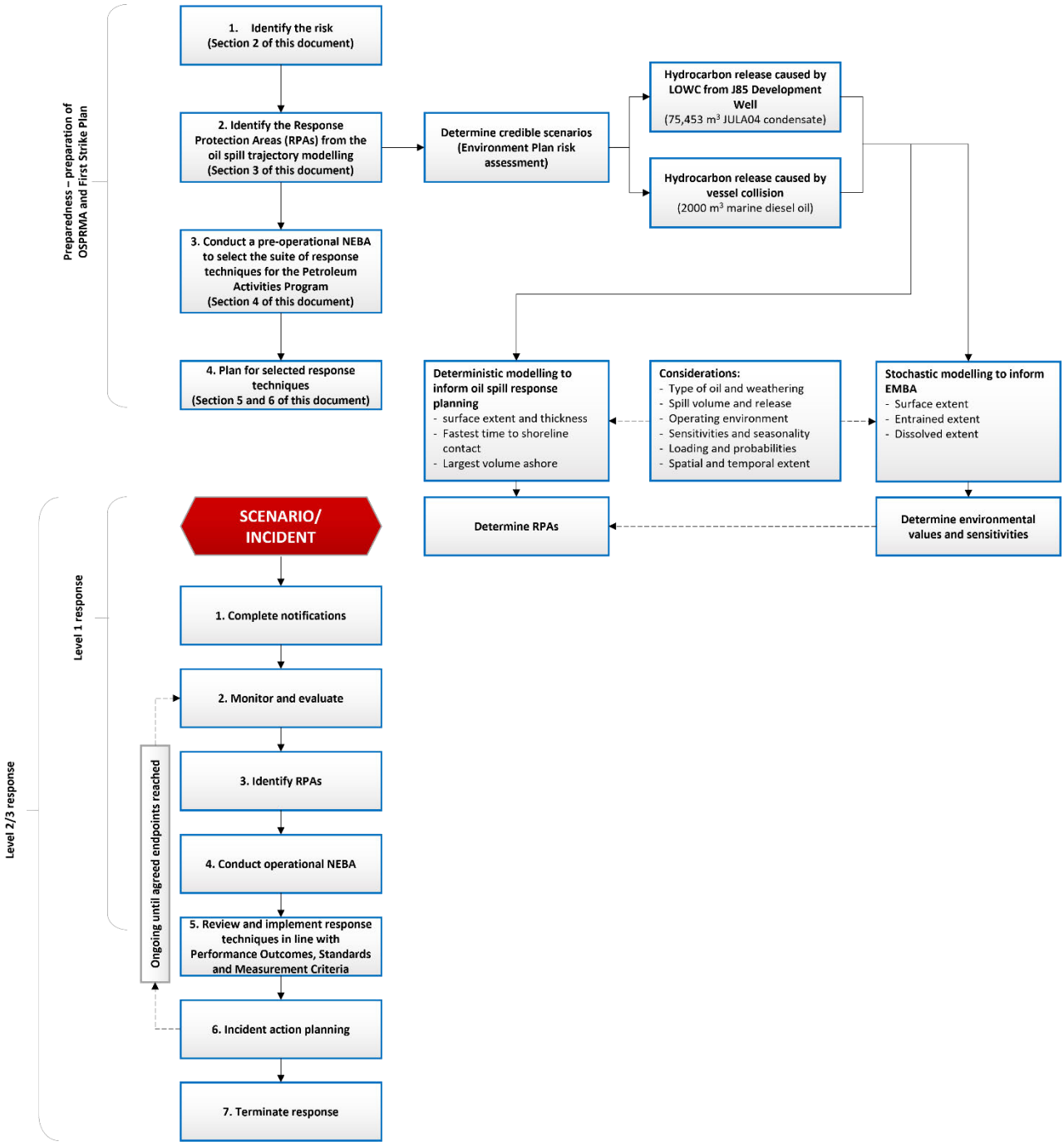

Figure 3-1: Identify Response Protection Areas (RPAs) flowchart

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3.1 Identified sensitive receptor locations

Section 4 of the EP includes the list of sensitive receptor locations that have been identified by stochastic modelling as meeting the requirements outlined below:

- receptors with the potential to incur surface, entrained or shoreline accumulation contact above environmental impact thresholds
- receptors within the EMBA which meet the following:
  - a number of priority protection criteria/categories
  - International Union of Conservation of Nature IUCN marine protected area categories
  - high conservation value habitat and species
  - important socio-economic/heritage value.

3.2 Identify Response Protection Areas (RPAs)

RPAs have been selected 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 worst case credible scenario (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) have been selected for response planning purposes. While not discounting other sensitivities, these RPAs have been used as the basis for demonstrating the capability to respond to the nature and scale of a spill from the WCCS and prioritising response techniques.

Table 3-1 outlines locations which were identified from the modelling runs for the WCCS but does not constitute the full list of Priority Protection Areas (PPAs) potentially contacted from stochastic modelling (as per Environment that May Be Affected (EMBA) definition) (see Section 4 of the EP). Other PPA 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 so that 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.

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Table 3-1: Response Protection Areas (RPAs) from stochastic modelling

Response protection area	Conservation status	IUCN protection category	Minimum time to shoreline contact (above 100 g/m^2) in days [6]	Maximum shoreline accumulation (above 100 g/m^2) in m^3 [7]	Minimum time to shoreline contact (above 100 g/m^2) in days [8]	Maximum shoreline accumulation (above 100 g/m^2) in m^3 [9]
			CS-01		CS-02	
Barrow Island	Barrow Island Marine Park Barrow Island Marine Management Area Class A Nature Reserve	IUCN IA – Strict Nature Reserve IUCN VI – Multiple Use Zone IUCN IV – Recreational Use Zone	Day 29.3 (7 m^3)	7 m^3 (day 29.3)	*No contact at threshold.*	*No contact at threshold.*
Montebello Islands (including the Marine Park and Hermite Island)	State Marine Park Australian Marine Park	IUCN IA – Strict Nature Reserve IUCN VI – Multiple Use Zone IUCN II and IV – Recreational Use Zone IUCN II – Marine National Park Zone	Day 28.1 (11 m^3)	11 m^3 (day 28.1)	*No contact at threshold.*	*No contact at threshold.*

[6] This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24 hour period.
[7] This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24 hour time period
[8] This volume and time represent the first time to contact on defined shoreline polygon and the maximum volume ashore for that 24 hour period.
[9] This volume and time represent the maximum volume ashore on defined shoreline polygon for any 24 hour time period

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4 NET ENVIRONMENTAL BENEFIT ANALYSIS (NEBA)

A Net Environmental Benefit Analysis (NEBA) is a structured process to consider which response techniques are likely to provide the greatest net environmental benefit.

The NEBA process typically involves four key steps outlined in Figure 4-1: evaluate data, predict outcomes, balance trade-offs, and select response options. These steps are followed in the planning/preparedness process and would also be followed in a response.

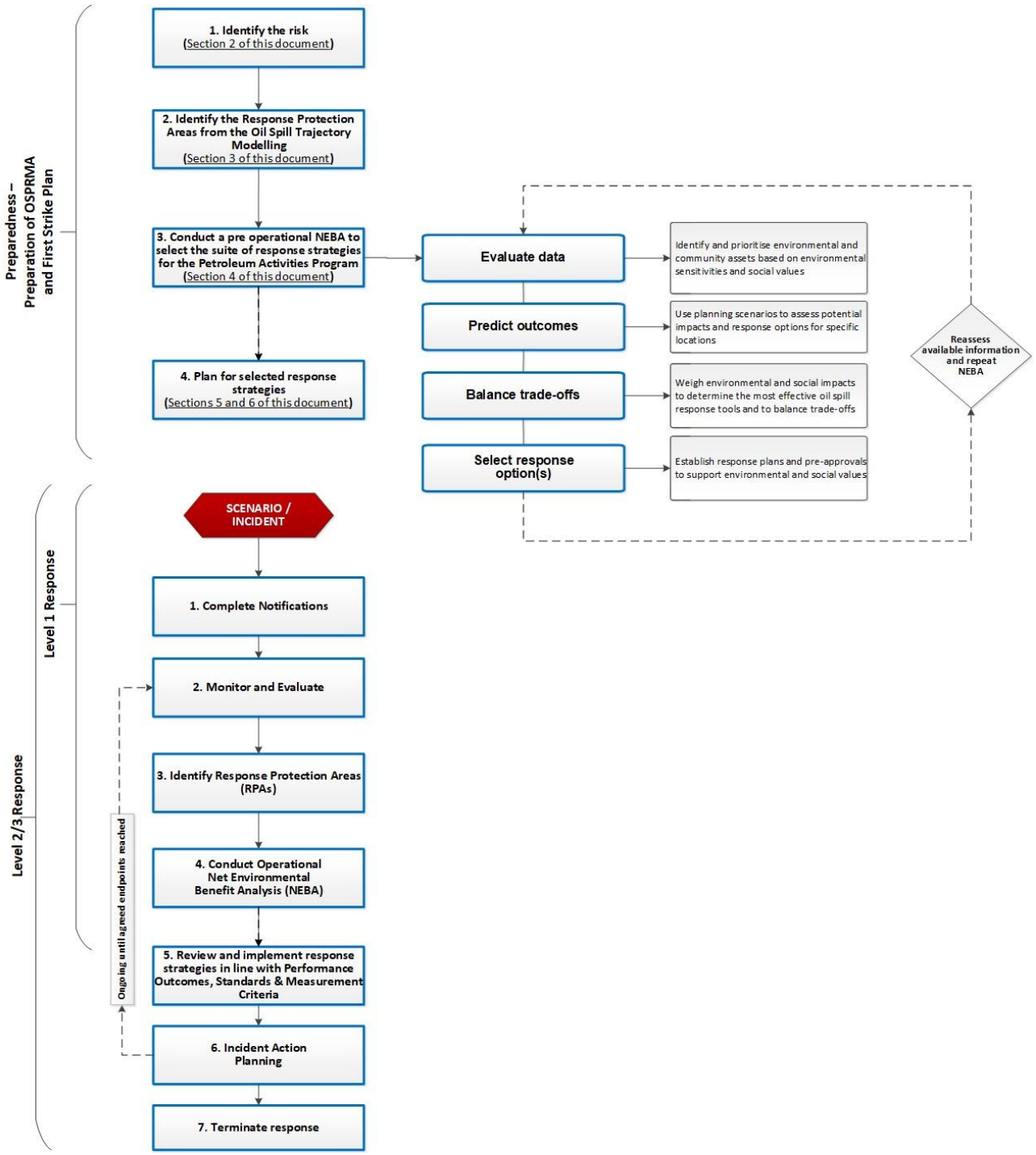

Figure 4-1: Net Environmental Benefit Analysis (NEBA) flowchart

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4.1 Pre-operational / Strategic NEBA

The pre-operational NEBA identifies positive and negative impacts to sensitive receptors from implementing the response techniques. Feasibility is considered by assessing the receptors potentially impacted above response thresholds and the surface concentrations (**Table 2-5** and **Table 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 2-5** 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. The NEBA can be found in **ANNEX A: Net Environmental Benefit Analysis detailed outcomes**.

4.5 Stage 4: Select Best Response Options

To select the response technique, all the other stages in the NEBA process are considered and used to establish response plans and any pre-approvals to support protection of identified environmental and social values.

The response techniques implemented may vary according to a particular spill. The hydrocarbon type released and the sensitivities of the receptors (both ecological and socio-economic) may influence the response. The pre-operational NEBA broadly evaluates each response technique and supports decisions on whether they are feasible and of net environmental benefit. Response techniques that are not feasible or beneficial are rejected at this stage and not progressed to planning.

Further risks and impacts from implementing these selected response options are outlined in Section.

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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
  - containment dome
  - relief well drilling
- Source control via vessel SOPEP
- Subsea dispersant injection
- Surface dispersant application:
  - aerial dispersant application
  - vessel dispersant application
- Mechanical dispersion
- In-situ burning
- Containment and recovery
- Shoreline protection and deflection:
  - protection
  - deflection
- Shoreline clean-up:
  - Phase 1 – mechanical clean-up
  - Phase 2 – manual clean-up
  - Phase 3 – final polishing
- In-situ burning
- Oiled wildlife response (including hazing)
- Waste management
- Post spill/ scientific monitoring

Table 4-1 and Table 4-2 include scenario-specific assessments of feasible response options and justification for the exclusion of inappropriate options. These options are evaluated against the scenario parameters including oil type, volume, characteristics, prevailing weather conditions, logistical support, and resource availability to determine deployment feasibility.

A shortlist of the feasible response options is then carried forward for the ALARP assessment. This assessment will typically result in a range of available options, that are deployed at different areas (at-source, offshore, nearshore and onshore) and different times during the response. The NEBA process assists in prioritising which options to use where and when, and timings throughout the response.

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Table 4-1: Response technique evaluation – loss of well containment

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: JULA04 Condensate				
Operational Monitoring	Will be effective in tracking the location of the spill, informing when it has entered State Waters, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include: • 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 JULA04 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 using ROV and hotstab	Controlling a loss of well containment at source via BOP intervention would be the most effective way to limit the quantity of hydrocarbon entering the marine environment.	In the event of the worst-case scenario with a loss of well containment during drilling operations, ROV operations to locally operate the BOP would be attempted.	Yes	The use of source control intervention via ROV may be feasible (depending on local concentration of atmospheric volatiles) and would reduce quantity of hydrocarbons entering the marine environment.
Source control via 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 a project specific source control emergency response plan (SCERP) for the Julimar Development Phase 3 Drilling and Subsea Installation PAP. Capping the J85 Development Well is considered feasible if the plume size is less than a ~25 m radius. 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 48.9 days[10]. Relief well drilling is one of the primary options to stop the release.	For a spill from the J85 Development 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 the main technique employed to control a loss of well containment event.

[10] *The 63-day Drilling Time Estimate used for the spill modelling is based on drilling and setting the 9-5/8" Liner at a total depth of ~4500mMD prior to attempting well interception and kill. Further modelling and relief well work has indicated the well could be intercepted at ~2600mMD. As such the total estimate stated in sections of this document relevant to relief well drilling, and also in the WOMP, is reduced to 48.9 days due to a substantial reduction in drilling timing.*

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Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Subsea dispersant application	Application of subsea dispersant may reduce the scale and extent of hydrocarbons reaching the surface and thus may reduce spill volumes contacting predicted RPAs. 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.	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 stochastic modelling analysis, it is predicted that there will be very spatially and temporally limited floating oil at offshore response thresholds (>50 g/m^2) which is not predicted to contact any RPA. Shoreline accumulation above 100 g/m^2 threshold would occur at only two RPAs. The minimum time to contact above 100 g/m^2 is ~28 days (Montebello Islands (including the State Marine Park and Hermite Island) with a maximum accumulated volume of 11 m^3. The use of SSDI would not be required in order to deploy a capping stack and unnecessary use of SSDI would increase the complexity of SIMOPS operations around the wellhead. Given the preceding information, the use of SSDI is considered unwarranted and would not provide net environmental or safety benefits.	No	There is very limited surface hydrocarbons and shoreline exposure at response thresholds predicted at RPAs, and the use of SSDI is not required in order to facilitate access to the wellhead. The application of subsea dispersant would therefore not provide an environmental or safety benefit. Its use could therefore 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, 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. Based on the stochastic modelling analysis, it is predicted that there will be very spatially and temporally limited floating oil at response thresholds (>50 g/m^2) required for effective surface dispersant. No contact at this threshold is predicted to contact any RPA. The volatile nature of JULA04 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	Based on the stochastic modelling analysis, it is predicted that there will be very spatially and temporally limited floating oil at response thresholds (>50 g/m^2) required for effective surface dispersant. No contact at this threshold is predicted to contact any RPA. The application of surface dispersant would therefore unnecessarily introduce additional chemical substances to the marine environment and further increase exposure of subsea ecosystems to entrained hydrocarbons. This response technique is therefore deemed unsuitable for this activity as it would not provide a net environmental benefit.
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	Based on the stochastic modelling analysis, it is predicted that there will be very spatially and temporally limited floating oil at response thresholds (>50 g/m^2) required for effective containment and recovery. No contact at this threshold is predicted to contact any RPA. The volatile nature of JULA04 condensate is also likely to lead to unsafe conditions near release location.	No	Containment and recovery would be an ineffective response technique as it requires a hydrocarbon thickness of BAOAC 4-5 with a 50-100% coverage of 100-200 g/m^2.

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Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
	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.			Based on the stochastic modelling analysis, it is predicted that there will be very spatially and temporally limited floating oil at response thresholds (>50 g/m^2) required for effective containment and recovery. No contact at this threshold is predicted to contact any RPA. This response technique is therefore inappropriate.
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, stochastic modelling predicts first shoreline accumulation from floating surface hydrocarbon will occur on Day 28, 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, modelling predicts first shoreline accumulation above 100 g/m^2 will occur on Day 28 allowing adequate time to deploy this technique. Can reduce or prevent impact on sensitive receptors in most cases. Must verify, 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	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 that 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 for the safety of response personnel.	Yes	This technique may prevent impact to and/or treat oiled wildlife providing net environmental benefit.

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Table 4-2: Response technique evaluation – vessel collision

Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
Hydrocarbon: MDO				
Operational Monitoring	Will be effective in tracking the location of the spill, predicting potential impacts and triggering further monitoring and response techniques as required. Monitoring techniques include: • 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 MDO 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 the Montebello Marine Park, this technique is not suitable for MDO spills as this hydrocarbon is prone to rapid spreading and evaporation. Dispersant is not considered effective when applied on thin surface films such as MDO as the dispersant droplets tend to pass through the surface films without binding to the hydrocarbon resulting in the unnecessary addition of chemicals to the marine environment. 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 MDO 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.

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Response Technique	Effectiveness	Feasibility	Decision	Rationale for the decision
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 MDO is unfeasible as the minimum slick thickness cannot be attained due to rapid spreading. 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.	No	Diesel characteristics are not appropriate for the use of in-situ burning and would unnecessarily cause an increase the release of atmospheric pollutants.
Containment and recovery	Containment and recovery has an effective recovery rate of 5-10% when a hydrocarbon encounter rate of 25-50% is achieved at BAOAC 4 and 5 with a 50-100% coverage of 100 g/m^2 to 200 g/m^2.	Whilst modelling predicts that floating oil will reach the minimum feasible threshold at which to commence containment and recovery (50 g/m^2) within the 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 MDO 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 MDO. 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 MDO 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 MDO 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/m2.	A MDO 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 MDO 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 MDO 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 for 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 that 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.

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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 Pollution Risk Management Guidance Note N-04750-GN1488* (2021) and is set out in the 'Woodside Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) Guidelines'.

From the identified response planning need and pre-operational NEBA/SIMA, Woodside conducts a structured, semi-quantitative hydrocarbon spill process which has the following steps:

1. considers the Response Planning Need identified in terms of surface area (km^2) and available surface hydrocarbon volumes (m^3) against existing Woodside capability
2. considers alternative, additional, and improved options for each response technique/control measure by providing an initial and, if required, detailed evaluation of:
    - predicted cost associated with adopting the control measure
    - predicted change/environmental benefit
    - predicted effectiveness/feasibility of the control measure.
3. evaluates the risks and impacts of implementing the proposed response techniques, and any further control measures with associated environmental performance to manage these additional risks and impacts.

Woodside considers the risks and impacts from a hydrocarbon spill to have been reduced to ALARP when:

1. a structured process for identifying and considering alternative, additional, and improved options has been completed for each selected response technique
2. the analysis of alternate, additional, and improved control measures meets one of the following criteria:
    - all identified, reasonably practicable control measures have been adopted; or
    - no identified reasonably practicable additional, alternative and/or improved control measures would provide further overall increased proportionate environmental benefit; or
    - no reasonably practical additional, alternative, and/or improved control measures have been identified.
3. where an alternative, additional and/or improved control measure is adopted, a measurable level of environmental performance has been assigned
4. higher order impacts/ risks have received more comprehensive alternative, additional, and improved control measure evaluations and do not just compare the cost of the adopted control measures to the costs of an extreme or 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:

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- 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.

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5.1 Operational Monitoring

Operational Monitoring includes the gathering and evaluation of data to inform the oil spill response planning and operations. It includes fate and trajectory modelling, spill tracking, weather updates and field observations. This response option is deployed in some capacity for every event.

The table below provides the operations monitoring plans that support the successful execution of this response technique.

Table 5-1: Description of supporting operational monitoring plans

ID	Title
OM01	Predictive modelling of hydrocarbons to assess resources at risk
OM02	Surveillance and reconnaissance to detect hydrocarbons and resources at risk
OM03	Monitoring of hydrocarbon presence, properties, behaviour and weathering in water
OM04	Pre-emptive assessment of sensitive receptors at risk
OM05	Shoreline assessment

Woodside maintains an *Operational Monitoring Operational Plan*. If shoreline contact is predicted, Response Protection Areas (RPAs) will be identified and assessed before contact. If shorelines are contacted, a shoreline assessment survey will be completed to guide effective shoreline clean-up operations. This plan includes the process for the IMT to mobilise resources depending on the nature and scale of the spill.

The proximity of Exmouth and Karratha to the spill event location means that multiple logistical options are available to monitor the spill in relatively short timeframes. The primary mobilisation base for initial monitoring activities would be Karratha. However, in the unlikely event of an extended spill with potential to impact receptors further afield, monitoring activities may also be mobilised from Exmouth or Onslow.

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:

- Floating surface oil in sufficient concentrations for effective operational monitoring is expected to be JULA04 condensate with surface concentrations of 50 g/m^2 up to ~10 km from the well location for the CS-01 release.
- The shortest timeframe that shoreline contact from floating oil is predicted is 28.1 days (CS-01).
- The time to contact for oil at concentrations of entrained hydrocarbons greater than 100 ppb at shoreline receptors is 2.5 days (CS-01) or 3 hours (CS-02) at Montebello Marine Park.
- 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 Sections. These should be reviewed and updated regularly.
- The duration of the spill may extend up to 63 days (CS-01) with response operations extending to Month 2 based on the predicted time to complete shoreline clean-up operations.

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5.1.2 Environmental performance based on need

Table 5-2: Environmental Performance – Operational Monitoring

Environmental Performance Outcome		To gather information from multiple sources to establish an accurate common operating picture as soon as possible and predict the fate and behaviour of the spill to validate planning assumptions and adjust response plans as appropriate to the scenario.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
1	Oil spill trajectory modelling	1.1	Initial modelling available within 6 hours using the Rapid Assessment Tool	1, 3B, 3C, 4
		1.2	Detailed modelling available within 4 hours of RPS Response 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 Operational Monitoring techniques.	1, 3B, 4
3	Satellite imagery	3.1	Contract in place with 3rd party provider to enable access and analysis of satellite imagery. Imagery source/type requested on activation of service.	1, 3C, 4
		3.2	3rd party provider will confirm availability of an initial acquisition within 2 hours	1, 3B, 3C, 4
		3.3	First image received with 24 hours of Woodside confirming to 3rd party provider its acceptance of the proposed acquisition plan.	1
		3.4	3rd party provider to submit report to Woodside per image. Report is to include a polygon of any possible or identified slick(s) with metadata.	1
		3.5	Data received to be uploaded into Woodside COP daily to improve accuracy of other Operational Monitoring techniques.	1, 3B, 4
		3.6	Satellite Imagery services available and employed during response	1, 3C, 4
4	Aerial surveillance	4.1	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 two sorties per day, available for the duration of the response from day 1	1, 3C, 4
		4.3	Observer to compile report during flight as per First Strike Plan. Observers report available to the IMT within 2 hours of landing after each sortie.	1, 2, 3B, 4

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Environmental Performance Outcome		To gather information from multiple sources to establish an accurate common operating picture as soon as possible and predict the fate and behaviour of the spill to validate planning assumptions and adjust response plans as appropriate to the scenario.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
		4.4	Unmanned Aerial Vehicles/Systems (UAV/UASs) to support SCAT, containment and recovery and surface dispersal and pre-emptive assessments as contingency if required.	1, 2
5	Hydrocarbon detections in water	5.1	Activate 3rd party service provider as per first strike plan. Deploy resources within 3 days: • 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.	
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 Operational Monitoring activities up to and including the identified WCCS. This is demonstrated by the following:

- Woodside has a documented, structured and tested capability for Operational Monitoring operations including internal trajectory modelling capabilities, tracking buoys located offshore and contracted aerial observation platforms with access to trained observers.
- Woodside and its third-party service providers ensure there is sufficient capability for the duration of the response.

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- 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.

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5.2 Source control and well intervention

The worst-case credible scenario for a loss of well control, is considered to be major damage to, or complete loss of, the Xmas tree from a producing well. This scenario would result in an uncontrolled flow from the well as outlined in the EP. In the event of a complete break or separation of the tree, the primary response would be relief well drilling.

Woodside is a signatory to a MoU between Australian offshore operators to provide mutual aid to facilitate and expedite mobilising a MODU and drilling a relief well, if a LOWC incident were to occur. The MoU commits the signatories to share rigs, equipment, personnel and services to assist another operator in need.

5.2.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which a response need can be based:

- Prior to any source control activities, Woodside will implement protocols so that the site is safe including subsea ROV surveys and surface air monitoring.
- Hydrocarbons will flow from the well until one of the following interventions can be made:
  - a 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 48.9 days[11]
- Arrangements for support organisations who provide specialist services or resources should be tested regularly.
- Plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.
- The duration of the spill may extend up to 63 days with response operations extending to Month 2-3 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 primary source control option would be ROV intervention followed by relief well drilling for the Julimar Development Phase 3 Drilling and Subsea Installation wells. Capping stack may be viable where a loss of well containment occurs with a plume radius is ~25 m. The following approaches outline Woodside's hierarchy for relief well drilling; • Primary – Review internal drilling programs and MODU availability to source an appropriate rig operating within Australia with an approved Safety Case;

[11] *The 63-day Drilling Time Estimate used for the spill modelling is based on drilling and setting the 9-5/8" Liner at a total depth of ~4500mMD prior to attempting well interception and kill. Further modelling and relief well work has indicated the well could be intercepted at ~2600mMD. As such the total estimate stated in sections of this document relevant to relief well drilling, and also in the WOMP, is reduced to 48.9 days due to a substantial reduction in drilling timing.*

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	• Alternate – Source and contract a MODU through APPEA MOU that is operating within Australia with an approved Safety Case; • Contingency – Source and contract a MODU outside Australia with an approved Australian Safety Case

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

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Environmental Performance Outcome		To stop the flow of hydrocarbons into the marine environment		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
		9.9	First well kill attempt completed within 48.9 days[12]	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	Monthly monitoring of the availability of MODUs through existing market intelligence including current Safety Case history, to meet specifications for relief well drilling. Titleholders of suitable MODUs notified.	3C
		9.12	Prior to entering the reservoir, reconfirm that pre-identified/screened MODU(s) remain available for relief well drilling and engage titleholder.	1, 3C
10	Support vessels	10.1	Monthly monitoring of the availability of larger vessels through existing Frame Agreements and market intelligence to meet specifications for source control.	3C
		10.2	Frame agreements for installation support vessels (ISVs) require vessels to maintain in-force safety case approvals covering ROV operations and provide support in the event of an emergency.	1, 3B, 3C
		10.3	MODU and vessel contracts include clause outlining requirement for support in the event of an emergency.	1, 3C
11	Safety Case	11.1	Woodside will prioritise MODU or vessel(s) for intervention work(s) that have an existing safety case	1, 3C
		11.2	Woodside Planning, Logistics, and Safety Officers (on roster/Call 24/7) to assist in expediting the safety case assessment process as far as practicable.	1, 3C
		11.3	Woodside will maintain minimum safe operating standards that can be provided to MODU and vessel operators for Safety Case guidance.	1, 3C
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 relief well drilling operations to stop the well flowing.

- The health and safety, financial, capital and operations/maintenance costs of implementing the alternative, additional or improved control measures identified and not carried forward

[12] *The 63-day Drilling Time Estimate used for the spill modelling is based on drilling and setting the 9-5/8" Liner at a total depth of ~4500mMD prior to attempting well interception and kill. Further modelling and relief well work has indicated the well could be intercepted at ~2600mMD. As such the total estimate stated in sections of this document relevant to relief well drilling, and also in the WOMP, is reduced to 48.9 days due to a substantial reduction in drilling timing.*

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are considered grossly disproportionate to the insignificant environmental benefit gained and/or not reasonably practicable for this PAP.

- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.2.

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5.3 Source Control via Vessel SOPEP

Vessel source control will be conducted, where feasible and in accordance with MARPOL 73/78 Annex I, by the Vessel Master under the Shipboard Oil Pollution Emergency Plan (SOPEP) triggered by any loss of containment from the PAP vessels.

The SOPEP provides guidance to the Master and Officers on board the vessel with respect to the extra steps to be taken when an unexpected pollution incident has occurred or is likely to occur. The SOPEP contains all information and operational instructions required by IMO Resolution MEPC.54 (32) adopted on 6 March 1992, as amended by resolution MEPC.86 (44) adopted on 13 March 2000.

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 a 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 6.8 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 that sufficient resources are available and are adequately tested to ensure implementation of the SOPEP in the event of a hydrocarbon spill.

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5.4 Shoreline Protection and Deflection

The placement of containment, protection or deflection booms on and near a shoreline is a response technique to reduce the potential volume of hydrocarbons contacting or spreading along shorelines, which may reduce the scale of shoreline clean-up. Hydrocarbons contained by the booms would be collected where practicable.

Shorelines would be protected where accessible via vessel or shore. Where hydrocarbon contact has already occurred, there may still be value in deploying protection equipment to limit further accumulations and preventing remobilisation of stranded hydrocarbons.

Shoreline protection and deflection equipment would be mobilised to selected locations, where the following conditions were met:

- Sea-states and hydrocarbon characteristics are safe to deploy protection and deflection measures,
- Oil trajectory has been identified as heading towards identified RPAs.

5.4.1 Response need based on predicted consequence parameters

The following statements identify the key parameters upon which the response need can be based:

- 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).
- The shortest timeframe that shoreline contact from floating oil above threshold (100g/m^2) is predicted to be 28 days (CS-01) at Montebello Islands (including the State Marine Park and Hermite Island) (11 m^3).
- Pre-emptive assessment and shoreline assessments (OM04 and OM05) will be mobilised prior to shoreline contact at 100 g/m^2, which occurs on day 28.1 at Montebello Islands (including Marine Park and Hermite Island) (11 m^3) with concentrations also exceeding 100 g/m^2 on day 29.3 at Barrow Island (7 m^3).
- The duration of the spill may be up to 63 days with shoreline response operations extending to Month 2-3 based on the predicted time to complete shoreline clean-up operations.
- Arrangements for support organisations who provide specialist services (trained personnel, protection and deflection equipment) and/or resources and should be tested regularly.
- Tactical Response Plans (TRPs) for Response Protection Areas (RPAs) along with other relevant plans, procedures and support documents need to be in place for Operational and Support functions. These should be reviewed and updated regularly.

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.

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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	• One 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 Tactical Response Plan implemented (where available).

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5.4.2 Environmental performance based on need

Table 5-6: Environmental Performance – Shoreline protection and deflection

Environmental Performance Outcome		To stop hydrocarbons encountering particularly sensitive areas		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
12	Response teams	12.1	In liaison with WA DoT (for Level 2/3 incidents), relevant Tactical Response Plans (TRPs) will be identified in the First Strike plan for activation within 5 days prior to a predicted impact.	1, 3A, 3C, 4
		12.2	In liaison with WA DoT (for Level 2/3 incidents), mobilise teams to RPAs within 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
		12.3	In liaison with WA DoT (for Level 2/3 incidents), 1 operation mobilised within 5 days to each identified RPA. Expected to be 2 RPAs within 28 days (operation as detailed above)	1, 3A, 3B, 4
		12.4	12 trained personnel available 5 days prior to a predicted impact sourced through resource pool.	1, 2, 3A, 3B, 3C, 4
		12.5	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s)	1, 3A, 3B
		12.6	The safety of shoreline response operations will be considered and appropriately managed. During shoreline operations: • 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
13	Response equipment	13.1	Equipment mobilised from closest stockpile 5 days prior to a predicted impact.	1, 3A, 3C, 4
		13.2	Supplementary equipment mobilised from State, AMOSC, AMSA stockpiles 5 days prior to a predicted impact.	1, 3C, 3D, 4
		13.3	Supplementary equipment mobilised from OSRL within 5 days prior to a predicted impact.	
		13.4	Woodside maintains integrated fleet of vessels. Additional vessels can be sourced through existing contracts/frame agreements	1, 3A, 3C, 4
14	Management of Environmental Impact of the response risks	14.1	If vessels are required for access, anchoring locations will be selected to minimise disturbance to benthic primary producer habitats. Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified	1
		14.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines	

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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:

- Stochastic modelling scenarios indicate that first shoreline impact at Montebello Islands within 28.1 days for the loss of well control scenario (CS-01). There is no shoreline contact for the vessel collision scenario (CS-02).
- Existing capability allows for mobilization and deployment of shoreline protection operations by Day 5 (if required). Given shoreline contact at RPAs is not predicted until Day 28.1 at Montebello Islands, the existing capability is considered sufficient to mobilise and deploy protection at RPAs prior to hydrocarbon contact, guided by the ongoing operational monitoring.
- The most significant constraint on expanding the scale of response operations is the availability of accommodation and transport services in the region between Exmouth and Port Hedland, and the 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 all identified RPAs excepting 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.

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5.5 Shoreline Clean-up

Shoreline clean-up may be undertaken using a broad range of techniques when floating hydrocarbons contact shorelines. The timing, location and extent of shoreline clean-up activities can vary from one scenario to another, depending on the hydrocarbon type, sensitivities and values contacted, shoreline type and access, degree of oiling, and area oiled.

Shoreline clean-up is typically undertaken as a three-phase process:

- phase one (gross contamination removal) involving the collection of bulk oil, either floating against the shoreline or stranded on it
- phase two (moderate to heavy contamination removal) involving removal or in-situ treatment of shoreline substrates such as sand or pebble beaches, and
- phase three (final treatment or polishing) involving removal of the remaining residues of oil.

As phase one typically involves recovery of floating and pooled oil, and phase three removes minor volumes, they have not been considered in the assessment of response need for the scenarios identified.

The *Shoreline Clean-up Operational Plan* details the mobilisation and resource requirements for a shoreline clean-up operation including the logistics, support and facility arrangements to manage the movement of personnel and resources.

The *Shoreline Clean-up Operational Plan* includes the process for the 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 contact 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

The following statements identify the key parameters upon which the response need can be based:

- The shortest timeframe that shoreline contact from floating oil is predicted is 28.1 days at Montebello Islands (including Marine Park and Hermite Island) (11 m^3) with shoreline accumulation peaking at approximately in Week 4. There is no shoreline contact predicted for CS-02.
- The duration of the spill may extend up to 63 days with shoreline response operations extending to Month 2-3 based on the predicted time to complete shoreline clean-up operations.
- Pre-emptive assessment and shoreline assessments (OM04 and OM05) will be mobilised prior to shoreline contact.
- Following Shoreline Assessment and agreement of prioritisation with WA Department of Transport, clean-up operations would commence until agreed termination criteria are reached.
- 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.
- Tactical Response Plans (TRPs) for Response Protection Areas (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.

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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)	One, 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, plastic bags etc.
Physical properties	Surface Threshold • Lower – 100 g/m^2–100% coverage of ‘stain’ – cannot be scratched off easily on coarse sediments or bedrock – Expected trigger to undertake detailed shoreline survey • Optimum – 250 g/m^2 – 25% coverage of ‘coat’ – can be scratched off with a fingernail on coarse sediments – Expected trigger to commence clean-up operations
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 hour day is based on moderate to high coverage of oil (100 g/m^2–1000 g/m^2) with manual removal using shovels/rakes, etc. from studies of previous response operations and exercises

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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.	Remote and inaccessible shorelines for vehicles and machinery. 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).

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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.

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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 (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.

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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)**
15	Shoreline responders	15.1	In liaison with WA DoT (for Level 2/3 incidents), deployment of 1 shoreline clean-up team to each contaminated RPAs comprised of: • 1-2 trained specialists per operation • 8-10 personnel/labour hire • Personnel sourced through resource pool within 5 days of request from the IMT.	1, 2, 3A, 3B, 3C, 4
		15.2	Relevant Tactical Response Plans (TRPs) will be identified in the First Strike Plan for activation 5 days prior to a predicted impact.	1, 3A, 3C, 4
		15.3	Relevant Tactical Response Plans (TRPs) available for shorelines with predicted contact within 10 days.	
		15.4	Clean-up operations for shorelines in line with results and recommendations from SCAT outputs	1, 3A, 3B
		15.5	All shoreline clean-up sites will be zoned and marked before clean-up operations commence.	
		15.6	In liaison with WA DoT (for Level 2/3 incidents), mobilise and deploy up to 1 shoreline clean-up operations by Day 28	1, 2, 3A, 3C, 4
		15.7	In liaison with WA DoT (for Level 2/3 incidents), mobilise and deploy up to 1 shoreline clean-up operations by Day 29.	
		15.8	Mobilise and deploy 1 shoreline clean-up operation to each site where operational monitoring predicts an accumulation 5 days prior to impact.	
		15.9	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
		15.10	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s)	1, 3A, 3B
16	Shoreline clean up equipment	16.1	Contract in place with 3rd party providers to access equipment.	1, 3A, 3C, 4
		16.2	Equipment mobilised from closest stockpile 5 days prior to predicted impact.	
		16.3	Supplementary equipment mobilised from State, AMOSC, AMSA stockpiles within 5 days.	1, 3C, 3D, 4
		16.4	Supplementary equipment mobilised from OSRL within 5 days.	
17	Management of Environmental Impact of the response risks	17.1	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

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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)**
		17.2	Shallow draft vessels will be used to access remote shorelines to minimise the impacts associated with seabed disturbance on approach to the shorelines	
		17.3	Vehicular access will be restricted on dunes, turtle nesting beaches an in mangroves	
		17.4	Removal of vegetation will be limited to moderately or heavily oiled vegetation	
		17.5	Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations.	
		17.6	Oversight by trained personnel who are aware of the risks.	
		17.7	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.

Whilst modelling predicts shoreline contact from day 28 (Montebello Islands), Woodside is satisfied that the current capability is managing risks and impacts to ALARP.

The capability available meets the need identified for this activity. The shoreline clean-up capability has the following expected performance (if required during a response):

- 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 Month 2-3.
- Woodside has considered deployment of additional personnel to undertake shoreline clean-up operations but is satisfied that the identified level of resource is balanced between cost, time and effectiveness. The most significant constraint on expanding the scale of response operations is the availability of accommodation and transport services in the region between Exmouth to Port Hedland and management of response generated waste. From previous assessment of accommodation in Exmouth to Port Hedland, 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 all identified RPAs excepting 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.

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5.6 Oiled wildlife response (including hazing)

Oiled wildlife response (OWR) includes wildlife surveillance/reconnaissance, wildlife hazing, pre-emptive capture, and the capture, cleaning, treatment, and rehabilitation of animals that have been oiled. In addition, it includes the collection, post-mortem examination, and disposal of deceased animals that have succumbed to the effects of oiling.

For a petroleum activity spill in Commonwealth waters, Woodside will act as the Control Agency and will be responsible for the wildlife response. 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 Biodiversity, 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, for level 2/3 spills, and 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 will be the 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

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- 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 *Julimar Development Phase 3 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 (CS-0-1 and CS-02)

Species	Barrow Island	Hermite Island, Montebello Islands and Montebello Islands Marine Park	Open ocean
Marine turtles	✓	✓	✓
Whale sharks	✓	✓	✓
Seabirds and/or migratory shorebirds	✓	✓	✓
Cetaceans – migratory whales	✓	✓	✓
Cetaceans – dolphins and porpoises	✓	✓	✓
Dugongs	✓	✓	✓
Sharks and rays	✓	✓	✓

Please note that for CS-02, there is no shoreline accumulation at the 100 g/m^2 threshold. The Montebello Islands is predicted to be contacted at the 10 g/m^2 threshold.

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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 Barrow Island within 13 days for CS-01 and within 3 hours for CS-02.
- The shortest timeframe for shoreline accumulation at response thresholds (>100 g/m^2) is predicted to be 28.1 hours/days at Montebello Islands including the Marine Park and Hermite Island (11 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.
- 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) (Table 5-11).

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 requiring preventative actions and/or wildlife rescue is likely, 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, capture, intake and treatment, require a higher degree of planning, approval (licenses) and skills. These activities will be planned for and carried out under the IAP as outlined in the *Oiled*

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Wildlife Operational Plan and in accordance with the WAOWRP (DBCA, 2022a) and WA OWR Manual (DBAC, 20022b).

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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)**
18	Wildlife response arrangements	18.1	Oiled Wildlife Operational Plan in place and utilised during a response to plan, coordinate, implement and terminate operations	1, 3A, 4
		18.2	Initiate a wildlife first strike response 5 days prior to confirmed or imminent wildlife contact as directed by relevant Operational Monitoring techniques (OM01-05) and in liaison with DBCA	1
19	Wildlife response equipment	19.1	Maintain contract with AMOSC for immediate access to oiled wildlife response equipment.	1, 3C, 3D, 4
		19.2	Maintain contract with OSRL to access additional oiled wildlife response equipment.	1, 3C, 3D, 4
20	Wildlife responders	20.1	Two Oiled Wildlife Team Members to supervise the oiled wildlife operations who have completed an Oiled Wildlife Response Management course.	1, 2, 3B
		20.2	Maintain contract with AMOSC for immediate access to trained oiled wildlife response specialists	1, 3B, 3C
		20.3	Maintain contract with OSRL to access additional trained oiled wildlife response specialists	1, 3B, 3C
		20.4	Open communication line to be maintained between IMT and infield operations to ensure awareness of progress against plan(s).	1, 3A, 3B
21	Management of environmental impacts of response risks	21.1	Oiled wildlife operations (including hazing) would be implemented with advice and assistance from the Oiled Wildlife Advisor from the DBCA, and in accordance with the processes and methodologies described in the WAOWRP 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:

- Undertake OWR first strike response:
  - Mobilisation of operational monitoring (OM01-05) to identify wildlife and RPAs contacted or at imminent risk of contact by hydrocarbons.
- Availability and mobilisation of trained OWR personnel to supervise OWR activities.
- Access to wildlife resources (personnel and equipment) to meet the needs where there are medium or high levels of wildlife impact.

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5.7 Waste Management

Waste management is considered a support technique to wildlife response, containment and recovery and shoreline clean-up. Waste generated and collected during the response that will require handling, management and disposal may consist of:

- Liquids (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 so that continuous response operations can be maintained.

Relevant 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 licenced vehicles. Containers will be available for temporary waste storage and will be:

- labelled with the waste type
- provided with appropriate lids to prevent waste being blown overboard
- bunded if storing liquid wastes.
- processes will be in place for transfers of bulk liquid wastes and include:
  - inspection of transfer hose undertaken prior to transfer
  - watchman equipped with radio visually monitors loading hose during transfer
  - tank gauges monitored throughout operation to prevent overflow

The *Oil Spill Preparedness Waste Management Support Plan* details the procedures, capability and capacity in place between Woodside and its primary waste services contractor to manage waste volumes generated from response activities.

5.7.1 Response need based on predicted consequence parameters

Table 5-13: Response Planning Assumptions – Waste Management

Response planning assumptions: Waste management	
Waste loading per m^3 oil recovered (multiplier)	Shoreline clean-up (manual) – approximately 5-10x multiplier for oily solid and liquid wastes generated by manual clean-up.
	Oiled wildlife response – approximately 1 m^3 of oily solid and liquid waste generated for each wildlife unit cleaned

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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 relevant laws and regulations.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
22	Waste Management	22.1	Contract with waste management services for transport, removal, treatment and disposal of waste	1, 3A, 3B, 3C, 4
		22.2	Access to at least 20 – 100 m^3 of solid and liquid waste storage available within 28 days upon activation of 3rd party contract.	
		22.3	Access to up to 76 - 380 m^3 of solid waste storage within an additional 1 day	
		22.4	Recovered hydrocarbons and wastes will be transferred to licensed treatment facility for reprocessing or disposal.	
		22.5	Waste management provider support staff available year-round to assist in the event of an incident with waste management as detailed in contract.	
		22.6	Open communication line to be maintained between IMT and waste management services to ensure the reliable flow of accurate information between parties.	1, 3A, 3B
		22.7	Waste management to be conducted in accordance with Australian laws and regulations	1, 3A, 3B, 3C, 4
		22.8	Waste management services available and employed during response	
23	Management of environmental impacts of response risks	23.1	Teams will segregate liquid and solid wastes at the earliest opportunity.	1, 3A, 3B, 3C, 4

The resulting waste management capability has been assessed against the WCCS. The range of techniques provide an ongoing approach to waste management at identified RPAs.

Given the largest shoreline volumes ashore are predicted during Week 4 at a maximum volume of 40 m^3, and 675 m^3 of waste is expected across all shoreline clean-up operations, and the capability available exceeds the need identified.

It indicates that the waste management capability has the following expected performance:

- Shoreline and nearshore operations may generate up to 699 m^3 over 2 months of operations.
- Woodside has assessed the existing capability available and considered potential alternative, additional and improved control measures. Where control measures have been selected and implemented, they are included in Section 6.6.
- Woodside's waste contractor has access to approximately 120,000 m^3 to treat overall waste volumes. The waste management requirements are within Woodside's and its service providers existing capacity.

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5.8 Scientific monitoring

A scientific monitoring program (SMP) would be activated following a Level 2 or 3 unplanned hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. This would consider receptors at risk (ecological and socio-economic) for the entire predicted EMBA and in particular, any identified Pre-emptive Baseline Areas (PBAs) for the credible spill scenario(s) or other identified unplanned hydrocarbon releases associated with the Petroleum Activities Program (PAP) (refer to Table 2-1: PAP credible spill scenarios).

The outputs of the stochastic hydrocarbon spill modelling are used to assess the environmental risk, in terms of delineating which areas of the marine environment are predicted to be exposed to hydrocarbons exceeding environmental threshold concentrations (refer to Table 2-2, Section **2.3.1.1**). 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 CS-01 and CS-02 define the EMBAs and are the basis of the SMP approach presented in this section.

It should be noted that the resulting SMP receptor locations differ from the Response Protection Areas (RPAs) presented and discussed in Section 3 of this document due to the applicability of different hydrocarbon threshold levels. The SMP would be informed by the data collected via the operational monitoring program (OMP) studies, however, it differs from the OMP in being a long-term program independent of, and not directing, the operational oil spill response or monitoring of impacts from response activities (refer to Section 5.1) for operational monitoring overview).

Key objectives of the Woodside oil spill scientific monitoring program are:

- Assess the extent, severity and persistence of the environmental impacts from the spill event; and
- Monitor subsequent recovery of impacted key species, habitats and ecosystems.

The SMP comprises ten targeted environmental monitoring programs to assess the condition of a range of physico-chemical (water and sediment) and biological (species and habitats) receptors including Environment Protection and Biodiversity Conservation Act 1999 (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

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and beyond the EMBA. This planning area has been set with reference to the entrained low exposure value of 10 ppb detailed in NOPSEMA Bulletin #1 Oil Spill Modelling (2019), as shown in Figure 5 1.

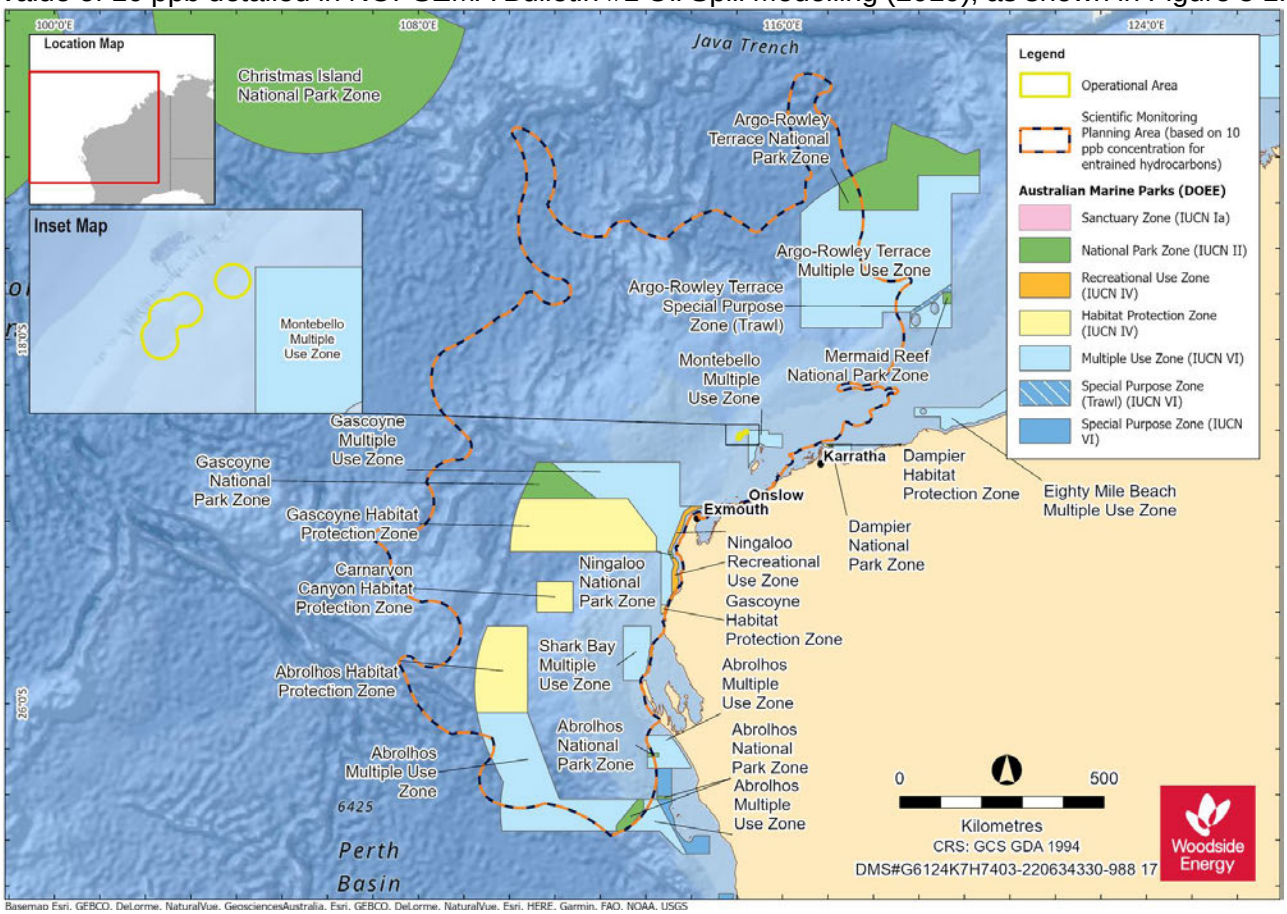

Figure 5-1: The planning area for scientific monitoring based on the area potentially contacted by the low (below ecological impact) entrained hydrocarbon threshold of 10 ppb in the event of the worst-case credible spill scenario (CS-01).

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 CS-01 and therefore represents the largest spatial boundaries of 100 CS-01 oil spill combinations, not the spatial extent of a single CS-01 spill.

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5.8.1 Scientific Monitoring Deployment Considerations

Scientific Monitoring Deployment Considerations	
Existing baseline studies for sensitive receptor locations predicted to be affected by a spill	Pre-emptive Baseline Areas (PBAs) of the following two categories: • PBAs within the predicted <10-day hydrocarbon contact time prediction: The approach is to conduct a desktop review of available and appropriate baseline data for key receptors for locations (if any) that are potentially impacted within 10 days of a spill and look to conduct baseline data collection to address data gaps and demonstrate spill response preparedness. Planning for baseline data acquisition is typically commenced pre-PAP and execution of studies undertaken with consideration of weather, receptor type, seasonality and temporal assessment requirements. • PBAs >10 days time to predicted hydrocarbon contact in the event of an unplanned hydrocarbon release (from a loss of well control). SMP activation (as per the Julimar Development Phase 3 Drilling and Subsea Installation First Strike Plan) directs the SMP team to follow the steps outlined in the SMP Operational Plan. The steps include: checking the availability and type of existing baseline data, with particular reference to any Pre-emptive Baseline Areas (PBAs) identified as >10 days to hydrocarbon contact. Such information is used to identify response phase PBAs and plan for the activation of SMPs for pre-emptive (i.e. pre-hydrocarbon contact) baseline assessment.
Pre-emptive Baseline in the event of a spill	Activation of SMPs in order to collect baseline data at sensitive receptor locations with predicted hydrocarbon contact time >10 days (as documented in ANNEX C).
Survey platform suitability and availability	In the event of the SMP activation, suitable survey platforms are available and can support the range of equipment and data collection methodologies to be implemented in nearshore and offshore marine environments.
Trained personnel to implement SMPs suitable and available.	Access to trained personnel and the sampling equipment contracted for scientific monitoring via a dedicated scientific monitoring program standby contract.
Met-ocean conditions	The following met-ocean conditions have been identified to implement SMPs: • 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

Response Planning Assumptions	
Pre-emptive Baseline Areas (PBAs)	Pre-emptive Baseline Areas (PBAs) identified through the application of defined hydrocarbon impact thresholds during the Quantitative Spill Risk Assessment process and a consideration of the minimum time to contact at receptor locations fall into two categories: • PBAs for which baseline data exist or are planned for and data collection may commence pre-PAP (≤ 10 days minimum time to contact).

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	• 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 Julimar Development Phase 3 Drilling and Subsea Installation infrastructure. • Pre-emptive Baseline Areas for the Julimar Development Phase 3 Drilling and Subsea Installation infrastructure are identified and listed in ANNEX D, Table D-1. The PBAs together with the situational awareness (from the operational monitoring) are the basis for the response phase SMP planning and implementation.
Pre-Spill	A review of existing baseline data for receptor locations (refer to Annex D) with potential to be contacted by surface, dissolved or entrained hydrocarbons at environmental thresholds within ≤10 days, relating to the credible hydrocarbon release for the PAP has identified the following: • Barrow, Lowendal and Montebello Island groups (including State Marine Parks and Management Areas) • Montebello AMP • Rankin Bank 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 is presented in Annex D, based on the PAP credible spill scenario(s) (Table 2-1). To address the initial focus in a response phase SMP planning situation, receptor locations predicted to be contacted between >10 days and 20 days have been identified as follows: • Argo-Rowley Terrace AMP • Shark Bay AMP • Gascoyne AMP • Ningaloo AMP • Muiron Islands (World Heritage Area (WHA), Marine Management Area) • Pilbara Islands – Southern Island Group (Serrurier, Thevenard and Bessieres Islands – State Nature Reserves) • Pilbara Islands – Northern Island Group (Sandy Islands and Passage Islands – State nature Reserves • Ningaloo Coast (North/ North West Cape, Middle and South) (WHA), and State Marine Park) • Glomar Shoal 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

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	further details on scientific monitoring plan implementation and delivery). The timing of SMP activation and mobilisation of the individual SMPs to undertake data collection will be decided and documented by the Woodside SMP team following the process outlined in the SMP Operational Plan. In the event key receptors within geographic locations that are potentially impacted after 10 days following a spill event or commencement of the spill and where adequate and appropriate baseline data are not available, there will be a response phase effort to collect baseline data for the following purposes: • 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 Julimar Development Phase 3 Drilling and Subsea Installation facility, priority would be focused on Ningaloo Coast. • Collect baseline data for receptors predicted to be outside the spill affected area so reference datasets for comparative analysis with impacted receptor types can be assessed post-spill.
Baseline Data	A summary of the spill affected area and receptor locations as defined by the EMBA for the PAP credible spill scenario(s) is presented Section 2.3 The key receptors at risk by location and corresponding SMPs based on the EMBA for the PAP are presented in ANNEX D, as per credible spill event scenario(s). This matrix maps the receptors at risk with their location and the applicable SMPs that may be triggered in the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors. Receptor locations and applicable SMPs are colour coded to highlight possible time to contact based on receptor types and locations. The status of baseline studies relevant to the PAP are tracked by Woodside through the maintenance of a Corporate Environment Environmental Baseline Database (managed by the Woodside 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: Oil Spill Scientific Monitoring Program).

5.8.3 Summary – scientific monitoring

The resulting scientific monitoring capability has been assessed against the PAP credible spill scenario(s). The range of techniques provide an ongoing approach to monitoring operations to assess and evaluate the scale and extent of impacts. All known reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be moderate and the overall delivery effectiveness determined to be medium. The SMP's main objectives can be met, with no additional, alternative or improved control measures providing further benefit.

5.8.4 Response planning: need, capability and gap – scientific monitoring

The receptor locations identified in Annex D provide the basis of the SMPs likely to be selected and activated. Once the Woodside SMP Delivery team and the SMP standby contractor have been stood up and the exact nature and scale of the spill becomes known, the SMPs to be activated will be confirmed as per the process set out in the SMP Operational.

Scope of SMP Operations in the event of a hydrocarbon spill

Receptor locations of interest for the SMP during the response phase are:

[1] https://biocollect.ala.org.au/imsa#max%3D20%26sort%3DdateCreatedSort

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- Barrow, Lowendal and Montebello Island groups (including State Marine Parks and Management Areas)
- Muiron Islands (WHA, Marine Management Area)
- Pilbara Islands – Southern Island Group (Serrurier, Thevenard and Bessieres Islands - State Nature Reserves)
- Ningaloo Coast (North/North West Cape, Middle and South) (WHA, and State Marine Park)

Documented baseline studies are available for certain receptor locations including the Ningaloo Coast (Annex D, Table D-2). The SMP technique; however, would be to deploy SMP teams to maximise the opportunity to collect pre-emptive data at sensitive receptor locations as Barrow and Montebello Island groups. The exact locations where hydrocarbon contact occurs may be unpredictable, SM01 would be mobilised as a priority to be able to detect hydrocarbons and track the leading edge of the spill to verify where hydrocarbon contact occurs which will assist with where SMP resources are a priority need to obtain pre-emptive baseline data.
The ALARP assessment for the SMP (Section 6.8) considers alternate, additional, and/or improved control measures on each selected response technique.

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5.8.5 Environmental performance based on need

Table 5-15: 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 HSEQ Function.	24.1	SMP team comprises a pool of competent Environment Advisers (stand up personnel) who receive training regarding the SMP, SMP activation and implementation of the SMP on an annual basis	• Training materials • 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 have a SMP standby contractor to provide scientific personnel to resource a base capability of one team per SMP (SM01-SM10, see Table C-2, ANNEX C) as detailed in Woodside's SMP standby contractor Implementation Plan, to implement the oil spill scientific monitoring programs. The availability of relevant personnel is reported to Woodside on a monthly basis via a simple report on the base-loading availability of people for each of the SMPs comprising field work for data collection (SMP resourcing report register. • In the event of a spill and the SMP is activated, the base-loading availability of scientific personnel will be provided by SMP standby contractor for the individual SMPs and where gaps in resources are identified, SMP standby contractor/Woodside will seek additional personnel (if needed) from other sources including Woodside's Environmental Services Panel.	25.1	Woodside maintains the capability to mobilise personnel required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08): • Personnel are sourced through the existing standby contract with SMP standby, 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 and implementation of the SMP on an annual basis	• HSP Internal Control Environment tracks the quarterly review of the Oil Spill Contracts Master. • SMP resource report of personnel availability provided by SMP contractor on monthly basis (SMP resourcing report register). • Training materials • Training attendance registers • 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 Sections to manage a loss of well control 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 Sections. 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. • 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 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. SMP team participates in since 2016 (report on 2016 SMP simulation) and SMP standby contractor the SMP arrangements (people and equipment availability) tested annually since 2016.	26.1	• Woodside have established an SMP organisational structure and processes to stand up and deliver the SMP.	• SMP Oil Spill Scientific Monitoring Operational Plan • SMP Implementation Plan • SMP annual arrangement testing and reporting

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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 with SMP standby contractor for SMP resources and if additional surge capacity is required this would be available through the other Woodside Environmental Services Panel Contractors and specialist contractors. SMP standby contractor can also address equipment redundancy through either individual or multiple suppliers. MoUs are in place with one marine sampling equipment companies and one analytical laboratory (SMP resourcing report register). • Availability of SMP equipment for offshore/onshore scientific monitoring team mobilisation is within one week to ten days of the commencement of a hydrocarbon release. This meets the SMP mobilisation lead time that will support meeting the response objective of 'acquire, where practicable, the environmental baseline data prior to hydrocarbon contact required to support the post-response SMP.	27.1	Woodside maintains standby SMP capability to mobilise equipment required to conduct scientific monitoring programs SM01 – SM10 (except desktop based SM08): • Equipment are 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 Master. • SMP standby monthly resource reports of equipment availability provided by SMP contractor (SMP resourcing report register). • SMP annual arrangement testing and reporting
28	Woodside's SMP approach addresses the pre-PAP acquisition of baseline data for Pre-emptive Baseline Areas (PBAs) with ≤10 days if required following a baseline gap analysis process. Woodside maintains knowledge of Environmental Baseline data through: • Documentation annual reviews of the Woodside 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 baseline 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 Section in development of the IAP.	• Response SMP plan • Woodside's online Incident Management System Records • SMP component of the Incident Action Plan.
		29.1	**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**

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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 SMP's detailed in Table C-2 of Annex C, and the Termination Criteria Decision-tree for Oil Spill Environmental Monitoring (Figure C-3 of Annex C):	Evidence of Termination Criteria triggered: • Documentation and approval by relevant persons/ organisations to end SMPs for specific receptor types.

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5.9 Incident Management System

The Incident Management System (IMS) is both a control measure and a measurement criteria. 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 criteria the IMS records the evidence of the timeliness of all response actions included in the environmental performance standards and the plans used of the PAP.

As the IMS does not directly remove hydrocarbons spilt into the marine environment there is no direct relationship to the response planning need.

5.9.1 Incident action planning

The CIMT will be required to collect and interpret information from the scene of the incident to determine support requirements to the site-based IMT, develop an incident action plan (IAP) and assist the IMT with the execution of that plan. The site-based IC may request the CIMT to complete notifications internally within Woodside, to persons/ organisations and government agencies as required. Depending on the type and scale of the incident either the CIMT IC or Deputy 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 Environment Plan/Oil Pollution Emergency Plan (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 Oil Pollution Emergency Arrangements (Australia). In effect the operational NEBA will determine whether there is net environmental benefit to continue response operations.

5.9.3 Consultation engagement process

Woodside will 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 First Strike Plan). This includes notification to mariners to communicate navigational hazards introduced through response equipment and personnel.
- In the event of a response, identify and engage with relevant persons/ organisations and continually assess and review.

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5.9.4 Environmental performance based on need

Table 5-16: Environmental Performance – Incident Management System

Environmental Performance Outcome		To support the effectiveness of all other control measures and monitor/record the performance levels achieved.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
31	Operational SIMA	31.1	Confirm that the response techniques adopted at the time of acceptance remain appropriate to reduce the consequences of the spill within 24 hours.	1, 3A
		31.2	Record the evidence and justification for any deviation from the planned response activities.	
		31.3	Record the information and data from operational and scientific monitoring activities used to inform the SIMA.	
32	Stakeholder engagement	32.1	Prompt and record all notifications (including government notifications) for persons/ organisations in the region are made	
		32.2	In the event of a response, identification of relevant persons/ organisations will be re-assessed throughout the response period.	
		32.3	Undertake communications in accordance with: • 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 techniques 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: • CIMT Incident Commander • CIMT Deputy Incident Commander • Operations Section Chief • Planning Section Chief • Logistics Section Chief • Documentation Unit Leader • Safety Officer • Environment Unit Leader • Human Resources Officer • Public Information Officer • Situation Unit Leader • Finance Section Chief • Source Control Section Chief	1, 2, 3B, 3C, 4
		33.4	Collect and interpret information from the scene of the incident to determine support requirements to the site-based IMT, develop an Incident Action Plan (IAP) and assist with the execution of that plan.	

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Environmental Performance Outcome		To support the effectiveness of all other control measures and monitor/record the performance levels achieved.		
Control measure		**Performance Standard**		**Measurement Criteria (Section 5.10)**
		33.5	S&EM advisors will be integrated into CIMT to monitor performance of all functional roles.	
		33.6	Continually communicate the status of the spill and support Woodside to determine the most appropriate response by delivering on the responsibilities of their role.	
		33.6	Follow the OPEA, Operational Plans, FSPs, support plans and the IAPs developed.	1, 2, 3A, 4
		33.7	Contribute to Woodside's response in accordance with the aims and objectives set by the Incident Commander.	1, 2, 3B, 3C, 4

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5.10 Measurement criteria for all response techniques

Woodside ensures compliance with environmental performance outcomes and standards through four primary mechanisms. The aforementioned performance tables identify which of these four mechanisms monitors the readiness and records the effectiveness and performance of the control measures adopted.

1. The Incident Management System

The Incident Management System (IMS) supports the implementation of the Emergency and Crisis Management Procedure. The IMS provides a near real-time, single source of information for monitoring and recording an incident and measuring the performance of those control measures.

The Emergency and Crisis Management Procedure defines the management framework, including roles and responsibilities, to be applied to any size incident (including hydrocarbon spills). The organisational structure required to manage an incident is developed in a modular fashion and is based on the specific requirements of each incident. The structure can be scaled up or down.

The Incident Action Plan (IAP) process formally documents and communicated the:

- Incident objectives
- Status of assets
- Operational period objectives
- Response techniques (defined during response planning)
- The effectiveness of response techniques.

The information captured in the IMS (including information from personal logs and assigned tasks/close outs) confirms the response techniques implemented remain appropriate to reduce the consequences of the spill. The system also records all information and data that can be used to support the site-based IMT, development and the execution of the IAP.

2. The S&EM Competency Dashboard

The S&EM competency dashboard records the number of trained and competent responders available across Woodside, and some external providers, to participate in a response.

This number varies dependent on expiry of competency certificates, staff attrition, internal rotations, leave and other absences. As such the Dashboard is designed to identify the minimum manning requirements and to identify sufficient redundancy to cater for the variances listed above.

Figure 5-2 shows the minimum manning numbers for the different hydrocarbon spill response roles and the number of qualified persons against those roles.

Woodside's pool of trained responders is composed of but not limited to personnel from the following organisations:

- Woodside internal
- Australian Marine Oil Spill Centre (AMOSC) core group
- AMOSC
- Oil Spill Response Limited (OSRL)
- Marine Spill Response Corporation (MSRC)
- AMSA
- Woodside contracted workforce

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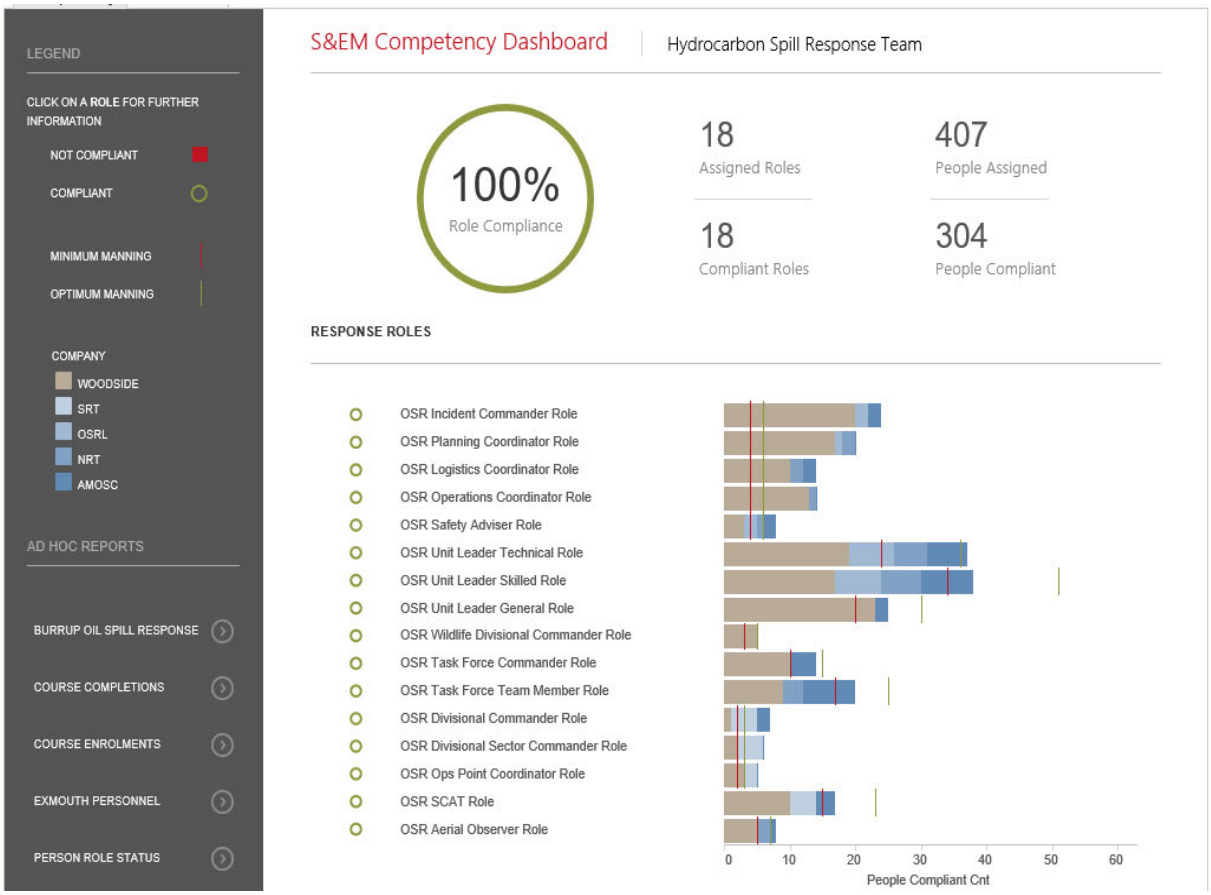

Figure 5-2: Example screen shot of the HSP competency dashboard

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 Ops Point Coordinator role and the training modules required to show competence.

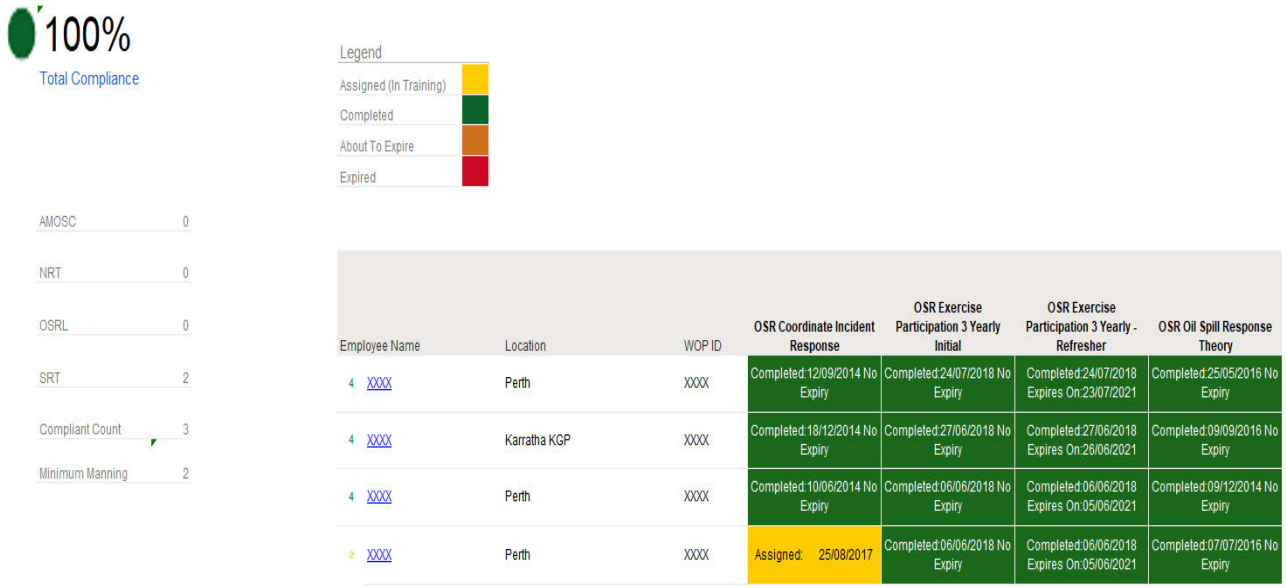

Figure 5-3: Example screen shot for the Ops Point Coordinator role

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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: Oil Pollution Emergency Arrangements, first strike plans, operational plans, support plans and tactical response plans) are current and in line with regulatory and internal requirements.

B. **Competency** – 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[13] vessel schedule, dispersant availability, rig/vessels monitoring, equipment stockpiles, tracking buoy locations and the CIMT duty roster.

D. **Compliance and 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 and Compliance System (WiRCs) and subject to the requirements of Woodside's Provide Assurance Procedure.

4. The Hydrocarbon Spill Preparedness and Response Procedure

This procedure sets out how to plan and prepare for a liquid hydrocarbon spill to the marine environment. (Note, this procedure does not apply to scenarios relating to gas releases in the marine environment).

This procedure details the:

- Requirement for an Oil Pollution Emergency Plan (OPEP) to be developed, maintained, reviewed, and approved by appropriate regulators (where applicable) including:
  - Defining how spill scenarios are developed on an activity specific basis
  - Developing and maintaining all hydrocarbon spill related plans
  - Ensuring the ongoing maintenance of training and competency for personnel
  - Developing the testing of spill response arrangements
  - Maintaining access to identified equipment and personnel.
- Planning for hydrocarbon spill response preparedness
- Accountabilities for hydrocarbon spill response preparedness
- Spill training requirements

[13] 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

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- 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

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6 ALARP EVALUATION

This Section should be read in conjunction with Section 5 which is the capability planned for this activity.

6.1 Operational Monitoring – ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5 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 Operational Monitoring – 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. $300,000.	This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation.	**No**
Use of Autonomous Underwater Vehicles (AUVs) for hydrocarbon presence and detection.	Use of AUVs may be feasible and may provide an environmental benefit in assessing inaccessible areas for presence of hydrocarbons in the water however cost of purchase is disproportionate to the environmental benefit when compared to the monitoring types in place.	AUVs may be considered as an additional method of monitoring, should remote systems be required for health and safety reasons.	Cost $10,000 for mobilisation and $15,000 a day when deployed.		**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. $25,000.	This option is not adopted as the current capability meets the need.	**No**
Additional satellite tracking buoys to enable greater area coverage.	Increased capability does not provide an environmental benefit compared to the disproportionate cost in having an additional contract in place.	Tracking buoy on location at manned facility, additional needs are met from WEL owned stocks in King Bay Support Facility (KBSF) and Exmouth or can be provided by service provider.	Cost for an additional satellite tracking buoy would be $200 per day or $6,000 to purchase.	This option is not adopted as the current capability meets the need, but additional units are available if required.	**No**
Additional trained aerial observers.	Current capability meets need. WEL has access to a pool of trained, competent observers at strategic locations to ensure timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL.	Current capability meets need. WEL has a pool of trained, competent observers at strategic locations to ensure timely and sustainable response. Additional observers are available through current contracts with AMOSC and OSRL Aviation standards & guidelines ensure all aircraft crews are competent for their roles. WEL maintains a pool of trained and competent aerial observers with various home base locations to be called	Cost for additional trained aerial observers would be $2,000 per person per day.	This option is not adopted as the current capability meets the need, but additional observers are available via	**No**

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		upon at the time of an incident. Regular audits of oil spill response organisations ensure training and competency is maintained.		response contractors if required.	

6.1.1.3 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 turnaround time from modelling contractor.	Improved control measure does not provide an environmental benefit compared to the disproportionate cost in having an additional contract in place.	External contractor on CIMT roster to be called as soon as required. However initial information needs to be gathered by CIMT team to request an accurate model. External contractor has person on call to respond from their own location.	Modelling service with a faster activation time would be achieved via membership of an alternative modelling service at an annual cost of $50,000 for 24hr access plus an initial $5,000 per modelling run.	This option is not adopted as the minimal environmental benefit gained is disproportionate to the cost and complexity of its implementation.	**No**
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 KBSF. 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. $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. $1M per annum, which is disproportionate to the incremental benefit this would provide, assets are already available on day 1. 2 integrated fleet vessels are available from day 1, however these could be tasked with other operations.	This option is not adopted as the area could not be accessed earlier due to safety considerations. Additionally, the cost and complexity of implementation outweighs the benefits.	**No**

6.1.2 Selected Control Measures

Following review of alternative, additional and improved control measures as outlined above, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

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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 Environment Plan.

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.

Table 6-1: ROV timings

	Estimate ROV inspection duration for Julimar Development Phase 3 Drilling and Subsea Installation (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.*

A hydraulic accumulator contained as part of the SFRT can be mobilised and deployed with well intervention attempted within 11 days.

6.2.1.1 Safety Case considerations

Woodside has assessed against the NOPSEMA safety case guidance (NOPSEMA N-09000-GN1661; 2016), 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”.

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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; 2016) 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 Julimar Development Phase 3 Drilling and Subsea Installation 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.

Though all capping stack deployment technologies are unproven, in the event of a loss of well containment where the plume radius is ~25 m, 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 is ~25 m), deployment of a capping stack with a heavy lift vessel with a 150 T crane capacity in shallow waters or 250 T 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. 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 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 once plume size is acceptable and safety and metocean conditions are suitable.

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6.2.3.1 Safety Case considerations

Woodside has assessed against the NOPSEMA safety case guidance (NOPSEMA N-09000-GN1661; 2016) 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. 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 Julimar Development Phase 3 Drilling and Subsea Installation is illustrated in Figure 6-1:

- Primary – review internal Woodside drilling programs and MODU availability to source an appropriate MODU operating within Australia with an approved Safety Case.
- Alternate – source and contract a MODU through APPEA MOU operating within Australia with an approved Safety Case.
- Contingency – Source and contract a MODU outside Australia with an approved Australian Safety Case.

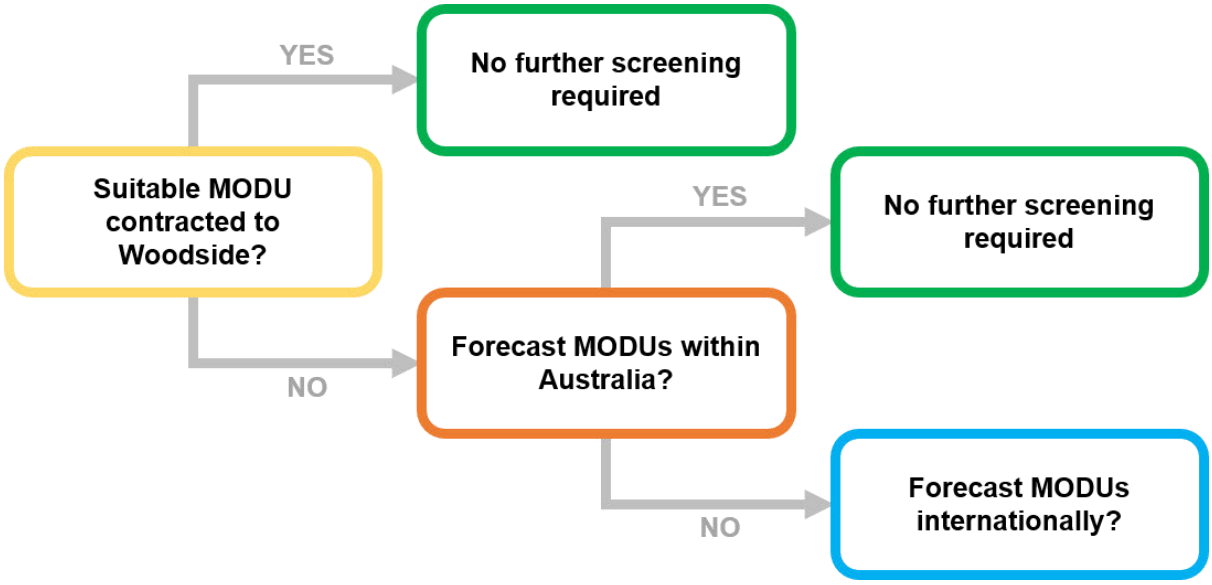

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Figure 6-1: Julimar Development Phase 3 Drilling and Subsea Installation process for sourcing relief well MODU

Woodside has not assessed the timeframe for obtaining a relief well MODU through international supply for this project as the certainty of local supply has been confirmed. Screening of a relief well MODU from international waters is undertaken only if required, i.e. there is low confidence in local (Australian) availability. The screening of relief well MODUs is undertaken and presented at a well design stage peer assessment. The capability, location and Australian Safety Case status is assessed for each Woodside contracted MODU. In the event the Woodside contracted MODUs are unsuitable, screening is extended to all MODUs operating in Australian Waters. The suitability and location of pre-identified relief well MODUs is tested again prior to the operation. Though the 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 48.9 days for Julimar Development Phase 3 Drilling and Subsea Installation PAP. Relief wells for other wells within the field are expected to be similar duration.

Details on the steps and time required to drill a relief well is shown in Table 6-2. DP and moored MODUs are suitable for the Julimar Development Phase 3 Drilling and Subsea Installation 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.

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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	13.9	
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	**48.9**	

The following conditions and assumptions are applicable:

- A dynamically positioned MODU is not available.
- A pre-lay mooring spread is required to moor the MODU over subsea infrastructure. Installation would occur in parallel to MODU mobilisation.

Woodside has considered a broad range of alternate, additional, and improved options as outlined in Section 6.2.5.

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.

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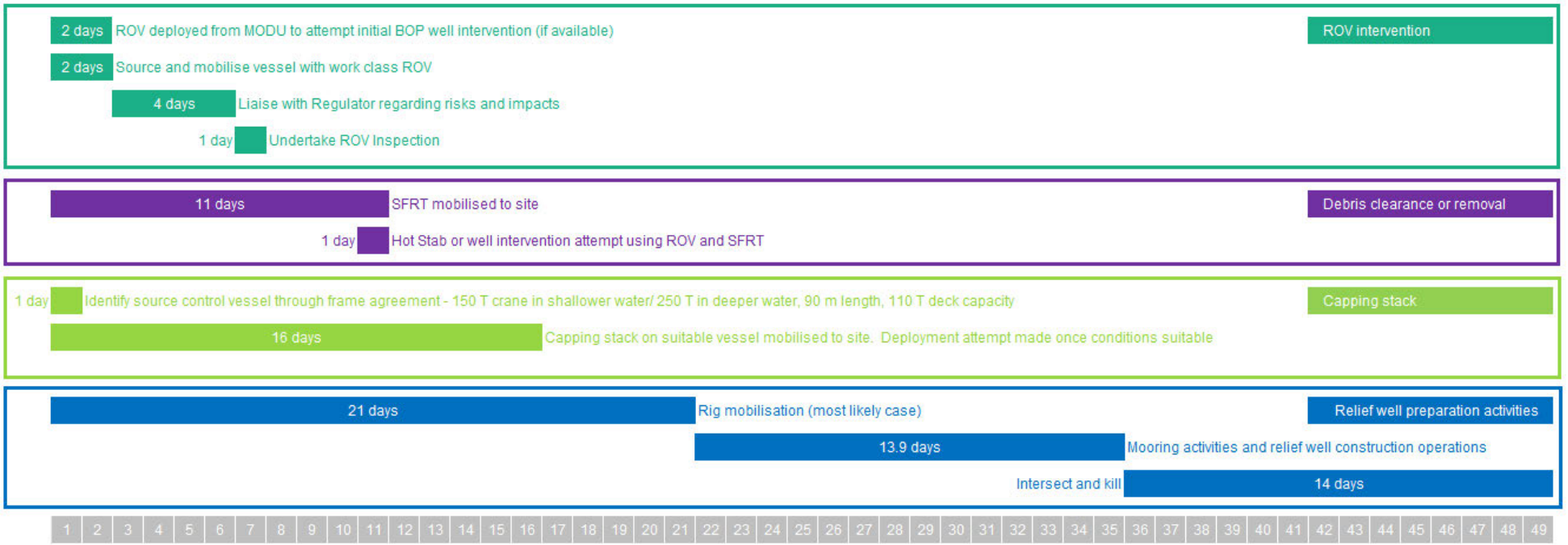

Figure 6-2: Source control and well intervention response strategy deployment timeframes for J85 Development Well

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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 Julimar Development Phase 3 Drilling and Subsea Installation 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.

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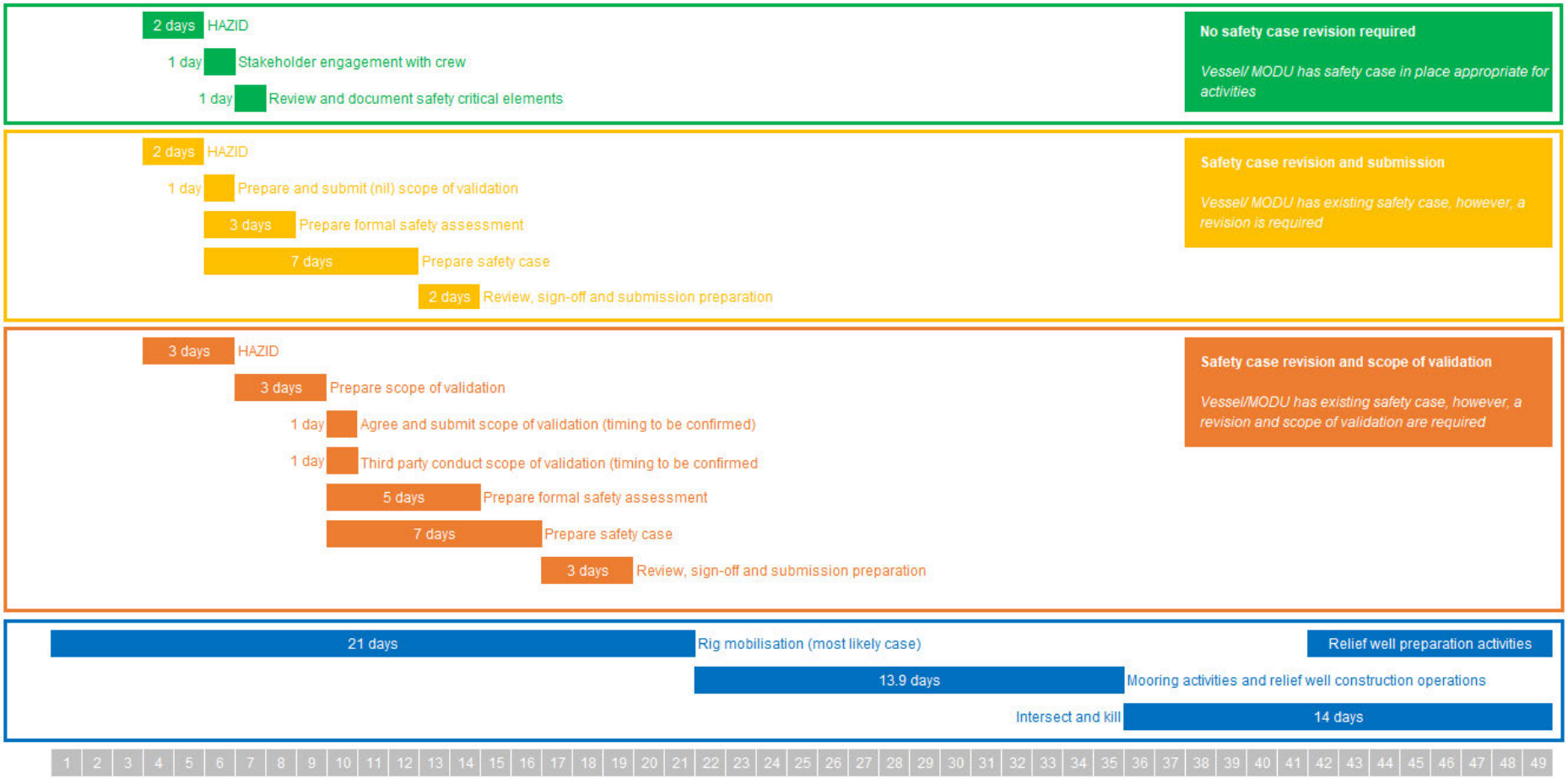

Figure 6-3: Timeline showing safety case revision timings alongside other relief well preparation activity timings for J85 Development Well

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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.

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6.2.5 Source Control – Control Measure Options Analysis

The assessment described in Section 6.2.1, 6.2.2, 6.2.3 and 6.2.4 outline the primary and alternate approach respectively Woodside would implement for relief well drilling**.**

Woodside has outlined the options considered against the activation, mobilisation (improved options) and deployment (alternate and additional options) process described in Section 2.1.1 that provides an evaluation of:

- predicted cost associated with adopting the option
- predicted change/environmental benefit
- predicted effectiveness/feasibility of the option

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5 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.

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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	**Environmental consideration**	**Feasibility**	**Approximate Cost**	**Assessment conclusions**	**Implemented**
Standby MODU shared for all Woodside activities	A standby MODU shared across all Woodside activities is likely to provide a moderate environmental benefit as it may reduce the 21-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 may allow the well to be killed up to 10 days sooner (total of 53 days for well kill) and may result in a reduction of up to 12,000 m^3 of JULA04 condensate for the worst-case credible scenario.	This option is not considered feasible for all Woodside activities as there are a large range of well depths, complexities, geologies and geophysical properties across all Woodside's operations. The large geographic area of Woodside activities also means the MODU is unlikely to be in the correct location at the right time when required.	Even with costs shared across Woodside operations, the costs (approximately A$1.1 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 Titleholders	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 may result in a reduction of up to 8,400 m^3 of JULA04 condensate for the worst-case credible scenario.	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	**Environmental consideration**	**Feasibility**	**Approximate Cost**	**Assessment conclusions**	**Implemented**
Implement and maintain minimum standards for Safety Case development	Woodside's contingency planning consideration would be to source a rig from outside Australia with an existing Safety Case. This would require development and approval of a safety case revision for the rig and activities prior to commencing well kill operations.	This option is considered feasible and would require Woodside to develop minimum standards for safe operations for relevant Safety Case input along with maintaining key resources to support review of Safety Cases. Woodside would not be the operator for relief well drilling and would therefore not develop or submit the Safety Case revision. Woodside's role as Titleholder would be to provide minimum standard for the safe operations 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**

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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	**Environmental consideration**	**Feasibility**	**Approximate Cost**	**Assessment conclusions**	**Implemented**
Monitor internal drilling programs for rig availability	Woodside may be conducting other campaigns that overlap with the Petroleum Activities Program, potentially providing availability of a relief well drilling rig within Woodside. The environmental benefit of monitoring other drilling programs internally is for Woodside to understand which other rigs may be rapidly available for relief well operations if required, potentially reducing the time to drill the relief well, resulting in less hydrocarbon to the environment.	Woodside monitors vessel and MODU availability through market intelligence services for location. Woodside will continually monitor other drilling and exploration activities within Australia and as available throughout the region to track rigs and explore rig availability during well intervention operations.	Associated cost of implementation is minimal to the environmental benefit gained. Woodside has outlined control measures and performance standards.	This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment.	**Yes**
Monitor external activity for rig availability	The environmental benefit achieved by monitoring drilling programs and rig movements across industry provides the potential for increased availability of suitable rigs for relief well drilling. Additional discussions with other Petroleum Titleholders may be undertaken to potentially gain faster access to a rig and reduce the time taken to kill the well and therefore volume of hydrocarbons released.	Woodside will source a relief well drilling rig in accordance with the APPEA MOU on rig sharing in the unlikely event this is required. Commercial and operational provisions do not allow WEL to discuss current and potential drilling programs in detail with other 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 rigs and explore rig availability during well intervention operations.	This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment.	**Yes**
Monitor status of Registered Operators/ Approved Safety cases for rigs	Woodside can monitor the status of Registered Operators for rigs operating within Australia (and therefore safety case status) on a monthly basis. This allows for a prioritised selection of rigs in the event of a response with priority given to those with an existing safety case.	The environmental benefit of monitoring rigs is for Woodside to understand which other rigs may be rapidly available for relief well operations if required, potentially reducing the time to drill the relief well, resulting in less hydrocarbon to the environment.	The cost is minimal.	This option is a low-cost control measure with potential to reduce the volume of hydrocarbon released to the environment.	**Yes**

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6.2.7 Deployment Options Analysis

6.2.7.1 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					

6.2.7.2 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
Offset capping alternative to conventional capping stack deployment	While the use of an offset capping system could reduce the quantity of hydrocarbon entering the marine environment, the feasibility issues surrounding an offset capping deployment in the water depths at the J85 Development Well (174 m), together with mobilisation lead times for both a cap and required vessels/ support equipment, would minimise any environmental benefit gained.	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. In the event of a worst-case shallow water gas discharge, the 10% LEL modelled radius extends beyond the area of activity required for the OIE deployment thereby introducing health and safety risk to any vessels required for the initial deployment of the carrier and subsequent operations with ROV during capping operations. Though manageable for single vessels, it is prohibitive for operations requiring SIMOPs with numerous vessels working at 180 degrees from one another. • Water depth is also a key consideration as buoyancy modules have not been proven for use in 174 m water depth 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.	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**

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		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.			
Dual vessel capping stack deployment	While the use of dual vessel to deploy the capping system could reduce the quantity of hydrocarbon entering the marine environment, this is an unproven technology. Additionally, the feasibility issues surrounding a dual vessel capping deployment in the water depths at the J85 Development Well (174 m), together with mobilisation lead times for both a cap and required vessels and support equipment, would minimise any environmental benefit.	A dual vessel deployment is somewhat feasible provided a large enough deck barge can be located. Deck barges of 120 m are not, however, very common and will present a logistical challenge to identify and relocate to the region. Further, the longer length barges may need mooring assist to remain centred over the well. The capping stack would be handed off from a crane vessel to the anchor handler vessel (AHV) work wire outside of the exclusion zone. The AHV would then manoeuvre the barge into the plume to get the capping stack over the well. In this method, the barge would be in the plume, but the AHV and all personnel would be able to maintain a safe position outside of the gas zone. The capping stack would actually be lowered on the AHV work wire so a crane would not be required on the barge.	Due to there being minimal environmental benefits gained by the prolonged lead times needed to execute this technique, plus a potential increase in safety issues, any cost would be disproportionate to the benefits gained.	Given there is minimal environmental benefit and an increase in safety issues surrounding SIMOPS and deployment in shallow waters, this option would not provide an environmental or safety benefit.	**No**
Subsea Containment System alternative to capping stack deployment	While the use of a subsea containment system could reduce the quantity of hydrocarbon entering the marine environment, this is an unproven technology. Additionally, the system is unlikely to be feasibly deployed and activated for at least 90 days following a blowout due to equipment requirements and logistics. No environmental benefit is therefore predicted given the release duration is 48.9 days before drilling of a relief well under the adopted control measure.	The timing for mobilisation, deployment and activation of the subsea containment system is likely to be longer (>90 days), than the expected 48.9 day relief well drilling operations based on the location, size and scale of the equipment required, including seabed piles that can only be transported by vessel.	Woodside has investigated the logistics of reducing this timeframe by pre-positioning equipment but the costs of purchasing dedicated equipment by Woodside for this Petroleum Activities Program is not considered reasonably practical and are considered disproportionate to the environmental benefit gained.	This option would not provide an environmental benefit.	**No**
Pre-drilling top-holes	This option represents additional environmental impacts associated with discharge of additional drill cuttings and fluids along with benthic habitat disturbance. It is also not expected to result in a significant decrease in relief well timings	This option is not considered feasible due to the uncertainties related to the location and trajectory of the intervention well, which may vary according to the actual conditions at the time the loss of containment event occurs. Additionally, there is only expected to be a minor reduction in timing for this option of 1-2 days based on the drilling schedule. Duration to drill and kill may be reduced by 1-2 days, but top-hole may have to be relocated, due to location being unsafe or unsuitable and further works will be required each year to maintain the top holes.	Utilising an existing MODU and pre-drilling top-hole for relief well commencement would significantly increase costs associated the Petroleum Activities Program. Estimated cost over the program's life is approx. A$1.6 M per day over the PAP based on 2-4 days of top-hole drilling (plus standby time) for each top-hole drilled.	This option would not provide an environmental benefit due to the additional environmental impacts coupled with a lack of improved relief well timings.	**No**
Purchase and maintain mooring system	Purchasing and maintaining a mooring system could provide a moderate environmental benefit as it may reduce equipment sourcing time. However, due to the continued need for specialists to install the equipment plus sourcing a suitable vessel, the timeframe reduction would be minimal.	Woodside is not a specialist in installing and maintaining moorings so would require specialists to come in to install the moorings and would also require specialist vessels to be sourced to undertake the work.	The cost of purchasing, storing and maintaining pre-lay mooring systems with anchors, chains, buoys and ancillary equipment is considered grossly disproportionate to the environmental benefit gained.	This option would not provide an environmental benefit as timeframe reductions would be minimal.	**No**
Contract in place with Wild Well	Woodside has an agreement in place with Wild Well Control Inc and Oceaneering to provide trained personnel in the event of an incident.	Having contracts in place to access trained, competent personnel in the event of an	Minimal cost implications – Woodside has standing contract in place to provide assistance across all activities.	This control measure is adopted as the costs and complexity are not considered	**Yes**

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Control and Oceaneering	This will ensure competent personnel are available in the shortest possible timeframe.	incident would reduce mobilization times. This option is considered reasonably practicable.		disproportionate to any environmental benefit that might be realised.	

6.2.7.3 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**
Maintaining relief well drilling supplies	There is not predicted to be any reduction in relief well timing or spill duration from Woodside maintaining stocks of drilling supplies (mud, casing, cement, etc.)	It would be feasible to source some relief well drilling supplies such as casing but the actual composition of the cement and mud required will need to be specific to the well. This option is also not deemed necessary as the lead time for sourcing and mobilising these supplies is included in the 21 days for sourcing and mobilising a rig.	The capital cost of Woodside purchasing relevant drilling supplies is expected to be approximately A$600K with additional costs for storage and ongoing costs for replenishment. These costs are considered disproportionate to the environmental benefit gained.	This option would not provide an environmental benefit.	**No**

6.2.8 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 Wild Well Control and Oceaneering to supply trained, competent personnel
- Improved
  - Monitor internal drilling programs for MODU availability
  - Monitor external activity for MODU availability
  - Monitor status of Registered Operators/ Approved Safety cases for MODUs

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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 Source Control via Vessel SOPEP – Control Measure Options Analysis

6.3.1.1 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**
No reasonably practical alternative control measures identified					

6.3.1.2 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**
No reasonably practical additional control measures identified					

6.3.1.3 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**
No reasonably practical improved control measures identified					

6.3.2 Selected control measures

Following review of alternative, additional and improved control measures, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

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6.4 Shoreline Protection and Deflection - ALARP Assessment

Alternative, Additional and Improved options have been identified and assessed against the base capability described in Section 5 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, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.4.2 Response Planning: Julimar Development Phase 3 Drilling and Subsea Installation – 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 control measures selected provide capability to mobilise shoreline protection equipment by Day 7 (if required). Stochastic modelling scenarios indicate that first shoreline impact at Montebello Islands including Marine Park and Hermite Island within 28.1 days for CS-01. No shoreline contact is expected at 100 g/m^2 threshold from CS-02. Given shoreline contact at RPAs is not predicted until Day 28.1, the existing capability is considered sufficient to mobilise and deploy protection at RPAs prior to hydrocarbon contact, guided by the ongoing operational monitoring. The full list of RPAs predicted to be contacted by oil above response thresholds are detailed in Table 3-1.

Tactical response plans exist for many of the RPAs identified. The plans identify values and sensitivities that would be protected at location. Modelling does not predict that all priority protection shorelines will be at risk of contact at the same time. Therefore, to allow for the best use of available shoreline protection and deflection resources, operational monitoring (OM01 and OM02) will inform the response, targeting RPAs where contact is predicted above response threshold levels.

Table 6-4 operations at identified RPAs.

Table 6-4below outlines the capability required (number of RPAs predicted to be impacted) against the capability available (number of shoreline protection and deflection operations that can be mobilised and deployed). As can be seen from the table below. Woodside's capability exceeds the response planning need identified for shoreline protection and deflection operations at identified RPAs.

Table 6-4: Response Planning – Shoreline Protection and Deflection

Julimar Development Phase 3 Drilling and Subsea Installation CS-01		Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Week 2	Week 3	Week 4	Month 2	Month 3
	Oil on shoreline (from deterministic modelling)												
A	**Capability Required**												
A1	**Number of RPAs contacted (> 100 g/m^2) – Julimar Development Phase 3 Drilling and Subsea Installation LOWC**	0	0	0	0	0	0	0	0	0	1	2	0
A2	**Number of RPAs contacted (> 100 g/m^2) – Vessel Collision**	0	0	0	0	0	0	0	0	0	0	0	0
B	**Capability Available (operations per day)**												
B1	**SPD operations available – per day (lower)**	0	1	1	2	2	4	6	70	70	70	330	330
B2	**SPD operations available – per day (upper)**	1	2	3	4	6	8	10	84	84	84	336	336
C	**Capability Gap (operations per day)**												
C1	**SPD operations gap – per day (lower)**	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

A1, A2 and A3 – the number of Response Protection Areas contacted by surface hydrocarbons above 100 g/m^2
B1 and B2 – the upper and lower number of shoreline protection and deflection operations available (based on response planning assumptions in Section 5.4),
C1 and C2 – the gap between the upper and lower number of shoreline protection and deflection operations required in A1, A2 and A3 compared to the operations available in B1 and B2

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Table 6-5: Indicative Tactical response plan, aims and methods for identified RPAs

Tactical Response Plan	Response aims and methods
Barrow and Lowendal Islands	**First response objective:** Ongoing operational monitoring and evaluation of the hydrocarbon spill to adapt aims and response tactics to the evolving nature of the incident and to assist in locating relevant booming areas **Second response objective**: Protection of sensitive areas. Prevent hydrocarbons impact through use of shoreline booms. Areas to protect and formation types to deploy will be dependent on the time available until the hydrocarbon impacts the shoreline and local geographical and tidal/weather conditions **Third response objective**: Pre-clean of potential impact areas (if time allows) using rakes and shovels to move any debris above the high tide line and then segregate appropriately **Fourth response objective**: Recovery of floating oil where possible through the use of skimming systems and other appropriate recovery devices. Although boom formations will deflect most of the spilt hydrocarbon away from sensitive areas, it may be necessary to collect and remove floating oil from additional boom formations to prevent the spreading of oil down a coastline **Fifth response objective:** Clean-up of the shoreline. Manual clean up techniques, use of mechanical recovery methods and techniques where appropriate
Montebello Island – Hermite/Delta Island Channel	**First response objective:** Ongoing operational monitoring and evaluation of the hydrocarbon spill to adapt aims and response tactics to the evolving nature of the incident and to assist in locating relevant booming areas **Second response objective**: Protection of Mansion Bay. Prevent hydrocarbon passing through the channel into Mansion Bay with the use of shoreline booms. Formation types to deploy will be dependent on the time available until the hydrocarbon impacts the shoreline and local geographical and tidal/weather conditions

Pre-emptive mobilisation of equipment and personnel would commence as soon as practicable prior to oil contact. Additional resources would be mobilised depending on the scale of the event to increase the length or number of shorelines being protected.

A shoreline protection and deflection response would be launched only when monitoring and modelling indicated that contact could occur within 28.1 days and operational monitoring operations identify spill heading towards RPA(s).

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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**

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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. Response personnel are trained and exercised regularly in shoreline response techniques and methods. All personnel involved in a response will receive a full operational/safety brief prior to commencing operations.	Additional Specialist Personnel would cost A$2,000 per person per day.	This option is not adopted as the existing capability meets the need.	**No**

6.4.3.3 Improved Control Measures

Improved Control Measures considered *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 28.1 (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 28.1 at Montebello Islands (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

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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, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.5.2 Response planning: Julimar Development Phase 3 Drilling and Subsea Installation – 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.

Stochastic modelling scenarios indicate that first shoreline impact at Montebello Islands including Marine Park and Hermite Island within 28.1 days for CS-01 (11 m^3) with ongoing accumulation over the following days. No shoreline contact is expected at 100 g/m^2 threshold from CS-02. Woodside is satisfied that the current capability is managing risks and impacts to ALARP. These volumes assume no treatment of floating surface oil by containment and recovery or surface dispersant application prior to contact so are considered very conservative. The full list of RPAs predicted to be contacted by oil above response thresholds are 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 stochastic modelling are longer time frames and lesser volumes, demonstration of capability against this need will ensure Woodside can meet requirements for any other outcome.

Due to the time of contact predicted shoreline clean-up and deterministic modelling predicting ongoing stranding after this peak, this response may not be as time critical compared to other response techniques and the scale will depend on the success of other techniques preventing oiling occurring. Further, the potential scale and remoteness of a response coupled with the uncertainty of which locations will be affected precludes the stockpiling or prepositioning of equipment specific to shorelines. The most significant constraint is accommodation and transport of personnel in Dampier/Karratha to undertake clean-up operations and to manage wastes generated during the response effort. From previous assessment of facilities in the North-West Shelf, 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 6-6: Response Planning – Shoreline Clean-up

	Shoreline Clean-up (Phase 2)	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Day 7	Week 2	Week 3	Week 4	Month 2	Month 3	Month 4
	Oil on shoreline (from deterministic modelling) m^3													
	Shoreline accumulation (above 100 g/m^2) – m^3	0	0	0	0	0	0	0	0	0	33	7	0	0
	Oil remaining following response operations - m^3	0	0	0	0	0	0	0	0	0	0	13	-5	3
A	**Capability Required (number of operations)**													
A1	**SCU operations required (lower)**	0	0	0	0	0	0	0	0	0	3	2	-1	0
A2	**SCU operations required (upper)**	0	0	0	0	0	0	0	0	0	5	4	-1	1
B	**Capability Available (number of operations)**													
B1	**SCU operations available - Stage 2 - Manual (lower)**	0	1	3	5	8	12	15	105	105	105	560	560	560
B2	**SCU operations available - Stage 2 - Manual (upper)**	0	2	5	8	10	15	20	140	140	140	560	560	560
C	**Capability Gap**													
C1	**SHC operations gap (lower)**	0	0	0	0	0	0	0	0	0	0	0	0	0
C2	**SHC operations gap (upper)**	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

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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 28 (CS-01), Woodside considers that there is	Response teams, trained personnel, contracted oil spill response service providers, government agencies and the associated	The cost of establishing a local stockpile of new shoreline clean-up equipment closer to	This option is not adopted as the existing capability meets the need.	**No**

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	sufficient time for deployment of clean-up operations prior to impact.	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 28.1 at Montebello Islands (CS-01) therefore allowing enough time to re-locate existing equipment, personnel and other resources to the most appropriate areas.	the expected hydrocarbon stranding areas is not commensurate with the need.		

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

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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 existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.6.2 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**

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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 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.	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**

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, the following controls were selected for implementation for the PAP.

- Alternative
  - None selected
- Additional
  - None selected
- Improved
  - None selected

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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, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/vessel/aircraft/vehicle location and duties, survey or classification society inspection requirements, overflight/port/quarantine permits and inspections, crew/pilot duty and fatigue hours, refuelling/re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.7.2 Waste Management - Control Measure Options Analysis

6.7.2.1 Alternative Control Measures

Alternative Control Measures considered
Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
No reasonably practical alternative control measures identified.					

6.7.2.2 Additional Control Measures

Additional Control Measures considered
Additional control measures are evaluated in terms of them reducing an environmental impact or an environmental risk when added to the existing suite of control measures

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Increased waste storage capability	The procurement of waste storage equipment options on the day of the event will allow immediate response and storage of collected waste. The environmental benefit of immediate waste storage is to reduce ecological consequence by safely securing waste, allowing continuous response operations to occur.	Access to 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.	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**

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	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.				

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

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6.8 Scientific Monitoring – 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.

6.8.1 Existing Capability – Scientific Monitoring

Woodside's existing level of capability is based on internal and third-party resources that are available 24 hours, 7 days per week. The capability presented below is displayed as ranges to incorporate operational factors such as weather, crew/ vessel/ aircraft/ vehicle location and duties, survey or classification society inspection requirements, overflight/ port/ quarantine permits and inspections, crew/ pilot duty and fatigue hours, refuelling/ re-stocking provisions, and other similar logistic and operational limitation that are beyond Woodside's direct control.

6.8.2 Scientific Monitoring – Control Measure Options Analysis

6.8.2.1 Alternative Control Measures

Alternative Control Measures considered
Alternative, including potentially more effective and/or novel control measures are evaluated as replacements for an adopted control

Option considered	Environmental consideration	Feasibility	Approximate Cost	Assessment conclusions	Implemented
Analytical laboratory facilities closer to the likely spill affected area	The environmental consideration of having access to suitable laboratory 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 hydrocarbon contact (above	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**

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hydrocarbon release.		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 LOWC/ spill of MDO 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

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6.8.4 Operational Plan

Key actions from the Scientific Monitoring Program Operational Plan for implementing the response are outlined in Table 6-7.

Table 6-7: Scientific monitoring program operational plan actions

Responsibility	Action
Activation	
CIMT Planning (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 CIMT.
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

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Responsibility	Action
	• Detailed in the Scientific Monitoring Program Operational Plan • 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 service provider'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).

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6.8.5 ALARP and Acceptability Summary

<table>
<tr><th colspan="3">ALARP and Acceptability Summary</th></tr>
<tr><td colspan="3">Scientific Monitoring</td></tr>
<tr><td rowspan="4">ALARP Summary</td><td>X</td><td>All known reasonably practicable control measures have been adopted</td></tr>
<tr><td>X</td><td>No additional, alternative and improved control measures would provide further benefit</td></tr>
<tr><td></td><td>No reasonably practical additional, alternative, and/or improved control measure exists</td></tr>
<tr><td colspan="2">The resulting scientific monitoring capability has been assessed against the credible spill scenarios. The range of techniques provide an ongoing approach to monitoring operations to assess and evaluate the scale and extent of impacts.

All known reasonably practicable control measures have been adopted with the cost and organisational complexity of these options determined to be Moderate and the overall delivery effectiveness considered Medium. The SMP’s main objectives can be met, with the addition of one alternative control measures to provide further benefit.</td></tr>
<tr><td>Acceptability Summary</td><td colspan="2">• 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.
• Scientific Monitoring control and activities are compliant with relevant environmental legislation and regulations, including the EPBC Act.
• Throughout the PAP, relevant Australian standards and codes of practice will be followed to evaluate the impacts from a loss of well control.
• Consultation undertaken for the PAP did not receive feedback regarding concerns for Scientific Monitoring activities in response to a hydrocarbon spill.
• The level of impact and risk to the environment has been considered with regards to the principles of Ecologically Sustainable Development (ESD); and risks and impacts from a range of identified scenarios were assessed in detail. The control measures described consider the conservation of biological and ecological diversity, through both the selection of control measures and the management of their performance. The control measures have been developed to account for credible case scenarios, and uncertainty has not been used as a reason for postponing control measures.</td></tr>
<tr><td colspan="3">On the basis from the impact assessment above and in Section 6.8 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.</td></tr>
</table>

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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
- Waste generation
- Additional stress or injury caused to wildlife

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.

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Table 7-1: Analysis of risks and impacts

	Environmental Value						
	Soil and Groundwater	Marine Sediment Quality	Water Quality	Air Quality	Ecosystems/ Habitat	Species	Socio-Economic
Operational monitoring		✓	✓		✓	✓	
Source control			✓	✓	✓	✓	✓
Shoreline protection and deflection	✓	✓	✓		✓	✓	✓
Shoreline clean-up	✓	✓	✓		✓	✓	✓
Oiled wildlife			✓		✓	✓	
Scientific monitoring	✓	✓	✓	✓	✓	✓	✓
Waste management	✓			✓	✓	✓	✓

7.3 Evaluation of impacts and risks from implementing response techniques

Drill cuttings and drilling fluids environmental impact assessment for relief well drilling

The identified potential impacts associated with the discharge of drill cuttings and fluids during a relief well drilling activity include a localised reduction in water and seabed sediment quality, and potential localised changes to benthic biota (habitats and communities).

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; and
- Potential contamination and toxicity effects to benthic and in-water biota from drilling fluids.

Potential impacts from the discharge of cuttings range from the complete burial of benthic biota in the immediate vicinity of the well site due to sediment deposition, smothering effects from raised sedimentation concentrations as a result of elevated 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 (IOGP), 2016) (ie within the EMBA for a hydrocarbon spill event).

The discharge of drill cuttings and unrecoverable fluids from relief well drilling is expected to increase turbidity and TSS levels in the water column, leading to an increased sedimentation rate above ambient levels associated with the settlement of suspended sediment particles 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

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well locations with potential for localised spread downstream (depending on the speed of currents throughout the water column and seabed) (IOGP, 2016). The finer particles will remain in suspension and will be transported further before settling on the seabed.

These conclusions were supported by discharge modelling which was undertaken by Woodside in support of the Greater Enfield Development Environment Plan. Modelling results indicating the TSS plume of suspended cuttings will typically disperse to the south-west while oscillating with the tide and diminish rapidly with increasing distance from the well locations. Maximum TSS concentrations predicted for 100 m; 250 m and 1 km distances from the wellsite were 7, 5 and 1 mg/l, respectively. Furthermore, water column concentrations below 10 mg/l remain within 235 m of the discharge location for each modelled well. For all well discharge locations (outside of direct discharge sites), TSS concentration did not exceed 10 mg/l. Nelson et al. (2016) identified <10 mg/L as a no effect or sub-lethal minimal effect concentration.

The low sensitivity of the deep-water benthic communities/habitats within and in the vicinity of relief well locations, combined with the relatively low toxicity of WBM and NWBMs, no bulk discharges of NWBM and the highly localised nature and scale of predicted physical impacts to seabed biota indicate any localised impact would likely be of a slight magnitude (especially when considering the broader consequence of the LOWC event a relief well drilling activity would be responding too).

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

Typical booms used in containment and recovery operations are designed to float, meaning that fauna capable of diving, such as cetaceans, marine turtles and seasnakes can readily avoid contact with the boom. Impacts to species that inhabit the water column such as sharks, rays and fish are not expected. Additionally, some fauna, such as cetaceans, are likely to detect and avoid the spill area, and are not expected to be present in the proximity of containment and recovery operations.

During the implementation of response techniques, where water depths allow, it is possible 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

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personnel may have minimal, localised impacts on habitats, wildlife and coastlines. The impacts associated with human presence on shorelines during shoreline surveys may include:

- Damage to vegetation/habitat to gain access to areas of shoreline oiling;
- Damage or disturbance to wildlife during shoreline surveys;
- Removal of surface layers of intertidal sediments (potential habitat depletion); and
- Excessive removal of substrate causing erosion and instability of localised areas of the shoreline.

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 containment and recovery and shoreline clean-up operations
- Semi-solids/solids (oily solids), collected during containment and recovery and shoreline clean-up operations
- Debris (e.g. seaweed, sand, woods, plastics), collected during containment and recovery and 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 could allow additional oil to penetrate the substrate and may also lead to localised habitat loss. However, any loss is expected to be localised in nature and lead to an overall net environmental benefit associated with the response by reducing exposure of wildlife to oiling.

Additional stress or injury caused to wildlife

Additional stress or injury to wildlife could be caused through the following phases of a response:

- Capturing wildlife
- Transporting wildlife
- Stabilisation of wildlife
- Cleaning and rinsing of oiled wildlife
- Rehabilitation (e.g. diet, cage size, housing density)
- Release of treated wildlife

Inefficient capture techniques have the potential to cause undue stress, exhaustion or injury to wildlife, additionally pre-emptive capture could cause undue stress and impacts to wildlife when there are uncertainties in the forecast trajectory of the spill. During the transportation and stabilisation phases there is the potential for additional thermoregulation stress on captured wildlife. Additionally, during the cleaning process, it is important personnel undertaking the tasks are familiar with the relevant techniques to 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.

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, Tactical Response Plans, and/or First Strike Plans.

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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

- Existing mooring points would be used for anchoring (PS 14.1, 18.1).
- Where existing fixed anchoring points are not available, locations will be selected to minimise impact to nearshore benthic environments with a preference for areas of sandy seabed where they can be identified (PS 14.1, 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 14.2, 18.2).

Presence of personnel on the shoreline

- Oversight by trained personnel who are aware of the risks (PS 18.6).
- Trained unit leader's brief personnel of the risks prior to operations (PS 18.7).

Human Presence

- Shoreline access route (foot, car, vessel and helicopter) with the least environmental impact identified will be selected by a specialist in SCAT operations (PS 18.4).
- Vehicular access will be restricted on dunes, turtle nesting beaches and in mangroves. (PS 18.3).

Waste generation

- All shoreline clean-up sites will be zoned and marked before clean-up operations commence (PS 15.5).
- Limiting vegetation removal to only that vegetation that has been moderately or heavily oiled (PS 18.5).

Additional stress or injury caused to wildlife

- Operations conducted with advice from the DBCA Oiled Wildlife Advisor and in accordance with the processes and methodologies described in the WA OWRP and the relevant regional plan (PS 22.2).

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8 ALARP CONCLUSION

An analysis of alternative, additional and improved control measures has been undertaken to determine their reasonableness and practicability. The tables in Section 6 document the considerations made in this evaluation. Where the costs of an alternative, additional, or improved control measure have been determined to be 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 scenario from this activity.
- The likelihood of the WCCS spill has been ignored in evaluating what was reasonably practicable.

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9 ACCEPTABILITY CONCLUSION

Following the ALARP evaluation process, Woodside deems the hydrocarbon spill risks and impacts have been reduced to an acceptable level by meeting 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. MARPOL, the World Heritage Convention, the Ramsar Convention, and the Biodiversity Convention etc.). In addition to these, other non-legislative requirements met include:
    - Australian IUCN reserve management principles for Commonwealth marine protected areas and bioregional marine plans.
    - National Water Quality Management Strategy and supporting guidelines for marine water quality).
    - Conditions of approval set under other legislation.
    - National and international requirements for managing pollution from ships.
    - National biosecurity requirements.
- Industry standards, best practices and widely adopted standards and other published materials have been used and referenced when defining acceptable levels. Where these are inconsistent with mandatory/ legislative regulations, explanation has been provided for the proposed deviation. Any deviation produces the same or a better level of environmental performance (or outcome).

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11 GLOSSARY AND ABBREVIATIONS

11.1 Glossary

Term	Description / Definition
ALARP	Demonstration through reasoned and supported arguments that there are no other practicable options that could reasonably be adopted to reduce risks further.
Availability	The availability of a control measure is the percentage of time that it 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.
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.
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, e.g., Barrow Island

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Term	Description / Definition
Receptor Sensitivities	This is a classification scheme to categorise receptor sensitivity to an oil spill. The Environmental Sensitivity Index (ESI) is a numerical classification of the relative sensitivity of a particular environment (particularly different shoreline types) to an oil spill. Refer to the Woodside Oil Pollution Emergency Arrangements (Australia) for more details.
Regulator	NOPSEMA are the Environment Regulator under the Environment Regulations.
Reliability	The probability that at any point in time a control measure will operate correctly for a further specified length of time.
Response technique	The key priorities and objectives to be achieved by the response plan Measures taken in response to an event to reduce or prevent adverse consequences.
Survivability	Whether or not a control measure is able to survive a potentially damaging event is relevant for all control measures that are required to function after an incident has occurred.
Threshold	Hydrocarbon threshold concentrations applied to the risk assessment to evaluate hydrocarbon spills. These are defined as: surface hydrocarbon concentration – ≥10 g/m^2, dissolved – ≥100 ppb and entrained hydrocarbon concentrations – ≥500 ppb.
Zone of Application	The zone in which Woodside may elect to apply dispersant. The zone is determined based on a range of considerations, such as hydrocarbon characteristics, weathering and metocean conditions. The zone is a key consideration in the Net Environmental Benefit Analysis for dispersant use.

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11.2 Abbreviations

Abbreviation	Meaning
AHV	Anchor Handler Vessel
AIIMS	Australasian Inter-Service Incident Management System
ALARP	As low as reasonably practicable
AMOSC	Australian Marine Oil Spill Centre
AMP	Australian Marine Park
AMSA	Australian Maritime Safety Authority
AUV	Autonomous Underwater Vehicle
BAOAC	Bonn Agreement Oil Appearance Code
BC Act	Biodiversity Conservation Act 2016
BP	Boiling Point
BOP	Blowout Preventer
CS	Credible Scenario
CIMT	Corporate Incident Management Team
COP	Common Operating Picture
DM	Duty Manager
DoT	Western Australia Department of Transport
DBCA	Western Australia Department of Biodiversity, Conservation and Attractions (former Western Australian Department of Parks and Wildlife)
DISC	Drilling Industry Steering Committee
EMBA	Environment that May Be Affected
EMSA	European Maritime Safety Agency
EP	Environment Plan
Environment Regulations	Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009
ESI	Environmental Sensitivity Index
ESD	Ecologically Sustainable Development
ESP	Environmental Services Panel
FSP	First Strike Plan
GIS	Geographic Information System
HVLP	High Volume Low Pressure
HSP	Hydrocarbon Spill Preparedness
IAP	Incident Action Plan
IC	Incident Commander
ICE	Internal Control Environment
IMSA	Index of Marine Surveys for Assessment
IMT	Incident Management Team
IMO	International Maritime Organisation

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Abbreviation	Meaning
IOGP	International Association of Oil and Gas Producers
ISVs	Infield Support Vessel
ITOPF	International Tanker Owners Pollution Federation
IUCN	International Union for Conservation of Nature
KBSF	King Bay Supply Facility
LEL	Lower Explosive Limit
MARPOL	International Conventional for the Prevention of Pollution from Ships
MDO	Marine Diesel Oil
MSRC	Marine Spill Response Corporation
MODU	Mobile Offshore Drilling Unit
MoU	Memorandum of Understanding
NEBA	Net Environmental Benefit Analysis
NOPSEMA	National Offshore Petroleum Safety and Environment Management Authority
OM	Operational Monitoring
OPEA	Oil Pollution Emergency Arrangements
OPEP	Oil Pollution Emergency Plan
OSCA	Cleaning Agents
OSPRMA	Oil Spill Preparedness and Response Mitigation Assessment
OSRL	Oil Spill Response Limited
OSRO	Oil Spill Response Organisations
OWR	Oiled Wildlife Response
OWRP	Oiled Wildlife Response Plan
PAP	Petroleum Activities Program
PBA	Pre-emptive Baseline Areas
PPA	Priority Protection Area
PPB	Parts per billion
PS	Performance Standard
ROV	Remotely Operated Vehicle(s)
RPA	Response Protection Area
SCAT	Shoreline Contamination Assessment Techniques
SHP-MEE	State Hazard Plan – Maritime Environmental Emergencies
SIMA	Spill Impact Mitigation Assessment
SMP	Scientific Monitoring Plan
SSDI	Subsea Dispersant Injection
SFRT	Subsea First Response Toolkit
SMP	Scientific monitoring program
SOPEP	Shipboard Oil Pollution Emergency Plan

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Abbreviation	Meaning
TOA	Testing of Arrangements
TRP	Tactical Response Plan
TRSV	Tubing Retrievable Safety Valve
TSS	Total Suspended Solids
UAS	Unmanned Aerial Systems
UAV	Unmanned Aerial Vehicles
WA	Western Australia
WHA	World Heritage Area
Woodside	Woodside Energy (Julimar) Limited
WiRCS	Woodside Integrated Risk and Compliance System
WMS	Woodside Management System
WWCI	Wild Well Control Inc
WCCS	Worst Case Credible Scenario

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ANNEX A: NET ENVIRONMENTAL BENEFIT ANALYSIS DETAILED OUTCOMES

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A NEBA has been conducted to assess the net environmental benefit of different response techniques to selected receptors in the event of an oil spill from the PAP for CS-01 and CS-02. The complete list of potential receptor locations within the EMBA within the PAP is included in Section 4 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 Julimar Development Phase 3 Drilling and Subsea Installation preoperational NEBAs contains the full assessments.

Table A-1: NEBA assessment technique recommendations for a spill of JULA04 Condensate – CS-01

Receptor	Operational Monitoring	Containment and recovery	Dispersant application: sub-sea	Dispersant application: >20 m water depth and >10 km from shore/reefs	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response	In situ burning	Mechanical dispersion	Well control and intervention
Montebello AMP	Yes	No	No	No	Yes	Yes	Potentially	No	Yes	No	No	Yes
Barrow Island	Yes	No	No	No	Yes	Yes	Potentially	No	Yes	No	No	Yes
Montebello Islands	Yes	No	No	No	Yes	Yes	Potentially	No	Yes	No	No	Yes

Overall assessment

Sensitive receptor (sites identified in EP)	Operational Monitoring	Containment and recovery	Dispersant application: sub-sea	Dispersant application: >20 m water depth and >10 km from shore/reefs	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response	In situ burning	Mechanical dispersion	Well control and intervention
Is this response Practicable?	Yes	No	No	No	Yes	Yes	Potentially	No	Yes	No	No	Yes
NEBA identifies response potentially of net environmental benefit?	Yes	No	No	No	Yes	Yes	Potentially	No	Yes	No	No	Yes

Table A-2: NEBA assessment technique recommendations for a spill of MDO – CS-02

Receptor	Operational Monitoring	Containment and recovery	Dispersant application: sub-sea	Dispersant application: >20 m water depth and >10 km from shore/reefs	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response	In situ burning	Mechanical dispersion	Source control via vessel SOPEP
Montebello AMP	Yes	No	N/A	No	No	No	No	No	Yes	No	No	Yes

Overall assessment

Sensitive receptor (sites identified in EP)	Operational Monitoring	Containment and recovery	Dispersant application: sub-sea	Dispersant application: >20 m water depth and >10 km from shore/reefs	Shoreline protection	Shoreline clean-up (manual)	Shoreline clean-up (mechanical)	Shoreline clean-up (chemical)	Oiled wildlife response	In situ burning	Mechanical dispersion	Source control via vessel SOPEP
Is this response Practicable?	Yes	No	N/A	No	No	No	No	No	Yes	No	No	Yes
NEBA identifies response potentially of net environmental benefit?	Yes	No	N/A	No	No	No	No	No	Yes	No	No	Yes

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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[14]	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.	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))

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[14] 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

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ANNEX B: OPERATIONAL MONITORING ACTIVATION AND TERMINATION CRITERIA

Table B-1: Operational monitoring objectives, triggers and termination criteria

Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan – 01 (OM01) 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

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Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan – 02 (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 – 03 (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.

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Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational Monitoring Operational Plan – 04 (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).

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Operational Monitoring Operational Plan	Objectives	Activation triggers	Termination criteria
Operational monitoring operational plan – 05 (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.

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ANNEX C: OIL SPILL SCIENTIFIC MONITORING PROGRAM

Oil Spill Environmental Monitoring

The following provides some further detail on Woodside's oil spill scientific monitoring Program and includes the following:

- The organisation, roles and responsibilities of the Woodside oil spill scientific monitoring team and external resourcing.
- A summary table of the ten scientific monitoring programs as per the specific focus receptor, objectives, activation triggers and termination criteria.
- Details on the oil spill environmental monitoring activation and termination decision-making processes.
- Baseline knowledge and environmental studies knowledge access via geo-spatial metadata databases.
- An outline of the reporting requirements for oil spill scientific monitoring programs.

Oil Spill Scientific Monitoring – Delivery Team Roles and Responsibilities

Woodside Oil Spill Scientific Monitoring Delivery Team

The Woodside science team are responsible for the delivery of the oil spill scientific monitoring. The roles and responsibilities of the Woodside scientific monitoring delivery team are presented in Table C-1 and the organisational structure and Corporate Incident Management Team (CIMT) linkage provided in Figure C-1.

Woodside Oil Spill Scientific monitoring program – External Resourcing

In the event of a Level 2 or 3 hydrocarbon release, or any release event with the potential to contact sensitive environmental receptors, scientific monitoring personnel and scientific equipment to implement the appropriate SMPs will be provided by SMP Standby contractor who hold a standby contract for SMP via the Woodside Environmental Services Panel (ESP). 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.

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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 Section • Sits in the Planning Section of the CIMT • Liaises with other CIMT Sections 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).

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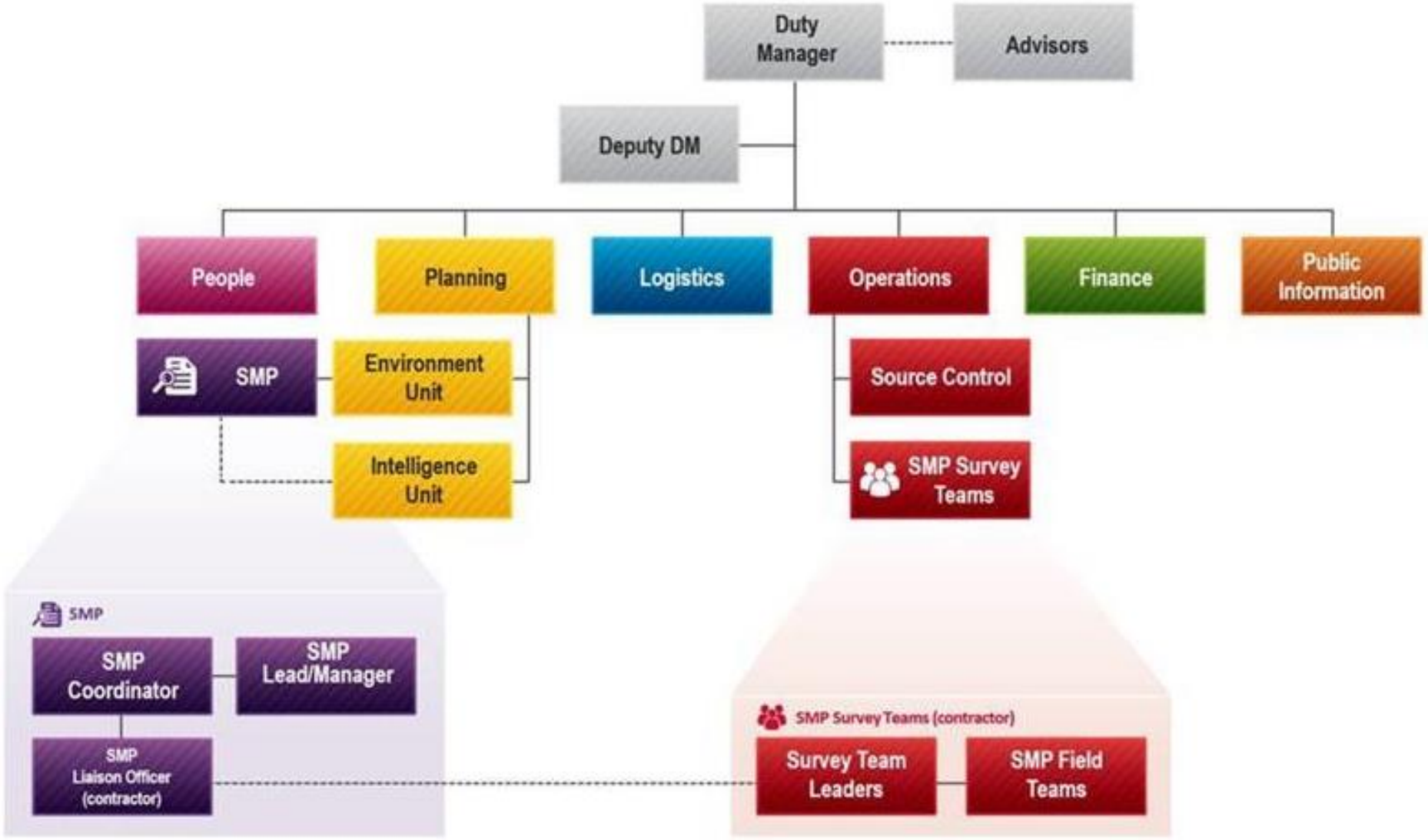

Figure C-1: Woodside Oil Spill Scientific Monitoring Program Delivery Team and Linkage to Corporate Incident Management Team (CIMT) organisational structure

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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 (201915) concentrations of 1 g/m2 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 (201316) 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:	SM04 will be activated in the event of a Level 2 or 3 hydrocarbon release, or any release event with	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.

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Scientific monitoring Program (SMP)	Objectives	Activation Triggers	Termination Criteria
Assessment of Impacts and Recovery of Mangroves / Saltmarsh	• Characterize the status of mangroves (and associated salt marsh habitat) at shorelines exposed/contacted by spilled hydrocarbons; • 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.	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; 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.

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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) • PAH Biliary Metabolites • Oxidative DNA Damage • Serum 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.

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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 first strike plan for the petroleum activity programme. The presence of any level of hydrocarbons in the marine environment triggers the activation of the oil spill scientific monitoring program (SMP). This is to 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 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). Persons/ organisations identification, 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.

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- Woodside will decide on termination of SMP based on expert opinion and merits of any persons/ organisations' objections. The final report following termination will include: monitoring results, expert opinion and consultation including merits of any objections.
- Termination of SMPs will also consider applicable management objectives, species recovery plans, conservation advices and conservations plans for any World Heritage Area (WHA), CMRs, State Marine Parks, other protected area designations (e.g., State nature reserves) and Matters of National Environmental Significance (including listed species under part 3 of the EPBC Act).

The SMP termination decision-making process will be applied to each active SMP and an iterative process of decision steps continued until each SMP has been terminated (refer to decision-tree diagram for SMP termination criteria, Figure C-3).

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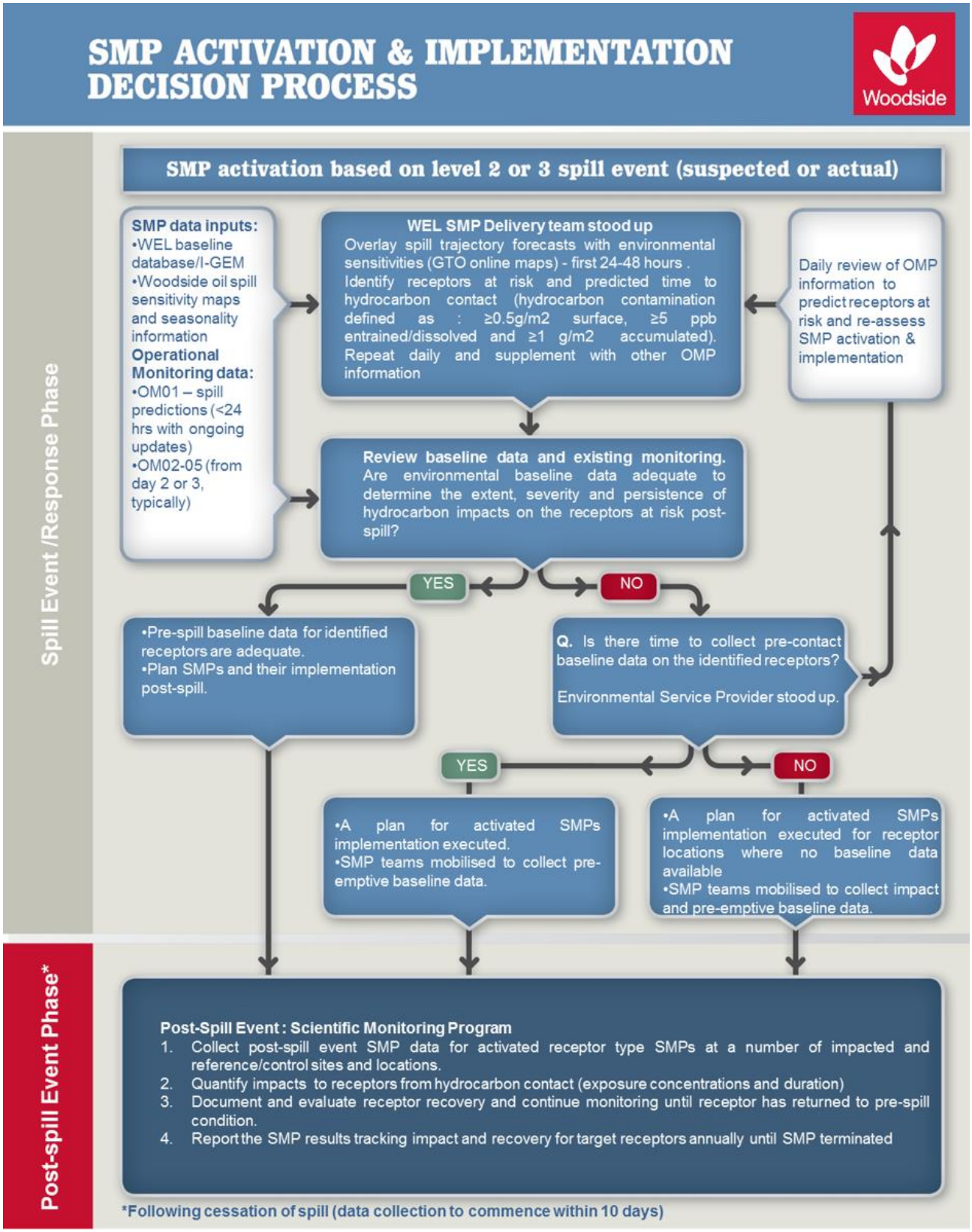

Figure C-2: Activation and Implementation Decision-tree for Oil Spill Environmental Monitoring

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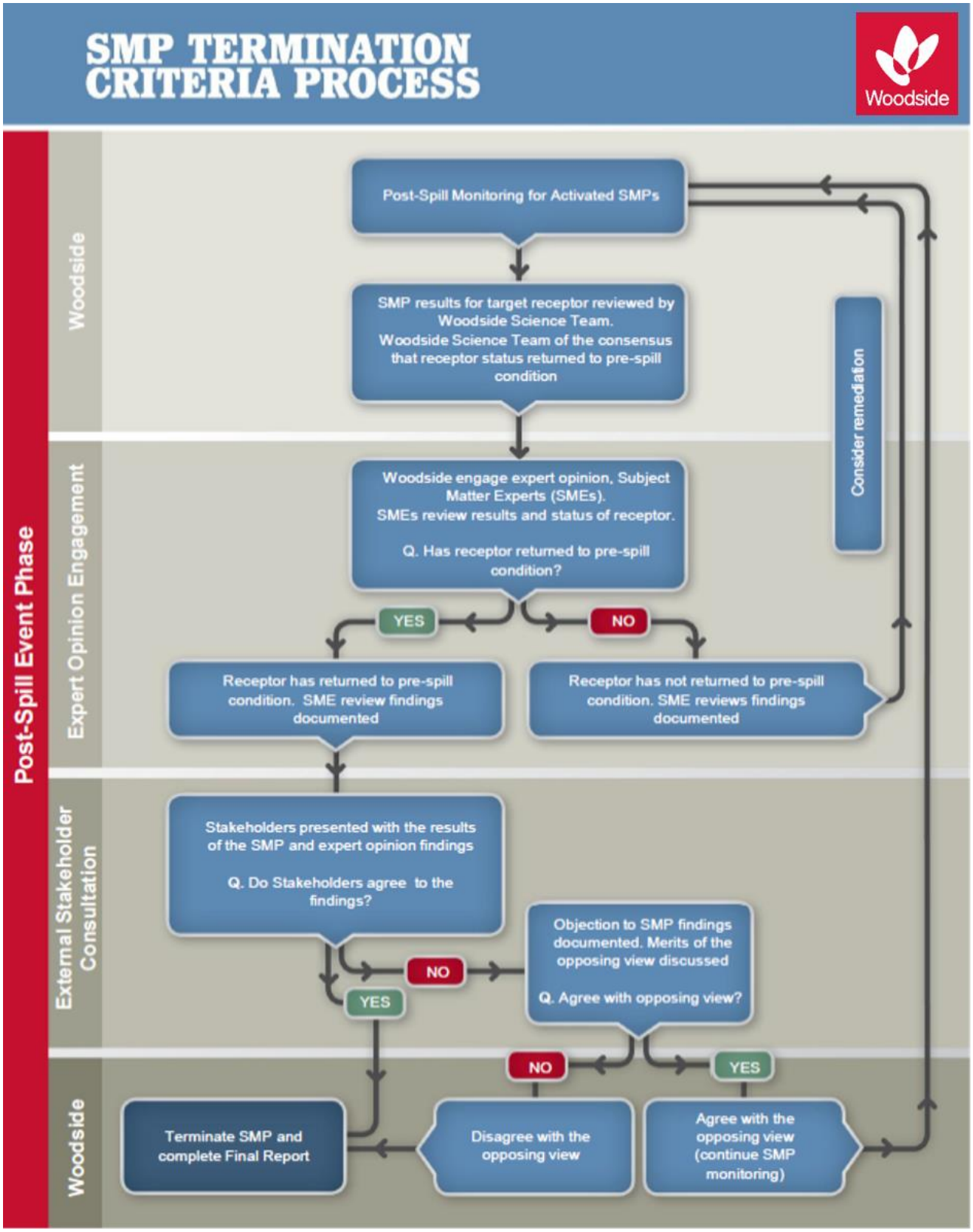

Figure C-3: Termination Criteria Decision-tree for Oil Spill Environmental Monitoring

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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

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ANNEX D: MONITORING PROGRAM AND BASELINE STUDIES FOR THE PETROLEUM ACTIVITIES PROGRAM

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Table D-1: Oil Spill Environmental Monitoring – scientific monitoring program scope for the Petroleum Activities Program based on Spill EMBAs

Receptors to be Monitored	Receptor Areas - Potential Impact and Reference Scientific Monitoring Sites (marked X)																																							
	Applicable SMP	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 Shoal	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
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
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	
Seagrass / Macro-Algae	SM03	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	
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
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	
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
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
Dugongs	SM08	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	
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
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
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
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

	Receptor areas identified as Pre-emptive Baseline Areas (based on criteria of surface contact and/or entrained hydrocarbon contact ≤10 days (Offshore Australian Marine Parks contacted by hydrocarbons in this timeframe also noted)
	Receptor areas identified as Pre-Emptive Baseline Areas in the response phase >10 days (based on criteria of surface contact and/or entrained hydrocarbon contact >10 days)
	Receptor areas that may be identified as impact or reference sites in the event of major hydrocarbon release and would be identified as part of the SMP planning process

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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	Barrow, Montebello and Lowendal Islands	Montebello AMP
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:**	**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.	Barrow Island: East and West Coast baseline and monitoring for soft sediment, limestone pavement and coral assemblages (Chevron) Barrow, Montebello and Lowendal Islands: 1. Benthic community monitoring as part of DBCA Western Australian Marine Monitoring Program (2015-ongoing). 2. Pilbara Marine Conservation Partnership Seabed biodiversity survey (2013).	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. Pluto Trunkline within Montebello Marine Park – Monitoring marine communities.
		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.	Barrow Island: Coral habitat – mapping, rapid visual assessment, size-class frequency, photo quadrats – live coral cover and survival, tagged corals – growth and survival and coral recruitment Benthic macro-invertebrate surveys – video belt transects Barrow, Montebello and Lowendal Islands: 1. Fixed long-term monitoring sites. Diver video transect. 2. Towed video, benthic trawl and sled.	1.ROV Transects 2. Benthic habitat mapping, multibeam acoustic swathing. 3. ROV video.
		References and 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 and Jones et al. 2021. DATAHOLDER: AIMS	Barrow Island: Chevron Australia (2015a and b) DATAHOLDER: Chevron Australia Barrow, Montebello and Lowendal Islands: 1. WA Department of Biodiversity, Conservation and Attractions (DBCA) DATAHOLDER: DBCA 2. Pitcher et al. 2016 DATAHOLDER: CSIRO	1. Advisian 2019 2. Keesing 2019 3. McLean et al. 2019
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:**		
			Barrow Island: East Barrow Island – Chevron baseline and monitoring	N/A – see Table D-1
		Methods:		
			East Barrow - seagrass photo quadrats (30 m transects) during spring/summer and winter periods Macroalgae photo quadrats, visual census and biomass and specimen sampling	
		References and Data:		
			Barrow Island: Chevron Australia (2015a and b) DATAHOLDER: Chevron Australia	

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Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP
Benthic Habitat (Deeper Water Filter Feeders)	**SM03** Quantitative assessment using image capture using towed video. Post analysis into broad groups based on taxonomy and morphology.	**Studies:**		
		As above (SM03 Coral Reefs)		As above (SM03 Coral Reefs)
		Methods:		
		References and Data:		
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	Barrow Island: East and West Coast baseline and monitoring – mapping (HR aerial imagery) and vegetation surveys	N/A – see Table D-1
		Methods:		
			Barrow – Chevron (2015a and b) – HR mapping (aerial images) and vegetation surveys using belt transects – species composition, estimated total canopy cover, total number of trees, pneumatophore density and canopy density.	
		References and Data:		
			Barrow Island: Chevron Australia (2015a and b) DATAHOLDER: Chevron Australia	
Seabirds	**SM05** Visual counts of breeding seabirds, nest counts, intertidal bird counts at high tide	**Studies:**		
		N/A – See Table D-1	Barrow Island: Barrow Island Seabird Monitoring Program (Chevron) Barrow, Montebello and Lowendal Islands: 1. Johnston et al (2013) general inventory and distribution for the Pilbara region (WA Museum) 2. Santos – Integrated Shearwater Monitoring Program (1994-2016) 3. Santos – monitoring of seabird breeding colonies throughout the Lowendal Group of Islands.	N/A – see Table D-1
		Methods:		
			Barrow Island – 2008-ongoing annual surveys: abundance, nest density, presence/absence of egg or chick/fledgling Barrow, Montebello and Lowendal Islands: 1. Desktop review (WA Museum) 2. Nest burrow density, presence/absence of eggs or chicks in burrows 3. The distribution and abundance of other nesting seabirds within the Lowendal Island group, including up to 45 islands and islets	
		References and Data:		

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Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP
			Barrow – Chevron (2015c) DATAHOLDER: Chevron Australia Barrow, Montebello and Lowendal Islands: 1. Johnston et al (2013) DATAHOLDER: (WA Museum 2. Santos DATAHOLDER: Santos 3. Surman and Nicholson (2012) DATAHOLDER: Santos	
Turtles	**SM06** Beach surveys (recording species, nest counts, false crawls)	**Studies:**		
		N/A – See Table D-1	Barrow Island: Chevron Australia: long term monitoring programs for flatback turtles Barrow, Montebello and Lowendal Islands: 1. Marine turtle monitoring as part of DBCA long-term turtle monitoring program (ongoing). 2. LTM Study of Green, Flatback, Hawksbill turtles on beaches within the Barrow, Lowendal and Montebello Island Complex. 3. Santos 2013 turtle nesting survey on the Lowendal islands. 4. Varanus Island Turtle monitoring program (2005 – present). North West Shelf Flatback Conservation Program – conserve North West Shelf stock – scope covers all summer nesting flatback turtles - https://flatbacks.dbca.wa.gov.au/about	N/A – see Table D-1
		Methods:		
			Barrow Island – Chevron Australia: 2005 -ongoing annual surveys, flatback turtles – nesting success, track counts and satellite tracking, hatchling survival and dispersal. Barrow, Montebello and Lowendal Islands: 1. Nesting demographics 2. Nesting demographics 3. Tagging and nest counts 4. Tagging and nest counts at Varanus, Beacon, Bridled, Abutilon and Parakeelya islands. North West Shelf Flatback Conservation Program - https://flatbacks.dbca.wa.gov.au/program-activities	
		References and Data:		
			Barrow Island – Chevron (2015c) DATAHOLDER: Chevron Australia Barrow, Montebello and Lowendal Islands: 1. DBCA 2. Pendoley 2005. AMOSC/DBCA (DPaW) 2014. 3. Santos (2014) DATAHOLDER: Santos 4. Santos (2005-prsesent) DATAHOLDER: Santos North West Shelf Flatback Conservation Program - https://flatbacks.dbca.wa.gov.au/program-activities	
Fish	**SM09**	**Studies:**		

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Major Baseline	Proposed Scientific monitoring operational plan and Methodology	Rankin Bank & Glomar Shoal	Barrow, Montebello and Lowendal Islands	Montebello AMP
	Baited Remote Underwater Video Stations (BRUVS),	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.	Barrow Island: Chevron: East and West Coast intertidal and subtidal baseline and monitoring Barrow, Montebello and Lowendal Islands: 1. Pilbara Marine Conservation Partnership Stereo BRUVS drops in shallow water (~10m) from Exmouth to Barrow Islands in 2015. 2. Finfish monitoring as part of DBCAs Western Australian Marine Monitoring Program (2015-ongoing).	1. CSIRO – Fish Diversity. 2. Fish species richness and abundance.
		Methods:		
		1. BRUVs. 2. BRUVs. 3. BRUVs. 4. BRUVs.	Barrow Island – Chevron (2015a and b) – demersal fish: stereo BRUVS (subtidal habitats) and netting combination for mangrove habitat Barrow, Montebello and Lowendal Islands: 1. Stereo BRUVS. 2. Diver underwater visual surveys (UVS).	1. Semi V Wing trawl net or an epibenthic sled. 2. ROV Video.
		References and 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 and Jones et al. 2021. DATAHOLDER: AIMS	Barrow Island – Chevron Australia (2015a and b) DATAHOLDER: Chevron Barrow, Montebello and Lowendal Islands: 1. Unpublished report CSIRO DATAHOLDER: CSIRO, CSIRO Data centre ([redacted]) 2. DBCA	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

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KGP to Withnell 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

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APPENDIX I. OIL POLLUTION FIRST STRIKE PLAN

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CONTROLLED DOCUMENT **Julimar Development Phase 3 Drilling and Subsea Installation – Oil Pollution First Strike Plan**	Woodside Energy

Controlled Ref No: JU0005AF1401791543	**Revision: 0a**

Name	Signature	Date
Prepared by: **Abby Findlay** (***Recommender*** – Person creating/editing document content)		
Approved by: **Zoe Beverley** (***Decider*** – Person validating document content)		
Custodian: **Nick Young** (***Performer*** – Person managing document lifecycle)		
Concurrence (***Agreer*** - Agreement that must be obtained if an item is prepared external to, but impacts, a department or division. If concurrence is required, it must be noted within the body of the item**).**		
1.		
2.		
3.		

REVISION HISTORY

Revision	Description	Date	Prepared by	Approved by
0a	Prepared for submission	12/03/2024	A Findlay	Z Beverley
0	Prepared for submission	01/12/2023	A Findlay	Z Beverley

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- ☐ For WEL Under PO/Contract No:

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03	WA Department of Transport Maritime Environmental Emergency Response (MEER) Maritime WA Department of Transport Level 4 5 Newman Court, Fremantle WA 6160 E: [redacted]	☐	☒
04	Australian Marine Oil Spill Centre (AMOSC) C/- General Manager, PO Box 1497, Geelong 3220 E: [redacted]	☐	☒
05	Oil Spill Response Limited C/- Operations Administration Loyang Offshore Supply Base 25C Loyang Crescent (Block 503 TOPS Avenue 3) Singapore 506818 E: [redacted]	☐	☐

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Julimar Development Phase 3 Drilling and Subsea Installation – Oil Pollution First Strike Plan

Corporate HSE

Hydrocarbon Spill Preparedness

March 2024
Revision 0a

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TABLE OF CONTENTS

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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) Incident Commander (IC)
	State waters	1	Woodside	CIMT IC
		2/3	Department of Transport (DoT)	DoT Incident Controller
	Within port limits	1	Woodside	CIMT IC
		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 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).

Initially Woodside will be required to make available an appropriate number of suitably qualified persons to work in the DoT Incident Management Team (IMT) (APPENDIX F – Woodside Liaison Officer Resources to DoT). DoT's role as the Controlling Agency in State waters 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 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) (Guidance Note). 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.

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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 pre-identified tactics in **Table 2-1** of this Oil Pollution First Strike Plan. Remember to download each Operational Plan.	Notify AMSA and coordinate 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	Handover control to AMSA 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: 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.

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1. NOTIFICATIONS

The Incident Controller or delegate must ensure the below notifications (Table 1-1) are completed within the designated timeframes.

For spills from a vessel, relevant notifications must be undertaken by a WEL representative.

Table 1-1: Notifications

In the event of an incident between campaign vessels, also activate relevant vessel Emergency Response Plans and/or Bridging Documents

Timing	By	To	Name	Contact	Instruction	Form	Complete? (✓)
NOTIFICATIONS FOR ALL LEVELS OF SPILL							
Immediately	Offshore Installation Manager (OIM) or Vessel Master	Woodside Communication Centre (WCC)	Corporate Incident Management Team Incident Commander (CIMT IC)	[redacted]	Verbally notify WCC of event and estimated volume and hydrocarbon type.	Verbal	
Within 2 hours	Woodside Site Rep (WSR), CIMT IC 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 National Offshore Petroleum Titles Authority (NOPTA) and the Department of Mines, Industry Regulation and Safety (DEMIRS)).	[redacted]	
Within 3 days	WSR, CIMT IC or Delegate				Provide a written NOPSEMA Incident Report Form as soon as practicable (no later than 3 days after notification) (cc to NOPTA and DEMIRS) NOPSEMA [redacted] NOPTA [redacted] DEMIRS [redacted]	[redacted]	
As soon as practicable	CIMT IC or Delegate	Woodside	Environment Unit Leader	As per roster	Verbally notify Environment Unit Leader of event and seek advice on relevant performance standards from Environment Plan (EP)	Verbal	
Within 2 hours of becoming aware of a marine pollution incident (MOP) that occurs in or may impact state waters	CIMT IC or Delegate	WA Department of Transport (DoT)	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/Fremantle/]. Follow up with a written Marine Pollution Report (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 IC 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	CIMT IC or Delegate	WA Department of Biodiversity, Conservation	Duty Officer	[redacted]	Phone call notification	Verbal	

[1] Notification to NOPSEMA must be from a Woodside Representative.

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Timing	By	To	Name	Contact	Instruction	Form	Complete? (✓)
by WA Department of Biodiversity, Conservation and Attractions		and Attractions (DBCA)					
As soon as practicable	Public Information	Relevant persons/ organisations	To be determined	To be determined	Should it be identified that additional persons such as, but not limited to, commercial fishers and tourism operators may be affected, Woodside would, at the relevant time, engage with these parties as appropriate and in alignment with the Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) for the Julimar Development Phase 3 (JDP3) Drilling and Subsea Installation activity. Relevant persons/ organisations will be re-assessed throughout the response period.	Verbal initially	
As soon as practicable	Public Information	Relevant cultural authorities	To be determined	To be determined	Should it be identified that relevant cultural authorities may be affected, Woodside would, at the relevant time, engage with these parties as appropriate and in alignment with the Oil Spill Preparedness and Response Mitigation Assessment (OSPRMA) for the Julimar Development Phase 3 (JDP3) Drilling and Subsea Installation activity. Relevant cultural authorities will be re-assessed throughout the response period.	Verbal initially	
ADDITIONAL NOTIFICATIONS TO BE MADE ONLY IF SPILL IS FROM A VESSEL							
Without delay as per protection of the Sea Act, part II, section 11(1)	Vessel Master	Australian Maritime Safety Authority (AMSA)	Response Coordination Centre (RCC)	[redacted]	Verbally notify AMSA RCC of the hydrocarbon spill. Follow up with a written POLREP as soon as practicable following verbal notification.	[redacted]	
ADDITIONAL LEVEL 2/3 NOTIFICATIONS							
As soon as practicable	CIMT IC or Delegate	AMOSC	AMOSC Duty Manager	[redacted]	Notify AMOSC that a spill has occurred and follow-up with an email from the **CIMT IC/ CIMT Deputy IC/ CMT Leader** to formally activate AMOSC. 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 IC 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 IC 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	

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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
	MDO	Cond.					
Operational monitoring – tracking buoy (OM02)	Yes	Yes	ALL	If a vessel is on location, consider the need to deploy the oil spill tracking buoy. If no vessel is on location, consider the need to mobilise oil spill tracking buoys from the King Bay Supply Base (KBSB) Stockpile. 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 Link.
Operational monitoring – predictive modelling (OM01)	Yes	Yes	ALL	Undertake initial modelling using the Rapid Assessment Oil Spill Tool and weathering fate analysis using Automated Data Inquiry for Oil Spills (ADIOS) or refer to the hydrocarbon information in **Appendix A.**	Situation or Environment	**DAY 1:** 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). *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]).	Situation	**DAY 1:** Detailed modelling within 4 hours of RPS Response receiving information from Woodside.	
Operational monitoring – aerial surveillance (OM02)	Yes	Yes	ALL	Instruct Aviation Unit Leader to commence aerial observations in daylight hours. Aerial surveillance observer to complete log in Appendix B Form 8.	Logistics – Aviation	**DAY 1:** 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). *Planning to download immediately and follow steps*
Operational monitoring – satellite tracking (OM02)	Yes	Yes	ALL	The Situation Unit Leader to action satellite imagery services. This may be obtained via: • AMOSC Duty Manager: [redacted] • OSRL Duty Manager: [redacted] • KSAT: [redacted] • Others identified by CIMT	Situation	**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:** Water quality assessment access and capability Daily fluorometry reports will be provided to IMT.	Detecting and Monitoring for the Presence and Properties of Hydrocarbons in the Marine Environment (OM03 of The Operational Monitoring Operational Plan).
Operational monitoring – pre-emptive assessment of receptors at risk (OM04)	Yes	Yes	ALL	Consider the need to mobilise resources to undertake pre-emptive assessment of sensitive receptors at risk (OM04).	Planning or Environment	**DAY 2:** In agreement with WA DoT, deployment of 2 specialists for each of the Response Protection Areas (RPA) with predicted impacts.	Pre-emptive Assessment of Sensitive Receptors (OM04 of The Operational Monitoring Operational Plan).
Operational monitoring – shoreline assessment (OM05)	Yes	Yes	ALL	Consider the need to mobilise resources to undertake shoreline assessment surveys (OM05).	Planning or Environment	**DAY 2:** In agreement with WA DoT, deployment of 2 specialists trained in Shoreline Clean-up Assessment Technique (SCAT) for each of the RPAs with predicted impacts.	Shoreline Assessment (OM05 of The Operational Monitoring Operational Plan).
Surface dispersant	No	No	N/A	This response strategy is not recommended.			
Containment and recovery	No	No	N/A	This response strategy is not recommended.			
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.			

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Technique	Spill type		Level	Pre- Identified Tactics	Responsible	ALARP Commitment Summary	Link to Operational Plans for notification numbers and actions
	MDO	Cond.					
Shoreline protection and deflection	No	Yes	ALL	Equipment from Woodside, AMOSC and AMSA Western Australian Stockpiles mobilised. Consideration of mobilisation of interstate/international shoreline protection equipment (i.e. OSRL).	Operations and Planning	In agreement with WA DoT, activate relevant Tactical Response Plans (TRPs) 5 days prior predicted impact. In agreement with WA DoT, mobilise teams (2 supervisors plus 10 additional personnel) to RPA's 5 days prior to predicted impact. In liaison with WA DoT, equipment mobilised from closest stockpile 5 days prior to predicted impact at each identified RPA. Supplementary equipment mobilised from State, AMOSC, AMSA stockpiles 5 days prior to predicted impact.	Protection and Deflection Operational Plan *Logistics to download immediately and follow steps*
Shoreline clean-up	No	Yes	ALL	Equipment from Woodside AMOSC and AMSA Western Australian Stockpiles and relevant personnel mobilised. Consideration of mobilisation of interstate/international shoreline clean-up equipment and relevant personnel (i.e. OSRL).	Logistics and Planning	One shoreline clean-up team to each contaminated RPA 5 days prior to impact. TRPs for at risk shorelines activated 5 days prior to impact. Access to at least 100 m^3 of solid and liquid waste storage available by within initial 28 days upon activation of third-party contract.	Shoreline Clean-up Operational Plan *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	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	Oiled Wildlife Response Operational Plan
Scientific monitoring (type II)	Yes	Yes	ALL	Notify Woodside science team of spill event.	Environment		Oil Spill Scientific Monitoring Programme – Operational Plan
SOURCE CONTROL TECNIQUES							
Subsea First Response Toolkit	No	Yes	L2/3	Debris clearance equipment to be mobilised prior to deployment of capping stack.	Source Control	**DAY 2:** 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. ROV equipment deployed within 7 days. Intervention vessel with minimum requirement of a working class ROV and operator mobilised to with for deployment within 11 days.	Source Control Emergency Response Planning Guideline Activity Source Control Emergency Response Plan
Subsea Dispersant	No	No	N/A	This response strategy is not recommended			
Capping Stack	No	Yes	L2/3	Conventional/vertical capping stack deployment with a heavy lift vessel will be attempted if plume radius is ~25 m and environmental conditions permit (wind speed, wave height, current and plume radius).	Source Control	**DAY 1:** Identify source control vessel availability within 24 hours. Capping stack on suitable vessel mobilised to site within 16 days.	
Relief Well	No	Yes	L2/3	Relief well drilling will be the main technique employed to control a loss of well containment event.	Source Control	**DAY 1:** Identify source control vessel availability within 24 hours. MODU mobilised to location within 21 days.	

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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, no receptors have the potential to accumulate shoreline hydrocarbons at or above impact threshold levels (≥100 g/m^2) within 48 hours of a spill.

Hydrocarbon spill modelling results indicate the sensitive receptors listed below have the potential to be contacted by hydrocarbons beyond 48 hours of a spill:

- Barrow Island
- Hermite Island, and Montebello Islands and Montebello Marine Park

Tactical Response Plans (TRPs) for these locations can be accessed here 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 JDP3 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 JDP3 Drilling and Subsea Installation Operational Area.

Table 3-1: Assets in the vicinity of the JDP3 Drilling and Subsea Installation Operational Area

Asset	Distance and Direction from Operational Area	Operator
Pluto Platform	13 km east north-east	Woodside
Wheatstone Platform	17 km north-east	Chevron
John Brookes	27 km south	Quadrant Energy
East Spar	57 km south	Quadrant Energy
Goodwyn	88 km north-east	Woodside
North Rankin (operated by Woodside)	110 km north-east	Woodside

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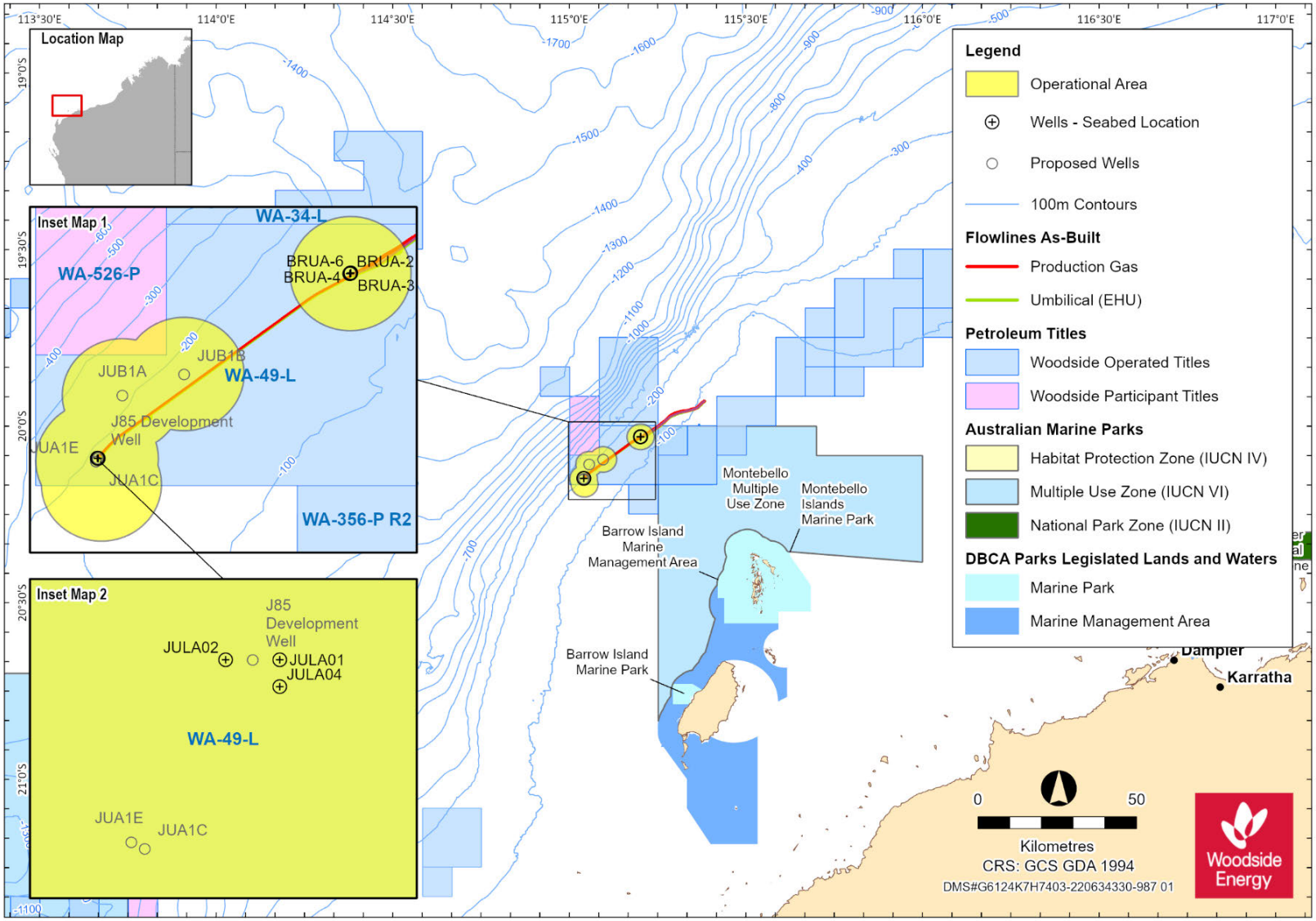

Figure 3-1: Location of activity and sensitive receptors

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4. DISPERSANT APPLICATION

Dispersant is not considered an appropriate response strategy for this activity as described in the Julimar Development Phase 3 (JDP3) Drilling and Subsea Installation Environment Plan Appendix D (Woodside's Oil Spill Preparedness and Response Mitigation Assessment).

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APPENDIX A – CREDIBLE SPILL SCENARIOS AND HYDROCARBON INFORMATION

Table A - 1: Credible spill scenarios and hydrocarbon information

Scenario	Product	Volume	Residue	Weathering rate		Suggested ADIOS2 Analogue[2]
CS-01 (WCCS) ***Long-Term (63-day) Uncontrolled Surface/Subsea Release of 75,453 m^3 of JULA04 Condensate.***	JULA04 Condensate	75,453 m^3	6.5% or 4904 m^3	12 hours (BP < 180 °C)	43.6%	*NA*
				24 hours (180 °C < BP < 265 °C)	22.9%	
				Several days (265 °C < BP < 380 °C)	27.1%	
CS-02 ***Vessel collision resulting in rupture of a tank***	MDO	2000 m^3	5% or 100 m^3	12 hours (BP < 180 °C)	6.0%	*Diesel Fuel Oil (Southern USA 1). API of 37.2*
				24 hours (180 °C < BP < 265 °C)	34.6%	
				Several days (265 °C < BP < 380 °C)	54.4%	

[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.

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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]

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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]	
DEMIRS	[redacted]	

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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 is it 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		

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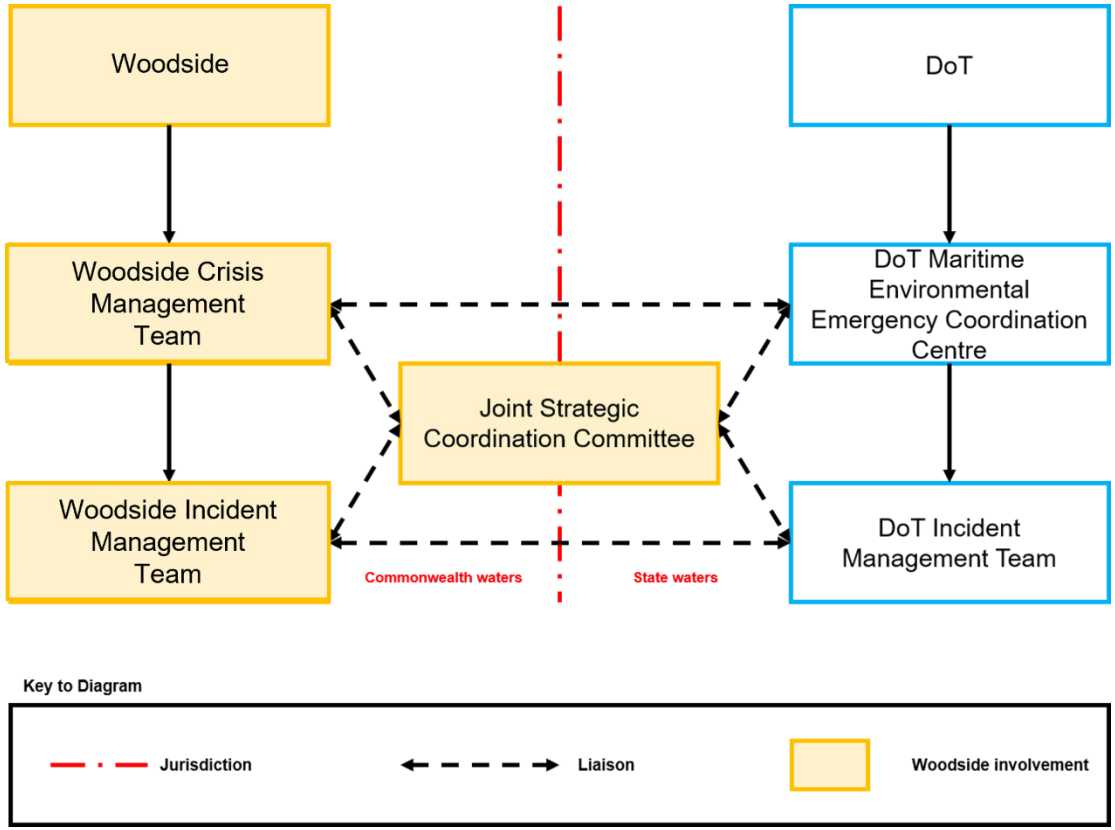
APPENDIX D – COORDINATION STRUCTURE FOR A CONCURRENT HYDROCARBON SPILL IN BOTH COMMONWEALTH AND STATE WATERS/ SHORELINES[3]



The Control Agency for a hydrocarbon spill in Commonwealth waters resulting from an offshore petroleum activity is Woodside (the Petroleum Titleholder).

The Control Agency/HMA for a hydrocarbon spill in State waters/shorelines resulting from an offshore petroleum activity is DoT. DoT will appoint an IC and form a separate IMT to only manage the spill within State waters/shorelines.

[3] 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.

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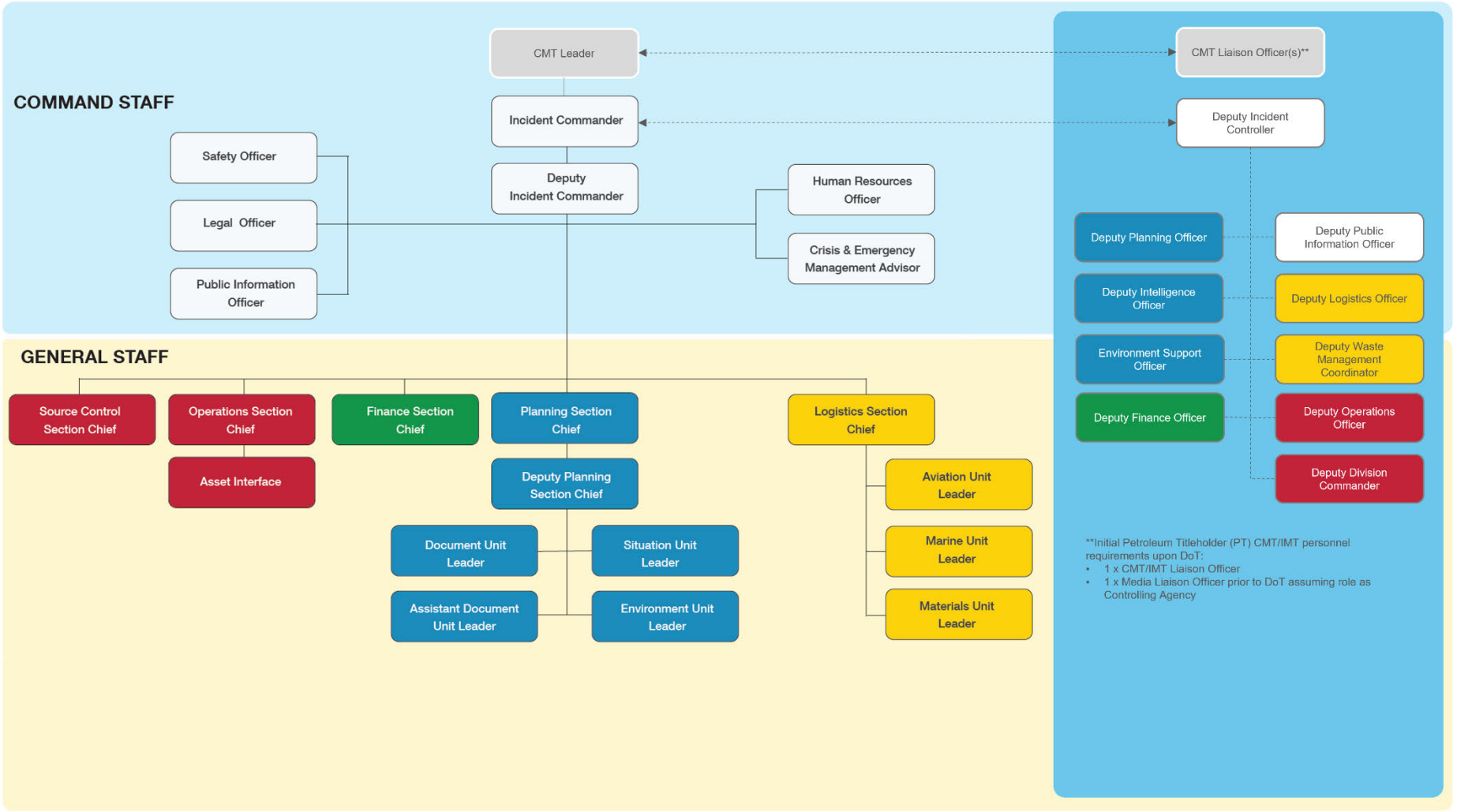
APPENDIX E – WOODSIDE INCIDENT MANAGEMENT STRUCTURE

Woodside Incident Management Structure for Hydrocarbon Spill (including Woodside Liaison Officers Command Structure within DoT IMT if required).



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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	Role	Woodside personnel[4]	Key Duties	#
DoT Maritime Environmental Emergency Coordination Centre (MEECC)	CMT Liaison Officer	CIMT Liaison	• Provide a direct liaison between the CMT and the MEECC. • Facilitate effective communications and coordination between the CIMT Leader and State Marine Pollution Coordinator (SMPC). • Offer advice to SMPC on matters pertaining to PT crisis management policies and procedures.	1
DoT IMT Incident Control	Deputy Incident Controller	Deputy Incident Commander (Deputy IC)	• 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	Deputy Intelligence Officer	Situation Unit Leader (Intelligence)	• 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.	1

[4] *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 roster arrangements, contact the WCC. During a prolonged response, additional personnel may be sourced through internal resourcing and mutual Aid agreements such as the AMOSC Core Group via* [redacted]

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Area	Role	Woodside personnel[4]	Key Duties	#
			• Facilitate the provision of relevant mapping from the PT IMT. • 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	Deputy Environment Unit Leader	• 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	Deputy Planning Section Chief	• 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	Deputy Public Information Officer	Deputy Public Information Officer	• 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.	1

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Area	Role	Woodside personnel[4]	Key Duties	#
			• 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. • 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	Deputy Logistics Section Chief	• 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	Deputy Finance Section Chief	• 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	Deputy Operations Section Chief	• 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.	1

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Area	Role	Woodside personnel[4]	Key Duties	#
			• Identify efficiencies and assist to resolve potential conflicts around resource allocation and simultaneous operations of PT and DoT response efforts.	
DoT IMT Operations – Waste Management	Deputy Waste Management Coordinator	Deputy Waste Coordinator (Materials)	• 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 Division Commander	FOB Deputy Incident Commander	• 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	11

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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	#
Woodside CIMT	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
Woodside CIMT 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

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